UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

October 20, 2015

Sarah Clem
ADEQ Branch Manager
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Environmental Protection Agency comments on the Proposed 3rd party rule by the Southwestern Electric Power Company John W. Turk, Jr. Power Plant (SWEPCO facility)

Dear Ms. Clem:

The Arkansas Pollution Control and Ecology Commission (APC&EC) held a public hearing on November 17, 2014, to receive comments on a third-party proposal by the Southwestern Electric Power Company John W. Turk, Jr. Power Plant (Turk/SWEPCO) regarding water quality standards changes to APC&EC Regulation 2. The proposed amendments to Regulation 2 include a modification of the Total Dissolved Solids (TDS) water quality criterion and temperature criterion for the Little River from Millwood Lake to the mouth of the Little River, and modification of the TDS water quality criterion and removal of the designated, but not existing, domestic water supply use for the Red River from the mouth of the Little River to the Arkansas/Louisiana state line. The Environmental Protection Agency Region 6 (EPA) would like to offer the following general and enclosed more detailed comments for the Arkansas Department of Environmental Quality's (ADEQ) consideration.

We are concerned that the supporting use attainability analysis (UAA) did not provide a clear basis to support the contention that only naturally occurring sources of TDS are causing the impairment in the Little River. We acknowledge that there are predominately natural and anthropogenic sources of minerals/TDS introduced into the Red River through Texas and Oklahoma as described in the supporting UAA. These sources are some 200 miles upstream of confluence of the Little River. Further, the UAA did not provide information on additional sources of minerals or sources of dilution in Arkansas that may influence conditions in the Red River. Although there may be some basis to support a revised TDS criterion below the confluence with the Little River to some point downstream, given that the designated fishery use is being attained in the Red River, a revised criterion from the confluence of the Little River to the Arkansas/Louisiana line does not appear to be clearly supported.

EPA appreciates the opportunity to comment on the proposed 3rd party proposal. If you have any questions, please contact me at (214) 665-6646.

Sincerely,

Russell Nelson
Regional Standards Coordinator
Watershed Management Section

Enclosure

Technical Comments on:

Exhibit F
Use Attainability Analysis
For Dissolved Minerals in Little and Red Rivers
Hempstead and Little River Counties, Arkansas (September 5, 2014)

Southwestern Electric Power Company, Inc, Dallas, TX
NPDES No. AR0051136

UAA Prepared by
FTN Associates, Ltd., Little Rock, Arkansas

These comments are being provided to the Arkansas Department of Environmental Quality (ADEQ) for the document titled *Use Attainability Analysis for Dissolved Minerals in Little and Red Rivers, Hempstead and Little River Counties, Arkansas*. This use attainability analysis (UAA) is intended support the modification of Arkansas water quality standards (designated uses and water quality criteria), to remove the domestic water supply use in the Red River and establishment of site-specific criteria for total dissolved solids (TDS) in both the Red and Little Rivers, within the Gulf Coastal ecoregion.

<u>Technical Comments</u>

Executive Summary

ES.7 Proposed TDS Criteria Little River

Page xi:
The proposed TDS criterion for the Little River below Millwood Lake is based on a weight-of-evidence approach utilizing a mass balance model. The document states that a mass balance was prepared that would reflect naturally occurring elevated TDS concentrations in the Little River. The document refers to TDS data collected upstream of SWEPCO by FTN and SWEPCO during October 2010 through October 2013 that showed that the current site-specific TDS criterion 100 mg/L criterion was exceeded approximately 10% of the time. The authors conclude that a TDS criterion of 136.1 mg/L would be necessary in the Little River to reflect the naturally occurring mineral regime and to allow SWEPCO to operate efficiently.

It's unclear what the basis for presuming that only naturally occurring sources of TDS result in the 10% exceedance rate. Later, the document refers to input from the Little River itself above Millwood Lake and from Mine Creek, noting that inputs from the latter are significantly higher per volume than other tributaries to Millwood Lake. The name Mine Creek alone suggests that this creek is a likely source of anthropogenic. Given the mass balance budget described in Table J.1 describes the background in the Little River as 98 mg/L and the SWEPCO discharge as contributing 1620 mg/L, it is unclear how a presumption that the inputs to the Little River are anthropogenic. This tends to undermine the validity of the mass balance and any conclusions that may be drawn from it.

Differentiating between natural background and anthropogenic sources causing exceedances is important. As articulated in Tudor Davies 1997 policy memo, the water quality standards regulation at 40 CFR 131.11 (b)(I) requires States and authorized Tribes to adopt numeric water quality criteria that are based on section 304(a) criteria, section 304(a) criteria modified to reflect site-specific conditions, or other scientifically defensible methods.

In summarizing the aquatic life evaluation, the document indicates that the aquatic life composition of the current fish community below Millwood dam is a subset of what would be expected given available habitat. What is described here represent a snapshot of what is likely impacted and/or degraded conditions in the Little River. While document current conditions is an important, the objective of a UAA should be determining what the highest attainable use that can be attained. The objective of a UAA is to determine what the highest attainable use the waters of interest can support. 40 CFR 131.10(d) requires at a minimum, that uses be deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control.

1.0 Introduction

1.1 Background and Overview

Page 1-1:
The discussion here appears to be suggest that the (predominate) natural (and anthropogenic) mineral and TDS sources from TX and OK are not adequately accounted for and result in exceedances of AR's 500 mg/L criterion in the lower segment of the Red River below the confluence of the Little River to the AR-LA state line. Since there is certainly some dilution in the Red River as it moves to the confluence with the Little River and on downstream, it will be critical to provide clear support that these predominately natural upstream in TX and OK, and those in AR contribute to an inability to attain the current 500 mg/L criterion in the lower segment. The spatial inconsistence identified in and of themselves are not a basis for modifying criteria.

Page 1-1 and 1-3:
In describing this permit as not typical, the authors are referring to ADEQ's use of the 500 mg/L TDS criterion that applies to the Red River as an "end of pipe" value rather than the 100 mg/L TDS criterion that applies to the Little River. Based on the fact sheet, it appears that ADEQ based 500 mg/L TDS criterion in the SWEPCO permit on the applicable criterion in the Red River to ensure that the discharge would not contribute to the impairment of the Red River because it is on the state's most recent EPA approved 303(d) list for exceedances of chloride, sulfate and TDS.

Region 6 permitting staff have suggested that if the 100 mg/L TDS criterion applicable to the Little River were applied, when dilution and mixing are considered, a limit of 3800 mg/L would be possible and would be protective of the designated fishery use in both the Little River and the Red River.

Page 1-4 Table 1.2:
The increase for both median and 95th percentile concentrations of TDS from the historical data the more recent data collected by SWEPCO suggest that the concentrations are the result of something other than "naturally occurring exceedences" as suggested in the next paragraph.

Page 1-5:
The authors refer to little to no assimilative capacity for TDS in the Little River at times (absent the SWEPCO facility's discharge) as a result of "naturally occurring exceedances" of the current site-specific 100 mg/L TDS criterion occurring "upstream" of the SWEPCO discharge, refers to more in depth discussed in Sections 3.0 and 5.0. However, there is very little discussion of possible upstream naturally occurring" sources for the Little River in these sections. The only sources for the Little River discussed in the document to any degree are tributaries to Millwood Lake, particularly Mine Creek. Although Mine Creek is identified as the most significant contributor of minerals to Millwood Lake and downstream to the Little River, there is no information concerning possible mining impacts to that creek. As a result, the basis for attributing a lack of assimilative capacity and a 10% exceedance rate for the current 100 mg/L TDS criterion in the Little River to naturally occurring sources has not been established. What are these natural sources of high TDS - Mine Creek? And are they natural or anthropogenic?

2.0 Background

2.3 Existing Water Quality and Impairments

2.3.1 Little River

2.3.1.1 TDS Sources to the Little River

This section includes an evaluation of existing data from tributaries upstream of Millwood Lake to identify potential recent sources of TDS that might explain the increased TDS values in samples collected from the Little River downstream of the dam on Millwood Lake. The major tributaries of Millwood Lake include the Little River, Cossatot River, Saline River, and Mine Creek (Figure 1.1). Table 2.2 identifies the major tributaries to Millwood Lake, including the Cossatot River, Saline River and Mine Creek and summaries of their TDS contribution. Although Mine Creek only contributes 2% of the inflow, the TDS concentrations are significantly higher than the other streams.

There is some inconsistency between Tables 1.1 and 1.2 presenting USGS data from 1967-1995 and SWEPCO data from 2010-2013 (although it's not clear what sites the SWEPCO data came from) that show an increase in TDS concentrations over time. The time-series plots of TDS data from these ADEQ monitoring stations on the tributaries upstream of Millwood Lake identified in Figures 2.1 through 2.4 that show no clear evidence of significant changes in TDS levels in any of the streams, yet the authors report an increase in TDS concentration downstream of Millwood Lake.

2.3.1.2 Water Quality Impairments for Minerals in the Little River

The authors indicate that ADEQ does not considers the Little River downstream of Millwood Lake to be impaired and have not included it on any 303(d) list. Further, the document notes that this stream is classified by ADEQ as "unassessed" due to a lack of data for water quality (including minerals). It is important to note that "unassessed" simply means that there is no data and does not necessarily mean that the Little River is either impaired or unimpaired. That lack of data may be why neither ADEQ nor EPA have included the Little River on the state's 303(d) list.

2.3.2 Red River
2.3.2.1 TDS Sources to the Red River in Arkansas
2.3.2.2 TDS Sources to the Upper Red River (Oklahoma, Texas)

Pages 2-5 to 2-8:
Much of the literature cited in the Executive Summary and in these sections is dated, relying on several sources from a time period when oil production was high with minimal environmental regulation. Despite those issues, it is reasonable to say that there are significant natural as well as anthropogenic sources of minerals in the Red River and its tributaries.

While the more current information tends to show that the predominant mineral sources to the Red River are likely natural, despite remediation efforts by the US Army Corps of Engineers (USACE), it is likely that brine disposal and intrusions from oil production into the Little Wichita and other sites are sources that affect the Red River in Texas, Oklahoma and contribute to the loading to a lesser extent in Arkansas. Sources of information for oil and gas production and remediation should be available from the Texas Railroad Commission and the Oklahoma Corporation Commission.

Not having, or possibly not being able to provide any information to support historical oil extraction impacts and their contribution to minerals/TDS concentrations significantly weakens the claim that the "overwhelming portion" historical of the TDS inputs to the system are from natural sources.

2.3.2.3 Water Quality Impairments for Minerals in the Red River

Page 2-9:
The authors note that upstream criteria for the Red River in Texas and Oklahoma reflect the elevated ambient mineral concentrations that are due to inputs from salt springs and seeps from the arid and semi-arid headwater regions. This is generally true, given salt springs are found as far west as the High Plains and Tableland Level II ecoregions. Although less predominate, there also anthropogenic and natural inputs from the Central Plains, Crosstimbers, Blackland Prairie and East and South Central Plains ecoregions.

It is important for Arkansas to recognize that an upstream state can establish uses and criteria in their waters as appropriate. 40 CFR 131.10(b) requires that those states take the downstream state's standards. Recent court decisions have affirmed EPA's ability to look at downstream waters to ensure protection.

This section also discusses assessment procedures used by states that share jurisdiction over portions of the Red River. Referring to Table 2.6, which compares criteria for minerals and impairments identified on state 303(d) lists, which shows that the Red River is not considered to be impaired upstream in Oklahoma and Texas or downstream in Louisiana. The authors state that this is partly due to different assessment procedures that are used in other states, suggesting that these states use less protective exceedance rates. As an example, the authors note that Louisiana does not consider a stream to be impaired for dissolved minerals unless 30% of the observed data exceed the water quality standard compared to Arkansas' 10% exceedance rate. The authors also state that Oklahoma and Texas also use less-stringent assessment procedures for dissolved minerals than Arkansas, and also state that the criteria in their water quality standards are less stringent than the criteria in Arkansas's standards. However, the authors have not explained how these approaches are any less protective than those used by Arkansas.

It is important to understand that simply comparison of exceedance percentages used in assessing use attainment does not tell the entire story. Assessing attainment includes defining the water quality indicators it measures and the procedures for analyzing and interpreting data in order to decide whether standards are met or water quality is impaired. This should include collection and analysis of multiple types of data providing information relevant to assessing attainment with approved WQS. As a result, a comparison of Louisiana's current use of a 30% exceedance rate to Arkansas 10% is not necessarily appropriate, although it should be noted that Region 6 is working with Louisiana to revise its approach. Oklahoma compares the mean of all values to a yearly mean standard, then looks for greater than 10% exceedances against a sample standard. In Texas, minerals criteria represent annual averages of all values that were collected and compared to the criterion for each parameter. Use attainment is based on the average concentration that applies to the entire length or area of the segment. For TDS, a value is calculated by multiplying specific conductance measured at the surface by a factor of 0.65. The chloride, sulfate, and TDS criteria are not supported if the average value exceeds the criteria.

The authors also state that Oklahoma and Texas water quality standards as less stringent than the criteria in Arkansas. Given the natural saline seeps and historical oil extraction activity along the Red River that this document discussed previously, higher criteria would be expected upstream in Texas and Oklahoma. The burden for SWEPCO is to show that predominately natural sources upstream in Oklahoma and Texas upstream as distant as Lake Texoma and/or that natural sources in Arkansas itself alter concentrations in the lower segment of the Red River to support the proposed criteria modifications.

Page 2-10:
In a discussion of Table 2 describing applicable criteria and 303(d) listings, the authors refer to ADEQ's practice in recent years of making specific permitting decisions and calculations based on the state's most recent 303(d) list that has been approved by EPA. This approach means that ADEQ is applying the 500 mg/L TDS criterion that applies to the Red River below its confluence with the Little River as an end-of-pipe limit rather than the 100 mg/L criterion that applies to the Little River which is the receiving water for the Turk/SWEPCO discharge.

Based on the NPDES permit fact sheet, applying the 100 mg/L TDS criterion that applies to the Little River, when dilution and mixing is considered, a limit of up to 3800 mg/l would be possible and still meet the in-stream criterion of 100 mg/L which would protect beneficial uses in the Little River and downstream. However, applying the 500 mg/L TDS criterion as an end-of-pipe limit results in a more restrictive permit limit. Without any information to the contrary, the effect of ADEQ's approach does not appears to have a significant environmental benefit for either the Little River or Red River, but appears to have the opposite effect. While applying 500 mg/L TDS criterion as an end-of-pipe limit may result in a small reduction in overall loads, the more restrictive limit reportedly requires the facility to operate at less than optimum efficiency. Thus ADEQ's approach appears to be the primary driver for Turk/SWEPCO to seek revised criteria for the Red River, which may be a less desirable environmental outcome.

2.4 Threatened and Endangered Species

2.4.1 Threatened and Endangered Aquatic Species

Page 2-12:
This section of the document discusses several endangered species listed by the US Fish and Wildlife Service (USFWS) including the Ouachita rock pocketbook *(Arkansia wheeleri)*, which is federally listed throughout its range in Arkansas and Oklahoma. The document reports that there have been no live *A. wheeleri* collected from just above or below the Turk/SWEPCO discharge. Their absence indicates that the Turk/SWEPCO discharge is having an effect on water quality and the presence of *A. wheeleri*. Although the physical characteristics and inputs to Millwood Lake may affect the ability of the Little River to support *A. wheeleri*, an important aspect of a UAA is to not only to identify current conditions. The document does not provide any discussion of whether minerals/TDS or other stressors may be affecting or limiting the presence of *A. wheeleri* in this portion of the Little River.

The authors also note that the USFWS recently listed the rabbitsfoot mussel *(Quadrula cylindrica cylindrica)* as threatened (Federal Register 2013). That species is known from some streams in southwest Arkansas, including the Little River upstream of Millwood Lake. This species not been documented in the Little River downstream of Millwood Lake or the Red River. The rabbitsfoot is likely limited by the physical characteristics Millwood Lake and its effect on the Little River, as well as the Turk/SWEPCO discharge.

3.0 FIELD SURVEY

3.1 Overview

Page 3-1:
Rather than relying on biological evaluations in a upstream versus downstream comparison from a point source discharge and a comparison of communities in reference and receiving streams, the approach for field surveys is attempting to show that characteristics in Millwood Lake and at the Denison dam dominate the mineral regime in the Little and Red Rivers rather than the Turk/SWEPCO discharge.

There are sources of minerals above Millwood dam, primarily the Little River and Mine Creek upstream of Millwood Lake and there are certainly significant natural and anthropogenic sources of mineral in the upper reaches of the Red River in Texas and Oklahoma. The burden for Arkansas is to clearly show that the sources above Millwood dam are at least predominantly anthropogenic. Similarly, Arkansas must be able to make a reasonable showing that the predominately natural and some anthropogenic sources some 200 miles upstream have a significant effect on water quality in the Red River as far downstream as its confluence of the Little River and show that there are no natural or anthropogenic sources from the TX-AR line to the confluence.

If the Turk/SWEPCO discharge is not contributing to the potential exceedances in the Little River or potentially impacting the Red River, the important question as to whether the facility is seeking to revise the criteria in the Little River and the Red River because the criteria are inappropriate or because of ADEQ's policy decision to applying a criterion as an end-of-pipe limit rather than basing it on applicable criteria considering dilution and mixing in the receiving water.

3.4.1.2 Macroinvertebrate Data Analysis

Page 3-10:
In discussions of field observations the authors indicated an attempt was made to assess the susceptibility of the existing benthic macro invertebrate community to a slight increase in TDS. Tolerance indicator values (TIVs) for specific conductance for various invertebrate taxa provided in Carlisle et al. 2007 were reviewed. However, the authors note that too few of the taxa listed in Carlisle et al. 2007 were present in the data set for this study to allow for a meaningful evaluation of ion tolerance. Accordingly, the benthic data presented herein provide a description of the presently attained fisheries use and a baseline for future studies.

It should be noted that small increases in TDS alone may have minimal effect on the existing benthic community however, TDS is rarely seen independent of other stressors. In a quick search, a number of sources were identified that discuss the effect TDS has on Appalachian streams. For example, Timpano et al. (2010), in discussing the effects of TDS in coalfield streams. As a way of isolating the effects, Timpano et al. used headwater streams to represent a gradient where confounding factors could be minimized. This and other similar papers done in Appalachian could have been used to inform this aspect of the analysis. One of the problems with the approach take here is a lack of reference stream comparisons.

3.4.2.2 Fish Data Analysis

Page 3-11:
Fish data were first assessed to determine if there were impacts due to the Turk/SWEPCO discharge "under current conditions" by evaluating differences in total species richness, relative abundance, diversity, and similarity measures between upstream and downstream reaches.

Although unclear, it appears that "under current conditions" likely means under limits specified in the current NPDES, which as noted earlier, are based on a monthly average of 500 mg/l TDS applying Red River Criteria end-of-pipe. This end of pipe value equates to an instream waste concentration of 43 mg/L. As noted earlier, if ADEQ were to base the Turk/SWEPCO permit on the Little River instream standard of 100 mg/L, once dilution and mixing is allowed, this would result in an allowable end-of-pipe discharge of up to 3800 mg/l to still meet the instream waste concentration of 100 mg/L. These conditions should be modeled and presented as a comparison rather than solely those based on ADEQ's current approach of basing permits on past 303(d) listings. Without this, there is some question to the validity to the findings here and in other aspects of this proposal.

3.4.4 Discussion and Conclusions

Page 3-22:
The authors note that the evaluation of the fish community demonstrated similar fish communities upstream and downstream of the Turk/SWEPCO discharge in the Little River. The combined collections from their study and USGS sampling during 2009 and 2013 provide evidence that the designated fisheries use in the Little River is currently attained under the existing mineral conditions.

Further, the document reports that an evaluation of the mineral tolerances of the existing fish community indicate a fish community that can be expected to be relatively insensitive to moderate changes in TDS (as indicated by specific conductance). The UAA notes that fish species that were classified as intolerant to TDS or for which data in Meador and Carlisle (2007) were lacking can be shown to be present in the Red River, which has substantially higher TDS than will be experienced in the Little River due to the operation of the Turk/SWEPCO plant. The conclusion drawn is that the anticipated increase in TDS due to the operation of the Turk/SWEPCO plant will support the designated fisheries use in the Little River downstream of the Millwood Lake dam.

The question these conclusion raise is even if the designated fisheries use in the Little River would potentially be maintained with the proposed increase in TDS criterion to 138 mg/L, why is it necessary if that use is being attained at the current 100 mg/L criterion? The answer seems to go back to Turk/SWEPCO's desire to operate at maximum efficiency. Under current conditions, the facilities efficiency appears to only be affected by ADEQ's approach in using limits based on the 500 mg/L criterion for the Red River as an end-of-pipe value. As noted previously, given that the Turk/SWEPCO discharge appears to have a negligible effect on the Red River, if ADEQ were to use existing criteria and allow for mixing and dilution in the Little River, there would be no need for this proposal.

3.5 Fisheries Evaluation in the Red River

Page 3-24:
The objective of this evaluation was to determine whether the existing mineral regime supports the designated fisheries use as indicated by fish populations. The approach relied on the historical record of mineral concentrations in the Red River from ADEQ monitoring stations RED0025, RED0046, and RED0045 and the use of a sampling survey and historical data review

of fish populations in the Arkansas portion of the Red River conducted by Buchanan et al. (2003). The intent was to characterize the existing fish communities and evaluate whether those existing communities are supported by the existing mineral regime, thus indicating attainment of the fisheries designated use.

Although the Buchanan et al. (2003) data suggest that mineral conditions during 1995 and 2001 supported a high fisheries use attainment, it is somewhat problematic to rely on data that represents a single snapshot in time from 14 years ago. The authors draw the conclusion that since the Red River was meeting designated uses during the Buchanan et al. study and that because TDS data from the post-study period (2002 through 2013) indicate that mineral concentrations where generally higher during the time frame of the Buchanan et al. study, that fisheries beneficial uses are likely currently being attained. While the post-study period (2002 through 2013) TDS data gives an indication that uses are currently being attained, it does not provide the same level of confidence as current field data would. Showing that broadly written designated aquatic life uses can be supported under the existing mineral regime isn't necessarily a high bar given how broadly beneficial use definitions tend to be written. Determining attainment tends to depend on the individual state's assessment methodologies rather than the use definition.

3.6 Biological Evaluation: Summary and Conclusions
3.6.1 Little River
3.6.2 Red River

Page 3-25:
The evaluation of the biological data demonstrated similar fish and communities upstream and downstream of the Turk/SWEPCO facility. The authors conclude that these finding reported suggest that the designated fisheries use is being attained that that the projected mineral concentration - presumably the proposed 138 mg/L TDS criterion will not be adversely affect attainment of the fisheries use.

Although the data indicate that the designated fisheries use is currently being attained, the document does not provide compelling information to support the contention that the proposed 138 mg/L TDS criterion will not adversely affect attainment. Further, concerns with impacts to benthic macroinvertebrate communities downstream of the discharge at the current criterion have been identified in previous comments.

4.0 TOXICITY ANALYSIS
4.1 Evaluation of Routine WET Testing

Page 4-1:
The recurring concern here is that the conditions simulated for toxicity analysis are reflective of current permit conditions, not what would likely be the conditions if the Red River was not listed.

More specifically, section 4.1 reports that a review of NPDES DMRs from what is likely the current permit (from November 1, 2012) indicate no episodes of sub-lethal toxicity for *C. dubia* and *P. promaleas*. Since the current permit is based on 500 mg/L as an end-of-pipe limit, sub-lethal effects would not be expected. The question is, how C. dubia and *P. promaleas* would respond under conditions that would be expected if a limit of up to 3800 mg/L was in place for the facility as it may be once the current 303(d) listing in the Red River is resolved.

Relying on DMRs that are not reflective of what conditions will likely be long-term in the Little River and downstream in the Red River could be considered misleading.

4.2.3 Conclusions

Page 4-5:
The authors state that calculated IC25 values (1,744 mg/L for TDS; 232 mg/L for sulfate; and 600 mg/L for chloride) indicate that toxicity due to minerals in WET testing would not be expected at the critical dilution (26%) until effluent TDS values reached approximately 6,976 mg/L. And that these results indicate that the threshold for toxicity due to minerals (as TDS, sulfate, and chloride) is well above anticipated mineral concentrations at the critical dilution of 26%. Accordingly, their conclusion is that there is a large margin of safety associated with mineral discharges from the plant with respect to compliance with NPDES WET testing.

It is unclear what the basis for the statement that toxicity due to minerals would not be expected until TDS values reach approximately 6,976 mg/L. Although the IC25 may be considered functionally equivalent to a NOEC by definition, it represents a 25% reduction in the rate of survival, growth or reproduction among test organisms. Further, Table 4.2 indicates that average concentrations of 6,000 mg/L cause 100% lethality.

5.0 MASS BALANCE MODELING
5.2 Critical Flow Conditions

Page 5-1:
Instream TDS concentrations in the Red River were modeled for two critical flow conditions. The authors note that calculations and model results for 7Q10 flow conditions were used to develop proposed criteria for the Little River, and for the Red River between the Little River and the AR-LA state line. The results for harmonic mean flow conditions were used to confirm that the proposed criteria in Arkansas will still allow the Louisiana criterion for TDS in the Red River (780 mg/L) to be maintained.

It's important that ADEQ be aware that the State of Louisiana is currently reviewing its mineral criteria. It is EPA's understanding that water quality data taken in the Red River near Shreveport, between 1991 and 2014 indicate that TDS concentrations of 780 mg/L are just above the 90th percentile. This may mean that it if the Arkansas' proposed criteria are adopted, there is a significant likelihood of TDS impairments in the downstream segment of the Red River in Louisiana.

It is important to note that 40 CFR 131.10(b) requires states to consider the water quality standards of downstream states when revising their criteria.

5.5 Model Results for 7Q10 Conditions

Page 5-7:
Neither the RED0046 data nor the RED0009 data were considered to be a good representation of well-mixed concentrations in the Red River by the authors. Both the RED0046 station and the RED0009 station are located where the Red River does not appear to be laterally well-mixed because of significant tributary inflows a short distance upstream of each station.

The discussion explains that because of the location of the sampling sites for both RED0046 and RED0009, the data are likely measuring a disproportionate percentage of tributary water that has not mixed completely with the entire flow of the Red River. The authors contend that both tributaries (especially the Little River) contribute water that typically has TDS concentrations much lower than concentrations in the Red River. Because these two stations appear to be underestimating the TDS concentrations in the Red River and should not be used for comparison with predicted TDS values from the mass balance modeling, presumably because their inclusion could result in an underestimation the TDS concentrations in the Red River as compared to predicted TDS values from the mass balance modeling.

While it is possible that the inflow from the Little River at (RED0046) and the Sulphur River at (RED0009) may not be well-mixed, the problem with leaving them out is that it will likely mean an underestimation of TDS concentrations to the Red River, particularly in the lower reach near the LA state line.

It is unclear how the segment reaches in Table 5.4 compare spatially to the long-term sampling sites.

5.6 Model Results for Harmonic Mean Conditions

Page 9:
The authors explain that the reason for simulating harmonic mean conditions was to confirm that proposed TDS criteria for the Red River in Arkansas would allow the Louisiana criterion for TDS in the Red River to be maintained under critical conditions. The harmonic mean simulation presented predicts that the TDS concentration at the AR-LA state line will be 661 mg/L, which is well below the Louisiana criterion for TDS in the Red River (780 mg/L). The conclusion is that the proposed criteria based on the mass balance modeling will be protective of the Louisiana criterion for TDS.

However, the harmonic mean simulation used the same input TDS concentrations as the 7Q10 simulation. As noted in the previous section, the exclusion of inflow from the Little River at (RED0046) and the Sulphur River at (RED0009) my mean an underestimation of TDS concentrations in the Red River, resulting in potential impairment of the current 780 mg/L TDS criterion that applies at the LA state line. As noted in comments on section 5.5, it is EPA's understanding that water quality data taken in the Red River near Shreveport, between 1991 and

2014 indicate that TDS concentrations of 780 mg/L are just above the 90th percentile. The 780 mg/L value is likely to go down.

It would be advisable to consider what potential effect lower criteria in the Red River at the AR/LA state line may have on the predicted TDS criterion of 661 mg/L if LA revises its criteria down.

6.0 DESIGNATED USES

6.2 Red River

6.2.2 Domestic Water Supply

Page 6-4:
The domestic water supply use for the reach of the Red River between the OK-AR state line and the Little River confluence has previously been removed. The authors provide data that indicate that the reach of the Red River from the Little River confluence to the AR-LA state line can also be expected to exceed secondary drinking water standards due to the same factors. Figure 6.1 shows that the Red River TDS concentrations at Fulton (downstream of the mouth of the Little River) frequently exceeded the secondary drinking water standard of 500 mg/L during the period of record. The authors also noted that both the Arkansas Department of Health and the Arkansas Natural Resource Commission to confirm that the stream is not used as an existing domestic water supply. Their conclusion is that the domestic water supply use is neither an existing nor attainable use in the Red River downstream of the mouth of the Little River.

Although it is within Arkansas' authority to remove the domestic water supply use for the segment of the Red River below the confluence with the Little River to the LA state line, AR must consider the downstream state standards and ensure that its action would not affect domestic water supply/drinking water uses in Louisiana. See 40 CFR 131.10(b).

7.0 ALTERNATIVES EVALUATION

Page 7-1:
Arkansas' UAA guidance and CPP require that a petition to increase dissolved minerals concentrations above existing conditions must include an evaluation of alternatives to the direct discharge of the water. Four alternatives that have been reviewed including:

1. Distillation treatment,
2. Treatment using a constructed wetland,
3. Pumping the wastewater to a larger stream that holds the potential for dilution of the minerals, and
4. Reverse osmosis (RO) treatment of the wastewater.

From the outset, the use of constructed wetlands was dismissed as an option for this facility. The authors based this exclusion on the argument that constructed wetlands can only be used to reduce sulfate, which results in the production of bicarbonate in place of sulfate (Hedin et al.

1989). The authors do note that a constructed wetland could, in principle, reduce sulfate in the discharge from this facility, the resulting TDS concentration would not be decreased (due to the replacement of the sulfate ions with bicarbonate ions), but argue that no net benefit would be obtained, stressing that TDS is the only concern for this evaluation.

The premise in rejecting a constructed wetland appears to be based on the premise that a constructed wetlands would only reduce sulfate to bicarbonate, which would not provide a net reduction in TDS. Looking at the Hedin et al. paper, it is specific to the treatment of acid mine drainage, not the type of discharge that would result from blow down cooling water from a power plant. The paper does indicate that with an increase in sulfate reduction, bicarbonate alkalinity will be produced and pH will increase, but it does not say that sulfate is directly reduced to bicarbonate. In treatment of acid mine drainage, sulfate would primarily be reduced to sulfite and tend to react with available metal to form sulfide precipitates. The Hedin paper refers to bacterial production of bicarbonate formation, particularly in anoxic limestone drains, but does not refer to the reduction of sulfate to bicarbonate. Which is not unexpected since as noted earlier, the paper is looking at treatment of acid mine drainage, not sulfate or other TDS constituents in particular. Given this, EPA considers a constructed wetland to be a viable and the preferred alternative to altering the applicable TDS criterion.

The authors contend that there are two alternatives for achieving compliance with the existing TDS criteria for the Little River and Red River:

1. RO treatment to remove or reduce dissolved minerals, and
2. Pumping the effluent to a larger river that holds the potential for dilution of the minerals.

In considering these options, the authors state that there is not a river in the vicinity that could be used as dilution to completely avoid a change in the water quality standards. Although the Red River has sufficient volume, it has a TDS criterion of 500 mg/L, the expected concentration of TDS in the effluent from this facility would not meet the Red River TDS criterion and would still require the completion of a UAA or the installation of partial RO treatment.

EPA considers ADEQ's use of TDS criteria applicable to the Red River, particularly the way the criterion has been applied as the emerging central element here. As noted in previous comments, ADEQ issued permit Turk/SWEPCO is operating under is based on the existing 500 mg/L TDS criterion for the Red River as end-of-pipe limits. The permit carries those limits because the receiving Red River segment was on the state's 2008 303(d) list. From a numeric perspective, ADEQ has issued the permit with a monthly average of 500 mg/l TDS end-of-pipe. This end-of-pipe value equates to an instream waste concentration of 43 mg/L. If ADEQ based the permit on the Little River instream standard of 100 mg/L, once dilution and mixing is allowed, the result is an allowable end-of-pipe discharge of up to 3800 mg/L TDS. While the end-of-pipe concentration is higher, this approach would meet the instream waste concentration based on the ecoregion-based 100 mg/L TDS while allowing the Turk/SWEPCO facility to operate efficiently.

EPA strongly recommends that rather than revise TDS criteria particularly for the Little River, in what appears to be an effort to avoid this permitting scenario, that this approach be considered.

7.1.2.2 Option 2: RO Treatment/Discharge to Little River at Future Effluent Limits

Page 7-9:
The authors anticipate that the TDS criterion in the Little River, and thus the effluent limitations in future NPDES permits for the SWEPCO plant, could be lowered to 100 mg/L. The conclusion drawn is that this would require that all of the effluent be treated through an RO system if it continues to be discharged to the Little River, in order to achieve an effluent limit of 100 mg/L For TDS.

However, as noted previously, the 100 mg/L criterion that applies to the Little River is not the same as a derived NPDES permit limit. The permit limit that would be derived from the 100 mg/L TDS criterion once dilution and mixing is allowed, would likely be an allowable end-of-pipe discharge of up to 3800 mg/L. Given that this concentration would allow the facility to meet the 100 mg/L TDS criterion in the Little River, there would be no need to consider RO.

7.3 Summary of Costs

Page 7-10:
The authors summarize the estimated costs of various treatment scenarios compared to the cost of direct discharge based on the proposed site-specific criteria in Table 7.1. The cost described here appear to be the potential cost associated with RO treatment of the entire volume of the Turk/SWEPCO discharge. It is unclear what volume of the discharge would need to be treated.

Technical Comments on:

EXHIBIT G
TECHNICAL JUSTIFICATION FOR A SITE-SPECIFIC TEMPERATURE CRITERION IN THE LITTLE RIVER, HEMPSTEAD & LITTLE RIVER COUNTIES, ARKANSAS

Technical Comments

1.0 INTRODUCTION
1.1 Background & Overview

Page 1-1:
This document states that the Turk/SWEPCO facility's National Pollutant Discharge Elimination System (NPDES) permit (No. AR0051136) includes a daily maximum temperature permit limit of 35 °C (95 °F). Given that Arkansas Reg. 2 specifies and the authors acknowledge that the applicable temperature limits for streams is 30°C (86°F), the basis for the maximum temperature limit of 35°C (95°F) in SWEPCO's current permit is unclear.

The document also notes that the Little River downstream of Millwood Lake has a lower temperature criterion than Millwood Lake and the Red River immediately downstream of the Little River. Both Millwood Lake and the Red River in Arkansas have a temperature criterion of 32 °C (89.6 °F) (APCEC 2011). Figure 1.2 is presented to illustrate the spatial inconsistency of the temperature criteria.

The document notes that Millwood Lake has a temperature criterion of 32°C (89.6°F), the Little River, downstream of Millwood Lake has a 30°C (86°F), and the Red River immediately downstream of the Little River has a temperature criterion of 32°C (89.6°F) (APCEC 2011) to illustrate the spatial inconsistency of the temperature criteria downstream of Millwood Lake. Spatial inconsistency has no bearing on toxic or conventional criteria that are protective of aquatic life uses (ALU) and is not a basis for altering applicable criteria. It is not unusual for temperatures in a reservoir to be higher than upstream and typically downstream lotic waters given the retention time and particularly the shallow depth of Millwood Lake.

Although we acknowledge that it may be difficult to manage the flow through a lake as shallow as Millwood given its design, relatively high retention time and higher tailwater race temperatures, but it's unclear how that would affect the entire length of the Little River or why the riparian cover downstream along the Little River could not be enhanced or restored.

Page 1-3:
The authors note that if the temperature criterion is not changed and the impairment status continues, the facility's NPDES permit limit for temperature at Outfall 001 would be reduced to the Little River instream criterion of 30°C (86°F) without the usual allowance for a mixing zone (i.e., using typical end-of-pipe calculations to develop permit limits for a thermal discharge). As such, the authors note that facility's operation would be adversely impacted by a temperature impairment designation in the Little River that may limit or prevent discharges during warm weather and reduce the efficiency of the facility's operation during other times of the year.

Does this mean that the decision was keeping the existing criteria in place versus operating efficiency (i.e., cost)? If so, the basis for the proposed amendment 40 CFR 131.10(g)(6), which requires an economic analysis to determine if SWEPCO can support upgrades to its process/facilities w/out substantial and widespread impacts.

Page 1-4:
The authors indicate that adjusting the temperature criterion for the Little River downstream of Millwood Lake is necessary to reflect current ambient conditions during the critical summer conditions and would result in NPDES temperature limitations that are appropriate and protective of the designated uses of the Little River. An important question is if current ambient conditions reflect the highest attainable condition given the requirements outlined in 40 CFR 131.10?

2.0 BACKGROUND
2.1 NPDES Permit

Page 2-1:
The document again refers to the Turk/SWEPCO discharge to the Little River under NPDES Permit No. AR0051136 and the effluent limitation for temperature of 35°C (95°F). As noted previously, it's unclear how this facility can have an NPDES permit that allows a 35°C (95°F) when the applicable temperature for streams is The 32°C (89.6°F). Is there a specific implementation procedure or mixing zone allowance?

2.2 Applicable Water Quality Standards

Page 2-2:
The authors suggest that the temperature regime of the Little River downstream of Millwood Lake has been altered as a result of physical hydrologic alteration of the system caused by the construction of Millwood Lake. The authors contend that Millwood Lake and its confluence with the Little River has a typical width between 200 and 400 feet with only a small portion of the channel being shaded by trees along the banks.

Based on images of the USACE dam, the Little River may be "200-400' wide" immediately below the dam as stated here, but appears to constrict below River Run Park and appears to be generally consistent with the average stream of reference streams in the Gulf Coastal Plain ecoregion. Without supporting information for multiple downstream locations on the Little River below the Millwood, this claim does not appear to be supported. Photographs, specifically aerial photos should be included in this proposal to support this claim.

2.3 Water Temperature Monitoring

Page 2-4:
Tables 2.4 and 2.5 presents summary statistics for water temperature data collected by SWEPCO from April to October 2012. These tables indicate that the Turk/SWEPCO discharge increases instream temperatures. With the exception of a higher maximum temperature reading upstream of SWEPCO, which may be a single event, the 95th percentile, percent daily max > 30°C and percent daily max > 32°C indicate that the facility adversely impacts temperature in the Little River.

Page 2-8:

The authors note that temperatures in the Little River during 2013 (Figures 2.3 and 2.4) appear very similar to those measured in Millwood Lake near the dam (Figure 2.5). They note that exceedances of the Little River temperature criterion occur at all of the Little River sampling locations, both upstream and downstream of the SWEPCO outfall, during 2012 and 2013 (Figures 2.2 through 2.4).

These figures generally show that there is an increase in temperature associated with the time of the year sampled. There is a clear correlation with ambient air temperature and water temperature, which among other factors can have a significant influence instream temperatures. This correlation is not considered here. The comparison to temperatures in Millwood Lake near the dam are of limited value since this lake is relatively shallow and retention times tend to be fairly high in most lakes.

In addition, the data reported in Fig. 2.8 which show a decrease in temperature from LR0 to LR00 does not appear to be consistent with the summary statistics presented for the same site in Table 2.4, which reports an increase of all and daily maximum data > 30°C.

Page 2-10:
Warming in a large shallow impoundment like Millwood is expected as it is in the immediate tail water area. However, it's unclear if this narrative is suggesting that temperatures in the Little River are the result of the Turk/SWEPCO discharge or continuing the claim that the river remains wide and unshaded further downstream. As noted earlier, a simple internet search produced maps and photographs that suggest that this is not the case downstream.

2.4 Evaluation of Little River Water Temperatures Upstream of SWEPCO Outfall 001

Page 2-10:
The discussion indicates that Table 2.5 provides an inventory of water temperature data collected in the Little River downstream of Millwood Lake and upstream of SWEPCO Outfall 001 that were used to evaluate the temperature criterion for the Little River. However, Table 2.5 also includes data from LR00, which is reported as 1 mile below SWEPCO Outfall 001.

Page 2-15:
A comparison of temperature statistics between the two FTN monitoring locations near the dam below Millwood Lake and the two locations farther downstream (near SWEPCO) indicate that that locations farther downstream have slightly higher temperatures during July through August and more exceedances of the 30 °C (86 °F) criterion (Tables 2.3 and 2.4).

This paragraph touches on the potential source affecting ambient temperatures in Millwood Lake and the Little River, but provide no details. The summary data, statistics and statements presented here do not appear to have considered that air temperature is highly correlated with the significant positive heat flux components including solar radiation and with stream water temperature. The correlation is supported by the USGS' Stream Segment Temperature Model (SSTEMP), which asserts that air temperature will usually be the single most important factor in determining mean daily water temperature.

The authors also note that ADEQ's (303(d)) assessment for 2014 was conducted using the SWEPCO 2012 and 2013 data and FTN 2013 data from this stream reach and that ADEQ's draft 2014 303(d) list includes a temperature impairment for the Little River downstream of Millwood Lake. Did SWEPCO and FTN use ADEQ monitoring stations to collect these data? Is there information to support the reported listing? While the assessment methodology used to determine impairment appears to be consistent with ADEQ methodology, it is unclear if 3rd party (SWEPCO and FTN) data be was used by ADEQ to support a 303(d) listing?

In instances where the temperature exceeds the criteria, it would likely result in a reduction in overall species richness and/or abundance because of excessive heat. Discussions of the macroinvertebrate and fish communities do not appear to show such effects.

2.5 Threatened and Endangered Species

2.5.1 Threatened and Endangered Aquatic Species

Page 2-18:
The document reports that there have been no live *A. wheeleri* collected from just above or below the Turk/SWEPCO discharge. Their absence indicates that the Turk/SWEPCO discharge is having an effect on water quality and the presence of *A. wheeleri*. Although the physical characteristics and inputs to Millwood Lake may affect the ability of the Little River to support *A. wheeleri*, an important aspect of a UAA is to not only to identify current conditions. The document does not provide any discussion of whether temperature or other stressors may be affecting or limiting the presence of *A. wheeleri* in this portion of the Little River.

Although the rabbitsfoot mussel *(Quadrula cylindrica cylindrica)* is known to occur in some streams in southwest Arkansas, including the Little River upstream of Millwood Lake, it has not been documented in the Little River downstream of the Lake to the Red River. The rabbitsfoot is likely limited by the physical characteristics Millwood Lake and its effect on the Little River, as well as the Turk/SWEPCO discharge.

3.0 BIOLOGICAL EVALUATION

3.1 Overview

3.4.3.2 Fish

Ecoregion Key and Indicator Species

The authors describe presence and absence of ecoregion key and indicator species per APCEC (20 11) which is summarized in Table 3.7. Of three key and indicator species expected to be present based on habitat preferences, one species was present in the pooled list. One species not expected to be present (redfin shiner) was present in the pooled list. The reported data is not specific as to site - is this a comparison of upstream/downstream of the SWEPCO discharge? The location of this sampling would be useful, as it would give some indication of whether the presence of only 25% of key and indicator species is the result of a generally degraded/impacted system, resulting from hydromodification and high ambient air temperatures driving water temperature, or exacerbated by temperature inputs from the SWEPCO facility.

3.4.4 Discussion and Conclusions

Page 3-22:
The authors observed that the strongly similar fish and benthic communities upstream and downstream of the discharge. The suggestion is that this finding indicates that the current operation of the discharge has negligible effect on the existing biological communities. Although relative abundance upstream/downstream showed reasonably good comparison at around 71%, the Meador and Carlisle (2007) data only showed 61% of the expected species are present and only 25% of the expected species for the Little River present in the pooled sample. It is unclear if this is the result of a degraded system or that the discharge has more than a negligible effect.

Page 3-23:
The discussion notes that ecoregion key and indicator species are generally not expected to be present in the reach of the Little River due to the habitat preferences of those species and that the low numbers of key and indicator species present in the pooled list (two species) is a reflection of this expectation. This statement appears to contradict Table 3.7, comparing expected key/indicator species in the Little River to what was present in the pooled list (25%).

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January 15, 2016

VIA ELECTRONIC DELIVERY & FIRST CLASS MAIL
Mr. William K. Honker
Director
Water Quality Protection Division
EPA Region 6, Mail Code 6WQ
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Re: Southwestern Electric Power Company Third Party Rulemaking Petition, APC&EC Docket No. 14-007-R (approved October 23, 2015); and Domtar A.W. LLC Inc. Third Party Rulemaking Petition, APC&EC Docket No. 14-008-R (approved Oct. 23, 2015)

Dear Bill:

On October 23, 2015, the Arkansas Pollution Control & Ecology Commission approved two third-party rulemaking petitions, one presented by SWEPCO and the other presented by Domtar. Three days before the Commission was scheduled to vote on final approval of the petitions, EPA sent ADEQ a 19 page set of comments on the SWEPCO petition. One day before the Commission final vote, EPA sent ADEQ a two page letter commenting on Domtar petition. I am writing this letter to transmit the SWEPCO's responses to EPA's comments on the SWEPCO petition, and to respond on behalf of Domtar to EPA's letter comment on the Domtar petition.

As you will recall from previous discussions, the SWEPCO and Domtar rulemaking petitions are closely related to one another. In fact, the Domtar petition specifically relies on the data submitted by SWEPCO and is expressly conditioned on approval of the changes requested in the SWEPCO petition. The two petitions sought the following changes in site specific water quality criteria in the Red River and the Little River downstream of Millwood Dam:

Changes Proposed in Domtar & SWEPCO 3rd Party Rulemaking Petitions

	Red River From AR/OK Line To Little River	Red River From Little River To LA line	Little River From Millwood Dam To Red River
Domtar Petition	TDS 850→**940** Sulfate 200→**250**	Sulfate 200→**225**	
SWEPCO Petition		TDS 500→**860** **Remove Domestic Water Supply Use**	TDS 100→**138** Temp. 30°C→**32°**

A map of the area involved is attached as Exhibit 1. A schematic map depicting the existing water quality criteria and the proposed changes is attached as Exhibit 2. A graphic depiction of the proposed changes to the Red River TDS and sulfate criteria is attached as Exhibit 3.

A substantial portion of EPA's comments regarding SWEPCO's petition involved questions about ADEQ's calculation of permit limits for SWEPCO. It is our understanding that ADEQ has separately addressed those concerns with EPA. SWEPCO's responses to the remainder of EPA's comments on the SWEPCO petition are attached as Exhibits 4 and 5.

The letter commenting on Domtar's petition briefly reviewed the principal information supporting the petition and concluded with a recommendation that a new bioassessment be undertaken to determine if the proposed criteria changes will be protective of aquatic life. We are concerned about this recommendation because it appears inconsistent with earlier discussions between EPA, ADEQ, and representatives of Domtar.

You will recall that on October 21, 2014, ADEQ Acting Director Ryan Benefield, Water Division Chief Ellen Carpenter, and representatives of Domtar met with you and members of your staff to discuss how much additional information, beyond that developed for the SWEPCO petition, would be needed to support the closely related criteria changes proposed by Domtar. I attended that meeting. It is my recollection the discussion ended with general agreement that only limited additional information, as proposed by ADEQ and Domtar, would be needed so long as the SWEPCO petition was adequately supported.

The week following the October 21st meeting Ryan Benefield sent you a summary rationale for the Domtar change that was consistent with the apparent agreement reached on October 21st. As I recall, in response to ADEQ's summary rationale some members of your staff initially seemed to reverse field regarding the extent of additional information that would be needed. It is my understanding you discussed this matter further with Ryan Benefield, and by an e-mail dated November 6, 2014 you confirmed to Ryan that if the SWEPCO criteria changes in the Red River were approvable and the Domtar segment of the Red River was similar to the SWEPCO one, EPA did not think additional study, beyond that contemplated by ADEQ's summary rationale would be required. Based on those assurances, Domtar finalized and filed its petition and proceeded through the rulemaking process.

Domtar is concerned that the comment letter EPA submitted the day before the Commission's final vote once again appears to reverse field. The main point of the letter, namely that a new bioassessment should be undertaken, seems directly contrary to the consensus that appeared to be reached in the October 21st meeting and confirmed in your subsequent discussions with Ryan Benefield.

It is our hope that your review of SWEPCO's response to EPA's comments on the SWEPCO petition will address Agency questions adequately to allow approval of the changes involved in that petition. It is also our hope that if that is the case, you will also be persuaded that the prior agreements upon which ADEQ and Domtar relied in proceeding with the Domtar petition, were appropriate and that no additional bioassessment is required to approve that petition.

For your convenience, I am attaching copies of EPA's comment letters on the SWEPCO and Domtar petitions. See Exhibit 6 (EPA comments on SWEPCO's petition) and Exhibit 7(EPA comment letter on Domtar petition).

After you have had a chance to review this letter, I would like to discuss with you whether any further response is necessary regarding the substance of EPA's October 22, 2015 comment letter on the Domtar petition. I would also like to discuss what more is needed for EPA to be able to review and approve these rulemaking changes.

Needless to say, if you have any questions or desire any further information, please do not hesitate to contact me.

With best regards, I am

Respectfully yours,

MITCHELL, WILLIAMS, SELIG,
GATES & WOODYARD, P.L.L.C.

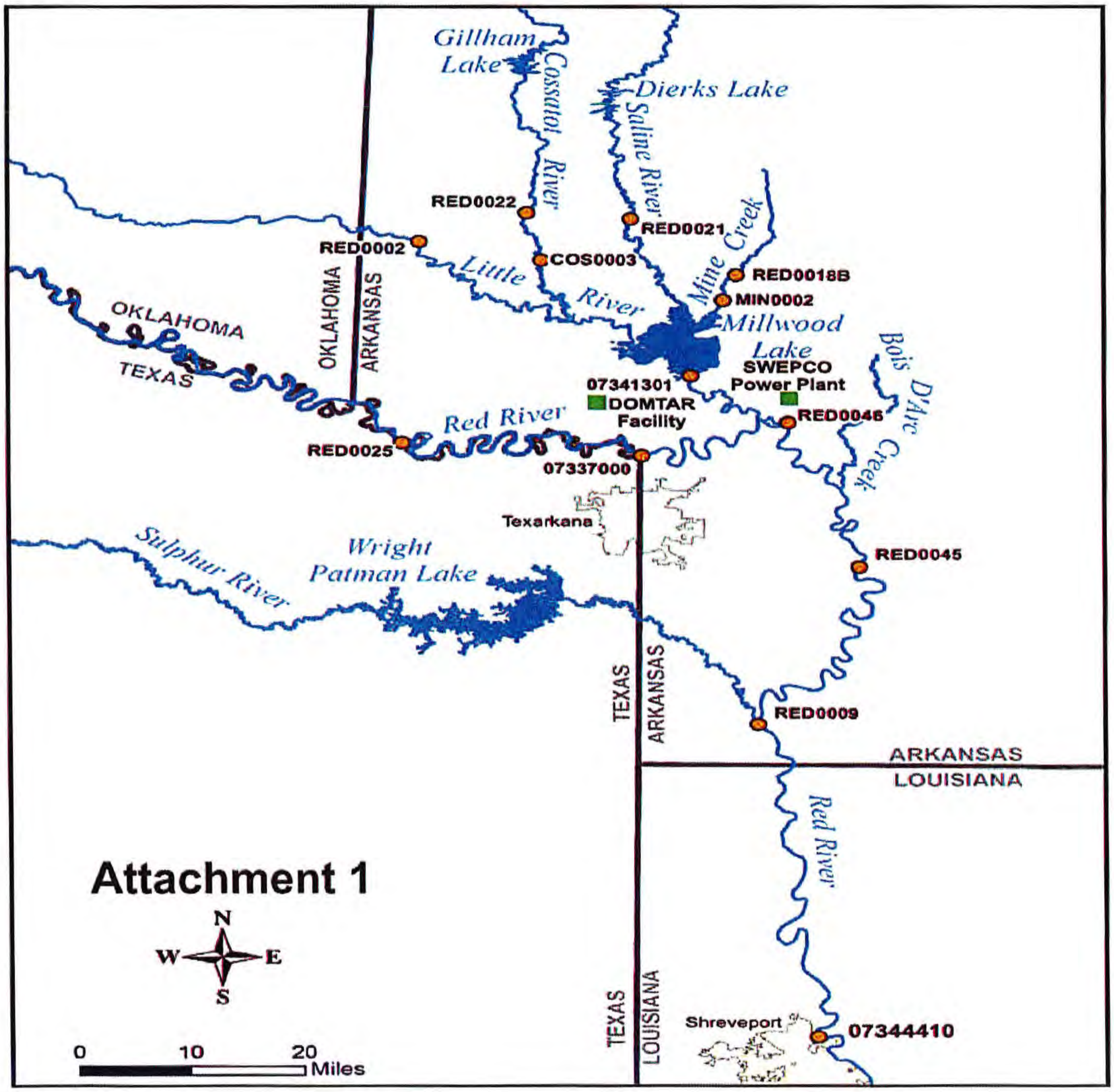
By

Allan Gates

AG:lk

cc: Caleb Osborne, Esq., Deputy Director, ADEQ
Ellen Carpenter, Esq., Water Division Manager, ADEQ

EXHIBIT 1



Attachment 1
Gillham Lake
Cossatot River
Dierks Lake
Saline River
Mine Creek
RED0022
RED0021
RED0002
COS0003
RED0018B
MIN0002
Little River
Millwood Lake
OKLAHOMA
TEXAS
OKLAHOMA
ARKANSAS
SWEPCO Power Plant
07341301
DOMTAR Facility
Red River
RED0046
Bois D'Arc Creek
RED0025
07337000
Texarkana
Sulphur River
Wright Patman Lake
RED0045
TEXAS
ARKANSAS
RED0009
ARKANSAS
LOUISIANA
Red River
N
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LOUISIANA
Shreveport
07344410
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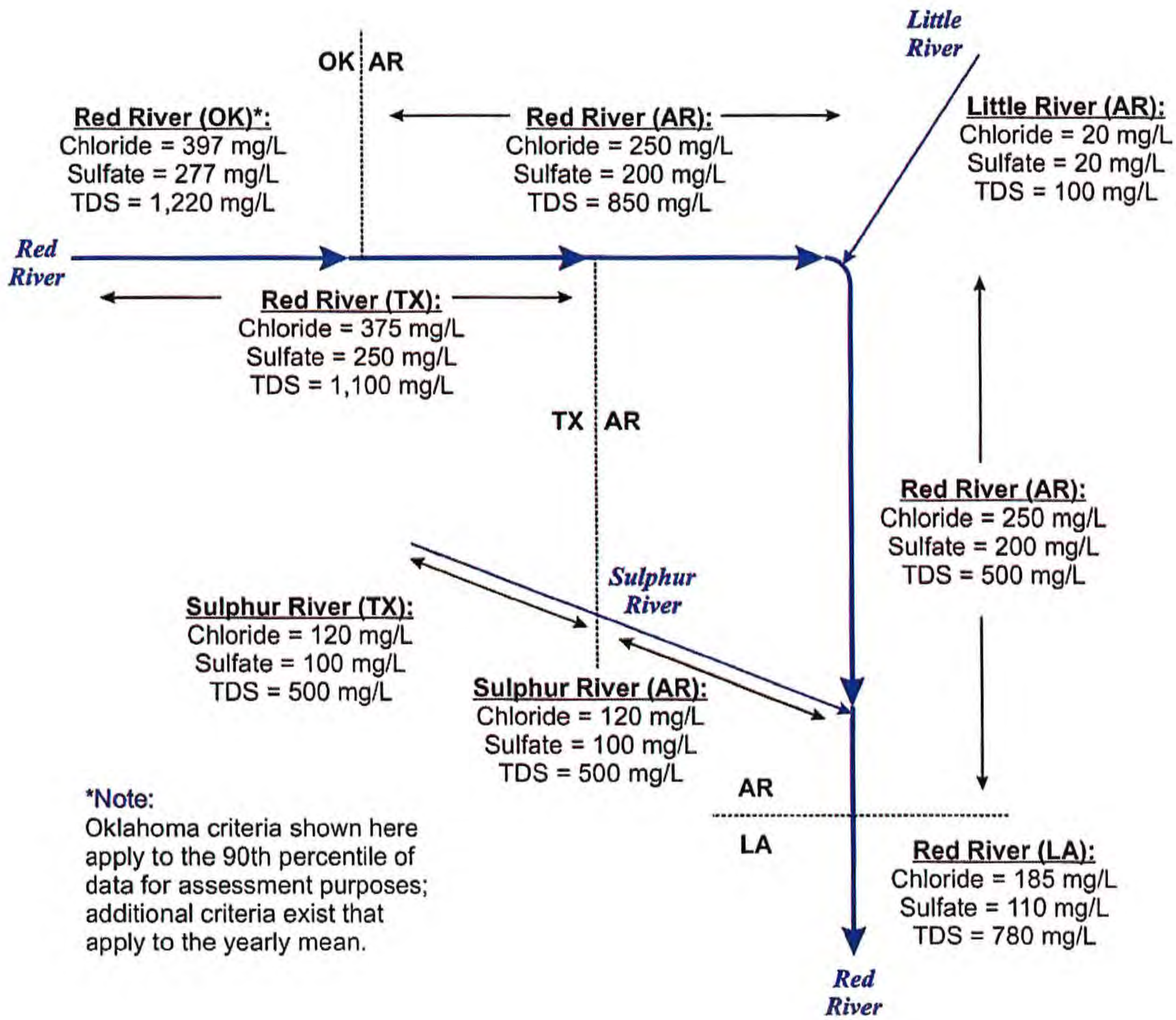
10
20
Miles

EXHIBIT 2



*Note:
Oklahoma criteria shown here apply to the 90th percentile of data for assessment purposes; additional criteria exist that apply to the yearly mean.

EXHIBIT 3

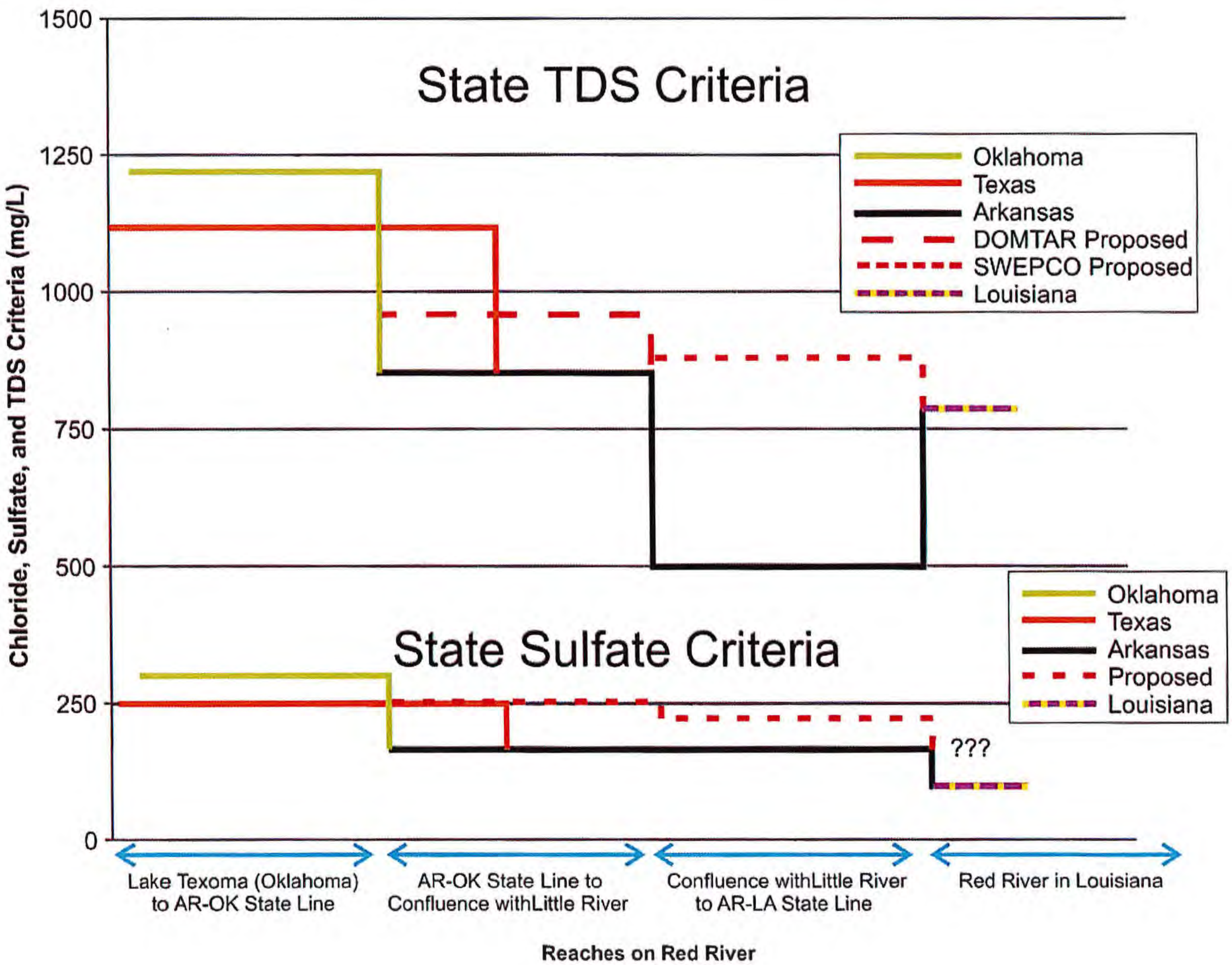

State TDS Criteria
Oklahoma
Texas
Arkansas
DOMTAR Proposed
SWEPCO Proposed
Louisiana
State Sulfate Criteria
Oklahoma
Texas
Arkansas
Proposed
Louisiana
???
1500
1250
1000
750
500
250
0
Chloride, Sulfate, and TDS Criteria (mg/L)
Lake Texoma (Oklahoma) to AR-OK State Line
AR-OK State Line to Confluence withLittle River
Confluence withLittle River to AR-LA State Line
Red River in Louisiana
Reaches on Red River

EXHIBIT 4

Response to EPA Technical Comments
SWEPCO UAA for Dissolved Minerals in Little and Red Rivers

On October 20, 2015, Region 6 of the US Environmental Protection Agency (EPA) provided technical comments dated "September XX, 2015," to the Arkansas Department of Environmental Quality (ADEQ) on Southwestern Electric Power Company's (SWEPCO's) *Use Attainability Analysis for Dissolved Minerals in Little and Red Rivers, Hempstead and Little River Counties, Arkansas*, which was submitted to ADEQ on September 5, 2014.

EPA's comments have been reproduced below, followed by SWEPCO's responses in blue text. EPA's comments are given in italics for ease of distinguishing between the comment and SWEPCO's response, and the comments have been numbered to allow for referencing within the document.

Many comments throughout the document raised the same or similar questions. For three of those topics, SWEPCO has prepared general responses to address the questions raised. These general response sections are referenced throughout SWEPCO's responses to specific comments in order to avoid duplication.

1.0 GENERAL RESPONSES

1.1 Designated Uses and Sources of Total Dissolved Solids

A number of EPA's comments suggest that EPA understands the primary justification for the proposed site-specific criteria (SSC) to be elevated minerals concentrations due to "natural background," or that SSC must be based on natural background conditions. Although SSC can be based solely on natural background conditions, both state and federal regulations allow the development of SSC based on 304(a) guidance (i.e., water-effects ratios) or other scientifically defensible methods. This document represents development of SSC based on "other scientifically defensible methods." Although this document is referred to as a use attainability analysis (UAA), it is not a UAA in the sense of what is described in EPA's *Water Quality Standards Handbook* (2014 update), in which the UAA is intended to support changes to designated uses. The UAA term is used herein because the justification of the SSC still requires an evaluation of attainable uses and whether the uses can be supported with less-stringent SSC. However, the proposed SSC that are the subject of the SWEPCO study represent (a) existing conditions in the case of the Red River, and (b) a total dissolved solids (TDS) criterion that is comparable to an ecoregion least-disturbed stream in the case of the Little River.

Natural background conditions (in this case TDS and temperature) are *part* of the rationale for the SSC proposed herein, but they are not the sole basis, as considerable attention was given to evaluating the TDS conditions that support attainable designated uses. Therefore, the portion of the Tudor Davies 1997 policy memorandum that addresses criteria changes that are based *solely* on natural background has little relevance to this proposal. SWEPCO agrees, however, that in some places, the draft report reads as if naturally occurring mineral loads are the only sources of minerals to the Red River and Millwood Lake. SWEPCO acknowledges that anthropogenic inputs are part of the mineral regime in both waterbodies, which is the reason for the focus on designated use attainment.

To justify less-stringent criteria, it is necessary to show that the proposed criteria protect the existing and attainable designated uses of the receiving streams (*Water Quality Standards Handbook*, EPA 2014). The study showed, and ADEQ has confirmed, that measured and predicted concentrations of dissolved minerals will not limit aquatic life or impair other existing or attainable uses.

In the case of the TDS SSC in the Red River, the report showed that the mineral regime at the Index, AR, gaging station is dominated by loading from Denison Dam, which is overwhelmingly due to natural inputs. SWEPCO has provided additional information to support that statement herein (see Sections 1.2 and 1.3 below). However, the reach of the river below Denison Dam undoubtedly sees some additional natural and anthropogenic input. Accordingly, since not *all* of the mineral loading to the station at Index is natural, the study focused on the attainment of designated uses in the reaches of the Red River in question. It is not appropriate for EPA to insist that "Arkansas must ...show that there are no natural or anthropogenic sources from the TX-AR line to the confluence." In addition to being a physical impossibility, this condition is not necessary for the full support of attainable designated uses (aquatic life/fisheries in particular). In EPA's comments, EPA has not disputed SWEPCO's conclusions that the existing mineral regime in the Red River supports designated uses. The report has proposed SSC based on existing conditions that are mainly (but not solely) due to known natural sources and that support attainable designated uses.

In contrast to the Red River, where the primary sources of upstream minerals are clear, the TDS concentrations below Millwood Lake dam cannot be attributed to a particular source. With the exception of Mine Creek, which has a negligible contribution, the major inflows to Millwood Lake all meet ecoregion minerals criteria. Accordingly, as with the Red River, the focus in the Little River below Millwood Lake dam is on attainment of designated uses. The report demonstrated that the existing conditions support the attainable designated fisheries use and that a slight increase in TDS due to plant operation would likely have little effect on the level of attainment. EPA did not dispute this conclusion in its comments.

1.2 Sources of TDS to the Red River at Denison Dam: Natural versus Oil-Field Brine Disposal

Information on TDS inputs to the Red River from oil-field brine disposal was available in the *Red River Basin Chloride Control Project, Environmental Issues Summary Report* (Red River Authority of Texas 1996), which is provided in Attachment 1. This report states the following:

"Pursuant to the agreements entered into between the states and the federal government, the states have been controlling approximately 85% of the man-made pollution to the river system

since 1980...Over 968 tons of chlorides are eliminated daily from entering the Red River watershed above Lake Texoma which were originating from oil field brine disposal operations."

This statement implies that the total chloride loading from oil-field brine disposal was 1,139 tons per day (calculated by dividing 968 tons per day of chloride eliminated daily by 85%). The statement further implies that the remaining 171 tons of chloride per day (1,139 T/d – 968 T/d) represents an ongoing source of chloride to the Red River due to oil-field brine. Table 1 below summarizes chloride and sulfate loading calculations based on the data provided in Appendix C of the report. Based on this summary, and assuming that the loading estimate from 1996 is representative of subsequent years, the loading due to the remaining oil field brine contributes 4.4% (171 T/d ÷ 3,888*100) of the total chloride loading from Denison Dam.

Table 1. Summary of selected parameters based on monitoring data from Denison Dam and Index.

Parameter	Denison Dam	Index
Average flow for period of record (POR) of 1997 to 2011 (cfs)	4,801	11,665
Average Cl (mg/L)	300	156
Average daily Cl load (kg/d)	3,527,321	4,440,700
Average daily Cl load (T/d)	3,888	4,895
Average SO_4 concentration (mg/L)	261	150
Average daily SO_4 load (kg/d)	3,064,566	4,265,497
Average daily SO_4 load (T/d)	3,378	4,705
Average Cl+SO_4 concentration (mg/L)	561	305
Average Cl+SO_4 load (kg/d)	6,591,887	8,705,151
Average Cl+SO_4 load (T/d)	7,266	9,595
Proportion of Index flow from Denison		0.41
Proportion of Index Cl load from Denison		0.79
Proportion of Index SO_4 load from Denison		0.72
Proportion of Cl+SO_4 load from Denison		0.76
Average proportion of measured TDS as Cl+SO_4	0.55	0.46
Average proportion of measured TDS as Cl+SO_4 based on POR of 1974 to 1986	0.86(1)	0.70
Estimated average TDS concentration(2) (mg/L)	1,020	649

Notes:

1. Assuming all present as NaCl and $CaSO_4$.
2. Based on average proportions of measured TDS as Cl+SO_4.

As shown in Table 1, the TDS of water from Denison Dam also contains a similar mass of sulfate derived from gypsum rocks in the natural springs that contribute the majority of salts to the Red River. Since oil-field brines are typically comprised predominantly of sodium and chloride, the contribution to TDS due to brine disposal is therefore somewhat less than the 4.4% contribution indicated above.

This analysis demonstrates that oil-field brine disposal is a minor source of TDS to the Red River, as discharged from Denison Dam, compared to natural sources.

1.3 Influence of Denison Dam Discharge on Flows and Minerals at Index

Although the monitoring station at Index, AR, is 200 miles downstream of Denison Dam, the discharge from Denison Dam dominates the flow and mineral regime at Index. While the flows from Denison Dam account for 41% of the average flow at Index (Table 1), they account for 76% (6,591,887 ÷ 8,705,151*100) of the chloride and sulfate loading.

A straightforward calculation shows that the estimated average TDS concentration at Index would be 420 mg/L if there were no TDS source (natural or anthropogenic) downstream of Denison Dam. In other words, if all flow entering the Red River below Denison Dam was distilled water, the average TDS concentration at Index would be 420 mg/L. The same calculation can show, conversely, that the average TDS concentration at Index would be 229 mg/L without the loading from Denison Dam. Therefore, without the loading from the Denison Dam, there would be no exceedances of the existing criteria.

Since the TDS loading downstream of Denison Dam is clearly greater than zero, there are undoubtedly additional sources of TDS between Denison Dam and Index, some of which are likely point sources. However, this analysis demonstrates that TDS (primarily as chloride and sulfate) loading from Denison Dam, which is overwhelmingly due to natural sources, dominates the TDS loading at Index, 200 miles downstream from the Denison Dam.

2.0 SPECIFIC RESPONSES

COMMENT 1

ES.7 Proposed TDS Criteria Little River, page xi:

The proposed TDS criterion for the Little River below Millwood Lake is based on a weight-of-evidence approach utilizing a mass balance model. The document states that a mass balance was prepared that would reflect naturally occurring elevated TDS concentrations in the Little River. The document refers to TDS data collected upstream of SWEPCO by FTN and SWEPCO during October 2010 through October 2013 that showed that the current site-specific TDS criterion 100 mg/L criterion was exceeded approximately 10% of the time. The authors conclude that a TDS criterion of 136.1 mg/L would be necessary in the Little River to reflect the naturally occurring mineral regime and to allow SWEPCO to operate efficiently.

It's unclear what the basis for presuming that only naturally occurring sources of TDS result in the 10% exceedance rate.

Please see Sections 1.1 and 1.2 of the general responses.

Later, the document refers to input from the Little River itself above Millwood Lake and from Mine Creek, noting that inputs from the latter are significantly higher per volume than other tributaries to Millwood Lake. The name Mine Creek alone suggests that this creek is a likely source of anthropogenic. Given the mass balance budget described in Table J.1 describes the background in the Little River as 98 mg/L and the SWEPCO discharge as contributing 1620 mg/L, it is unclear how a presumption that the inputs to the Little River are not anthropogenic.

Please see Section 1.1 of the general responses.

This tends to undermine the validity of the mass balance and any conclusions that may be drawn from it.

Whether the minerals sources to the Little River are or are not anthropogenic does not affect or invalidate the mass budget modeling prepared and submitted as part of the report. The mass budget modeling does not depend on the TDS source for predictions. However, the modeling does depend on data that represent current TDS concentrations in the river, as was demonstrated in the report.

Differentiating between natural background and anthropogenic sources causing exceedances is important. As articulated in Tudor Davies 1997 policy memo, the water quality standards regulation at 40 CFR 131.11(b)(l) requires States and authorized Tribes to adopt numeric water quality criteria that are based on section 304(a) criteria, section 304(a) criteria modified to reflect site-specific conditions, or other scientifically defensible methods.

Please see Section 1.1 of the general responses.

In summarizing the aquatic life evaluation, the document indicates that the aquatic life composition of the current fish community below Millwood dam is a subset of what would be expected given available habitat. What is described here represent a snapshot of what is likely impacted and/or degraded conditions in the Little River. While document current conditions is an important, the objective of a UAA should be determining what the highest attainable use that can be attained. The objective of a UAA is to determine what the highest attainable use the waters of interest can support. 40 CFR 131.10(d) requires at a minimum, that uses be deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control.

Please see the first paragraph of Section 1.1. A major focus of the study was to document attainment of designated uses, particularly the aquatic life (fisheries use). EPA did not dispute the findings or conclusions regarding the aquatic life (fisheries) use attainment.

COMMENT 2

1.1 Background and Overview, page 1-1:

The discussion here appears to be suggesting that the (predominate) natural (and anthropogenic) mineral and TDS sources from TX and OK are not adequately accounted for and result in exceedances of AR's 500 mg/L criterion in the lower segment of the Red River below the confluence of the Little River to the AR-LA state line. Since there is certainly some dilution in the Red River as it moves to the confluence with the Little River and on downstream, it will be critical to provide clear support that these predominately natural upstream in TX and OK, and those in AR contribute to an inability to attain the current 500 mg/L criterion in the lower segment.

Please see Section 1.1 of the general responses.

The spatial inconsistence identified in and of themselves are not a basis for modifying criteria.

SWEPCO agrees. The proposed SSC were not based on spatial inconsistencies of the existing criteria.

COMMENT 3

1.1 Background and Overview, page 1-1 and 1-3:

In describing this permit as not typical, the authors are referring to ADEQ's use of the 500 mg/L TDS criterion that applies to the Red River as an "end of pipe" value rather than the 100 mg/L TDS criterion that applies to the Little River. Based on the fact sheet, it appears that ADEQ based 500 mg/L TDS criterion in the SWEPCO permit on the applicable criterion in the Red River to ensure that the discharge would not contribute to the impairment of the Red River because it is on the state's most recent EPA approved 303(d) list for exceedances of chloride, sulfate and TDS.

Comment acknowledged.

Region 6 permitting staff have suggested that if the 100 mg/L TDS criterion applicable to the Little River were applied, when dilution and mixing are considered, a limit of 3800 mg/L would be possible and would be protective of the designated fishery use in both the Little River and the Red River.

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 4

1.1 Background and Overview, page 1-4, Table 1.2:

The increase for both median and 95th percentile concentrations of TDS from the historical data the more recent data collected by SWEPCO suggest that the concentrations are the result of something other than "naturally occurring exceedences" as suggested in the next paragraph.

Please see Section 1.1 of the general responses.

COMMENT 5

1.1 Background and Overview, page 1-5:

The authors refer to little to no assimilative capacity for TDS in the Little River at times (absent the SWEPCO facility's discharge) as a result of "naturally occurring exceedances" of the current site-specific 100 mg/L TDS criterion occurring "upstream" of the SWEPCO discharge, refers to more in depth discussed in Sections 3.0 and 5.0. However, there is very little discussion of possible upstream naturally occurring" sources for the Little River in these sections. The only sources for the Little River discussed in the document to any degree are tributaries to Millwood Lake, particularly Mine Creek. Although Mine Creek is identified as the most significant contributor of minerals to Millwood Lake and downstream to the Little River, there is no information concerning possible mining impacts to that creek. As a result, the basis for attributing a lack of assimilative capacity and a 10% exceedance rate for the current 100 mg/L TDS criterion in the Little River to naturally occurring sources has not been established.

The data that support the statements are provided in Table 1.2 of the report.

What are these natural sources of high TDS – Mine Creek? And are they natural or anthropogenic?

Please see Section 1.1 of the general responses regarding natural versus anthropogenic sources of TDS. Please note that the report shows that although TDS concentrations in Mine Creek are significantly higher than concentrations in the other streams, the Mine Creek inflow provides only approximately 3 mg/L of TDS based on a flow-weighted mean inflow TDS concentration of 54.8 mg/L from the four major tributaries (54.8 mg/L including Mine Creek and 52.2 mg/L without Mine Creek).

COMMENT 6

2.3.1.1 TDS Sources to the Little River

This section includes an evaluation of existing data from tributaries upstream of Millwood Lake to identify potential recent sources of TDS that might explain the increased TDS values in samples collected from the Little River downstream of the dam on Millwood Lake. The major *tributaries of Millwood Lake include the Little River, Cossatot River, Saline River, and Mine Creek (Figure 1.1). Table 2.2 identifies the major tributaries to Millwood Lake, including the Cossatot River, Saline River and Mine Creek and summaries of their TDS contribution. Although Mine Creek only contributes 2% of the inflow, the TDS concentrations are significantly higher than the other streams.*

Please see the last paragraph of the response to Comment 5.

There is some inconsistency between Tables 1.1 and 1.2 presenting USGS data from 1967-1995 and SWEPCO data from 2010-2013 (although it's not clear what sites the SWEPCO data came from) that show an increase in TDS concentrations over time.

The data presented in Table 1.2 were collected by SWEPCO and FTN at sampling station LR-0, which is shown on Figure 3.1 of the report. SWEPCO will clarify the source of the data in the table title for Table 1.2 and the corresponding section discussing the data in the report.

The two tables are not inconsistent but rather simply present summary information showing that TDS concentrations are different from two different time periods and that the more recent data show an increase in TDS concentrations.

The time-series plots of TDS data from these ADEQ monitoring stations on the tributaries upstream of Millwood Lake identified in Figures 2.1 through 2.4 that show no clear evidence of significant changes in TDS levels in any of the streams, yet the authors report an increase in TDS concentration downstream of Millwood Lake.

The second paragraph of Section 2.3.1.1 states, "Overall, there is no clear evidence of significant changes in TDS levels in any of the streams" [contributing to Millwood Lake]. SWEPCO agrees there is no obvious source or cause of the increase. With the exception of Mine Creek, which contributes a negligible loading, the major inflows to Millwood Lake all meet ecoregion minerals criteria.

COMMENT 7

2.3.1.2 Water Quality Impairments for Minerals in the Little River

The authors indicate that ADEQ does not considers the Little River downstream of Millwood Lake to be impaired and have not included it on any 303(d) list. Further, the document notes that this stream is classified by ADEQ as "unassessed" due to a lack of data for water quality (including minerals). It is important to note that "unassessed" simply means that there is no data and does not necessarily mean that the Little River is either impaired or unimpaired. That lack of data may be why neither ADEQ nor EPA have included the Little River on the state's 303(d) list.

SWEPCO agrees.

COMMENT 8

2.3.2.2 TDS Sources to the Upper Red River (Oklahoma, Texas), pages 2-5 to 2-8:

Much of the literature cited in the Executive Summary and in these sections is dated, relying on several sources from a time period when oil production was high with minimal environmental regulation.

Information describing natural sources was from historical literature (Baldys et al. 1996, Keller et al. 1988, USGS 1961). Information describing current conditions is recent in our opinion (e.g., gage data with a period of record of 1997 to 2011; USACE publication from 2010; Red River Authority publication from 2013).

Despite those issues, it is reasonable to say that there are significant natural as well as anthropogenic sources of minerals in the Red River and its tributaries.

Please see Sections 1.1 and 1.2 of the general responses.

While the more current information tends to show that the predominant mineral sources to the Red River are likely natural, despite remediation efforts by the US Army Corps of Engineers (USACE), it is likely that brine disposal and intrusions from oil production into the Little Wichita and other sites are sources that affect the Red River in Texas, Oklahoma and contribute to the loading to a lesser extent in Arkansas. Sources of information for oil and gas production and remediation should be available from the Texas Railroad Commission and the Oklahoma Corporation Commission.

Not having, or possibly not being able to provide any information to support historical oil extraction impacts and their contribution to minerals/TDS concentrations significantly weakens the claim that the "overwhelming portion" historical of the TDS inputs to the system are from natural sources.

Please see Sections 1.1 through 1.3 of the general responses.

COMMENT 9

2.3.2.3 Water Quality Impairments for Minerals in the Red River, page 2-9:

The authors note that upstream criteria for the Red River in Texas and Oklahoma reflect the elevated ambient mineral concentrations that are due to inputs from salt springs and seeps from the arid and semi-arid headwater regions. This is generally true, given salt springs are found as far west as the High Plains and Tableland Level II ecoregions. Although less predominate, there also anthropogenic and natural inputs from the Central Plains, Crosstimbers, Blackland Prairie and East and South Central Plains ecoregions.

It is important for Arkansas to recognize that an upstream state can establish uses and criteria in their waters as appropriate. 40 CFR 131.10(b) requires that those states take the downstream state's standards. Recent court decisions have affirmed EPA's ability to look at downstream waters to ensure protection.

Comment acknowledged.

This section also discusses assessment procedures used by states that share jurisdiction over portions of the Red River. Referring to Table 2.6, which compares criteria for minerals and impairments identified on state 303(d) lists, which shows that the Red River is not considered to be impaired upstream in Oklahoma and Texas or downstream in Louisiana. The authors state that this is partly due to different assessment procedures that are used in other states, suggesting that these states use less protective exceedance rates . As an example, the authors note that Louisiana does not consider a stream to be impaired for dissolved minerals unless 30% of the observed data exceed the water quality standard compared to Arkansas' 10% exceedance rate. The authors also state that Oklahoma and Texas also use less-stringent assessment procedures for dissolved minerals than Arkansas, and also state that the criteria in their water quality standards are less stringent than the criteria in Arkansas's standards. However, the authors have not explained how these approaches are any less protective than those used by Arkansas.

These proposed SSC considered downstream compliance with Louisiana's criteria. The report does not use the term "less protective"; that is the commenter's usage. The lack of impairment in upstream states is due to "less stringent" criteria or assessment methodology with no suggestion one way or the other regarding the protectiveness of those criteria. SWEPCO agrees that less-stringent criteria and assessment methodology can be protective.

It is important to understand that simply comparison of exceedance percentages used in assessing use attainment does not tell the entire story. Assessing attainment includes defining the water quality indicators it measures and the procedures for analyzing and interpreting data in order to decide whether standards are met or water quality is impaired. This should include collection and analysis of multiple types of data providing information relevant to assessing attainment with approved WQS. As a result, a comparison of Louisiana's current use of a 30% exceedance rate to Arkansas 10% is not necessarily appropriate, although it should be noted that Region 6 is working with Louisiana to revise its approach. Oklahoma compares the mean of all values to a yearly mean standard, then looks for greater than 10% exceedances against a sample standard. In Texas, minerals criteria represent annual averages of all values that were collected and compared to the criterion for each parameter. Use attainment is based on the average concentration that applies to the entire length or area of the segment. For TDS, a value is calculated by multiplying specific conductance measured at the surface by a factor of 0.65. The chloride, sulfate, and TDS criteria are not supported if the average value exceeds the criteria.

Comment acknowledged.

The authors also state that Oklahoma and Texas water quality standards as less stringent than the criteria in Arkansas. Given the natural saline seeps and historical oil extraction activity along the Red River that this document discussed previously, higher criteria would be expected upstream in Texas and Oklahoma. The burden for SWEPCO is to show that predominately natural sources upstream in Oklahoma and Texas upstream as distant as Lake Texoma and/or that natural sources in Arkansas itself alter concentrations in the lower segment of the Red River to support the proposed criteria modifications.

Please see Section 1.3 of the general responses, which clarifies report statements that the sources are predominantly upstream in Oklahoma and Texas.

COMMENT 10

Page 2-10:

In a discussion of Table 2 describing applicable criteria and 303(d) listings, the authors refer to ADEQ's practice in recent years of making specific permitting decisions and calculations based on the state's most recent 303(d) list that has been approved by EPA. This approach means that ADEQ is applying the 500 mg/L TDS criterion that applies to the Red River below its confluence with the Little River as an end-of-pipe limit rather than the 100 mg/L criterion that applies to the Little River which is the receiving water for the Turk/SWEPCO discharge.

Based on the NPDES permit fact sheet, applying the 100 mg/L TDS criterion that applies to the Little River, when dilution and mixing is considered, a limit of up to 3800 mg/l would be possible and still meet the in-stream criterion of 100 mg/L which would protect beneficial uses in the Little River and downstream. However, applying the 500 mg/L TDS criterion as an end-of-pipe limit results in a more restrictive permit limit. Without any information to the contrary, the effect of ADEQ's approach does not appears to have a significant environmental benefit for either the Little River or Red River, but appears to have the opposite effect. While applying 500 mg/L TDS criterion as an end-of-pipe limit may result in a small reduction in overall loads, the more restrictive limit reportedly requires the facility to operate at less than optimum efficiency. Thus ADEQ's approach appears to be the primary driver for Turk/SWEPCO to seek revised criteria for the Red River, which may be a less desirable environmental outcome.

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 11

2.4.1 Threatened and Endangered Aquatic Species, page 2-12:

*This section of the document discusses several endangered species listed by the US Fish and Wildlife Service (USFWS) including the Ouachita rock pocketbook (*Arkansia wheeleri*), which is federally listed throughout its range in Arkansas and Oklahoma. The document reports that there have been no live* A. wheeleri *collected from just above or below the Turk/SWEPCO discharge.*

Their absence indicates that the Turk/SWEPCO discharge is having an effect on water quality and the presence of A. wheeleri. *Although the physical characteristics and inputs to Millwood Lake may affect the ability of the Little River to support* A. wheeleri, *an important aspect of a UAA is to not only to identify current conditions. The document does not provide any discussion of whether minerals/TDS or other stressors may be affecting or limiting the presence of* A. wheeleri *in this portion of the Little River.*

The report notes that the hydraulic modification (i.e., construction of Millwood Lake dam on the Little River) affected mussel distribution and abundance before construction of the SWEPCO facility. Studies performed after Millwood Lake was formed but prior to construction of the facility did not document the presence of *A. wheeleri* in the Little River in the vicinity of the future intake and outfall locations (see Section 2.1.4 of the report for further explanation).

*The authors also note that the USFWS recently listed the rabbitsfoot mussel (*Quadrula cylindrica cylindrica*) as threatened (Federal Register 2013). That species is known from some streams in southwest Arkansas, including the Little River upstream of Millwood Lake. This species not been documented in the Little River downstream of Millwood Lake or the Red River. The rabbitsfoot is likely limited by the physical characteristics Millwood Lake and its effect on the Little River, as well as the Turk/SWEPCO discharge.*

SWEPCO agrees that the rabbitsfoot is not found in the Little River downstream of Millwood Lake. The changes in the physical characteristics, and therefore habitat, of the Little River due to construction of the Millwood Lake dam occurred before construction of the SWEPCO facility.

COMMENT 12

3.1 Overview, page 3-1:

Rather than relying on biological evaluations in a upstream versus downstream comparison from a point source discharge and a comparison of communities in reference and receiving streams, the approach for field surveys is attempting to show that characteristics in Millwood Lake and at the Denison dam dominate the mineral regime in the Little and Red Rivers rather than the Turk/SWEPCO discharge.

The field surveys addressed aquatic life use attainment. Sections 2.3.1, 2.3.2, and 5.0 of the report demonstrate that characteristics in Millwood Lake and at Denison Dam, rather than SWEPCO's discharge, dominate the mineral regime in the Little River and Red River. As the report notes, "This evaluation is unique because the instream criteria exceedances have little or nothing to do with a point source that is not able to meet existing criteria. In the case of the Red River, the criteria exceedances are primarily due to upstream background concentrations. In the case of the Little River, existing mineral concentrations are also at or near the existing site-specific criteria without influence from the plant." Please see Sections 1.2 and 1.3 of the general responses.

There are sources of minerals above Millwood dam, primarily the Little River and Mine Creek upstream of Millwood Lake and there are certainly significant natural and anthropogenic sources of mineral in the upper reaches of the Red River in Texas and Oklahoma. The burden for Arkansas is to clearly show that the sources above Millwood dam are at least predominantly anthropogenic.

This important sentence, which states Arkansas' burden, seems to have been mistyped. Surely, in line with previous statements, the commenter meant to say "..at least predominantly *natural*"? As shown in Table 2.2 of the UAA report, TDS concentrations in the Little River, Cossatot River, and Saline River are well below the ecoregion criterion of 129 mg/L. It is not clear how upstream waterbodies that meet criteria by a comfortable margin (with the exception of Mine Creek) might represent some sort of unnatural or anthropogenic input. It is noted that although TDS concentrations in Mine Creek are significantly higher than concentrations in the other streams, the Mine Creek inflow contributes only approximately 3 mg/L of TDS based on a flow-weighted mean inflow TDS concentration of 54.8 mg/L for the four major tributaries (54.8 mg/L including Mine Creek and 52.2 mg/L without Mine Creek). Therefore, there is little support that anthropogenic inputs of TDS dominate Millwood Lake.

Similarly, Arkansas must be able to make a reasonable showing that the predominately natural and some anthropogenic sources some 200 miles upstream have a significant effect on water quality in the Red River as far downstream as its confluence of the Little River and show that there are no natural or anthropogenic sources from the TX-AR line to the confluence.

This must be another mistyped sentence. Surely EPA does not imagine the existence of any reach of any stream for which "...there are no natural or anthropogenic sources." Table 1 of this document notes that 75% of the chloride and sulfate loading at Index is from Denison Dam. Please see Sections 1.2 and 1.3 of the general responses.

If the Turk/SWEPCO discharge is not contributing to the potential exceedances in the Little River or potentially impacting the Red River, the important question as to whether the facility is seeking to revise the criteria in the Little River and the Red River because the criteria are inappropriate or because of ADEQ's policy decision to applying a criterion as an end-of-pipe limit rather than basing it on applicable criteria considering dilution and mixing in the receiving water.

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 13

3.4.1.2 Macroinvertebrate Data Analysis, page 3-10:

In discussions of field observations the authors indicated an attempt was made to assess the susceptibility of the existing benthic macro invertebrate community to a slight increase in TDS.

Tolerance indicator values (TIVs) for specific conductance for various invertebrate taxa provided in Carlisle et al. 2007 were reviewed. However, the authors note that too few of the taxa listed in Carlisle et al. 2007 were present in the data set for this study to allow for a meaningful evaluation of ion tolerance. Accordingly, the benthic data presented herein provide a description of the presently attained fisheries use and a baseline for future studies.

SWEPCO agrees.

It should be noted that small increases in TDS alone may have minimal effect on the existing benthic community however, TDS is rarely seen independent of other stressors.

Comment acknowledged. It is not clear why other stressors are important. The relevant question is whether or not the existing levels of TDS support the attainable designated use.

In a quick search, a number of sources were identified that discuss the effect TDS has on Appalachian streams. For example, Timpano et al. (2010), in discussing the effects of TDS in coalfield streams. As a way of isolating the effects, Timpano et al. used headwater streams to represent a gradient where confounding factors could be minimized. This and other similar papers done in Appalachian could have been used to inform this aspect of the analysis.

The study by Timpano et al. has little in common with this study, because as EPA has noted elsewhere, there are no differences in benthic or fish communities upstream versus downstream of the discharge. We agree that there might be other unknown stressors present in the effluent. However, the best approach to address that possibility is through the normal permitting process, which includes tests such as priority pollutant scans and biomonitoring requirements.

One of the problems with the approach take here is a lack of reference stream comparisons.

The issue of reference condition comparison was addressed in the study plan for the UAA that was reviewed and approved by ADEQ. There is no appropriate reference data set or reference location for comparison with this reach of the Little River. The several similarly sized reservoirs in the region (e.g., Dierks, Gillam, DeQueen) are deep, have cold tailwaters, and are not suitable analogs to the Little River tailwater system. The study utilized literature-based tolerance values and professional judgment to evaluate field data to assess the susceptibility of the benthic community to the proposed increase in TDS.

COMMENT 14

3.4.2.2 Fish Data Analysis, page 3-11:

Fish data were first assessed to determine if there were impacts due to the Turk/SWEPCO discharge "under current conditions" by evaluating differences in total species richness, relative abundance, diversity, and similarity measures between upstream and downstream reaches.

Although unclear, it appears that "under current conditions" likely means under limits specified in the current NPDES, which as noted earlier, are based on a monthly average of 500 mg/l TDS applying Red River Criteria end-of-pipe.

EPA's statement is correct.

This end of pipe value equates to an instream waste concentration of 43 mg/L. As noted earlier, if ADEQ were to base the Turk/SWEPCO permit on the Little River instream standard of 100 mg/L, once dilution and mixing is allowed, this would result in an allowable end-of-pipe discharge of up to 3800 mg/l to still meet the instream waste concentration of 100 mg/L. These conditions should be modeled and presented as a comparison rather than solely those based on ADEQ's current approach of basing permits on past 303(d) listings. Without this, there is some question to the validity to the findings here and in other aspects of this proposal.

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 15

3.4.4 Discussion and Conclusions, page 3-22:

The authors note that the evaluation of the fish community demonstrated similar fish communities upstream and downstream of the Turk/SWEPCO discharge in the Little River. The combined collections from their study and USGS sampling during 2009 and 2013 provide evidence that the designated fisheries use in the Little River is currently attained under the existing mineral conditions.

Further, the document reports that an evaluation of the mineral tolerances of the existing fish community indicate a fish community that can be expected to be relatively insensitive to moderate changes in TDS (as indicated by specific conductance). The UAA notes that fish species that were classified as intolerant to TDS or for which data in Meador and Carlisle (2007) were lacking can be shown to be present in the Red River, which has substantially higher TDS than will be experienced in the Little River due to the operation of the Turk/SWEPCO plant. The conclusion drawn is that the anticipated increase in TDS due to the operation of the Turk/SWEPCO plant will support the designated fisheries use in the Little River downstream of the Millwood Lake dam.

The question these conclusion raise is even if the designated fisheries use in the Little River would potentially be maintained with the proposed increase in TDS criterion to 138 mg/L, why is it necessary if that use is being attained at the current 100 mg/L criterion? The answer seems to go back to Turk/SWEPCO's desire to operate at maximum efficiency. Under current conditions, the facilities efficiency appears to only be affected by ADEQ's approach in using limits based on the 500 mg/L criterion for the Red River as an end-of-pipe value. As noted previously, given that the Turk/SWEPCO discharge appears to have a negligible effect on the Red River, if ADEQ were *to use existing criteria and allow for mixing and dilution in the Little River, there would be no need for this proposal.*

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 16

3.5 Fisheries Evaluation in the Red River, page 3-24:

The objective of this evaluation was to determine whether the existing mineral regime supports the designated fisheries use as indicated by fish populations. The approach relied on the historical record of mineral concentrations in the Red River from ADEQ monitoring stations RED0025, RED0046, and RED0045 and the use of a sampling survey and historical data review of fish populations in the Arkansas portion of the Red River conducted by Buchanan et al. (2003). The intent was to characterize the existing fish communities and evaluate whether those existing communities are supported by the existing mineral regime, thus indicating attainment of the fisheries designated use.

This was not the intent of the evaluation. It seems clear that the existing mineral regime supports the existing fish community. However, this conclusion alone does not indicate use attainment. The study evaluated whether or not the existing *community* attains the designated use, and concluded that it does.

Although the Buchanan et al. (2003) data suggest that mineral conditions during 1995 and 2001 supported a high fisheries use attainment, it is somewhat problematic to rely on data that represents a single snapshot in time from 14 years ago. The authors draw the conclusion that since the Red River was meeting designated uses during the Buchanan et al. study and that because TDS data from the post-study period (2002 through 2013) indicate that mineral concentrations where generally higher during the time frame of the Buchanan et al. study, that fisheries beneficial uses are likely currently being attained. While the post-study period (2002 through 2013) TDS data gives an indication that uses are currently being attained, it does not provide the same level of confidence as current field data would.

In this case it is not problematic to rely on historical data. What is important is not how long ago the study was conducted but rather under what conditions—in this case the mineral concentrations—the study took place. The high level of use attainment reported by Buchannan et al. occurred concurrently with a particular minerals regime. Therefore, that particular minerals regime, whatever it was, supported that high level of use. The minerals concentrations occurring during the Buchanan et al. study were in general higher than during the post-survey period. If a certain range of minerals concentrations supports a high level of use attainment, then a slightly lower range of concentrations should also support attainment. The age of the Buchanan et al. study would be problematic if post-survey minerals concentrations were significantly lower than those present during the survey. In that case, SWEPCO would not be able to say definitively whether the higher concentrations support the designated use, but the support (or lack thereof) would have nothing to do with the age of the study. Rather it would be because the conditions present during the study could not be applied to current conditions.

Showing that broadly written designated aquatic life uses can be supported under the existing mineral regime isn't necessarily a high bar given how broadly beneficial use definitions tend to be written. Determining attainment tends to depend on the individual state's assessment methodologies rather than the use definition.

Comment acknowledged.

COMMENT 17

3.6.2 Red River, page 3-25:

The evaluation of the biological data demonstrated similar fish and communities upstream and downstream of the Turk/SWEPCO facility. The authors conclude that these finding reported suggest that the designated fisheries use is being attained that that the projected mineral concentration – presumably the proposed 138 mg/L TDS criterion will not be adversely affect attainment of the fisheries use.

Although the data indicate that the designated fisheries use is currently being attained, the document does not provide compelling information to support the contention that the proposed 138 mg/L TDS criterion will not adversely affect attainment. Further, concerns with impacts to benthic macroinvertebrate communities downstream of the discharge at the current criterion have been identified in previous comments.

It was asserted that the fish community is made up of tolerant species that would not likely be affected by a small increase in TDS. EPA did not dispute this conclusion. Regarding benthic macroinvertebrate communities and potential effects from the proposed SSC, EPA stated, "...it should be noted that small increases in TDS alone may have minimal effect on the existing benthic community..." [but EPA is concerned about other stressors that might also be present in the effluent]. SWEPCO's proposed SSC for TDS in the Little River is 138 mg/L, which reflects a TDS concentration in an undisturbed reference stream. A TDS criterion greater than 138 mg/L would be classified as a "significant modification" from the ecoregion reference stream value for TDS as described in Regulation No. 2.511(B).

COMMENT 18

4.1 Evaluation of Routine WET Testing, page 4-1:

The recurring concern here is that the conditions simulated for toxicity analysis are reflective of current permit conditions, not what would likely be the conditions if the Red River was not listed.

Removing the Red River from the 303(d) list or adding it to the list has no bearing on this discussion. The report addresses the potential for toxicity due to TDS at critical conditions.

More specifically, section 4.1 reports that a review of NPDES DMRs from what is likely the current permit (from November 1, 2012) indicate no episodes of sub-lethal toxicity for C. dubia *and* P. promaleas. *Since the current permit is based on 500 mg/L as an end-of-pipe limit, sub-lethal effects would not be expected. The question is, how* C. dubia *and* P. promaleas *would respond under conditions that would be expected if a limit of up to 3800 mg/L was in place for the facility as it may be once the current 303(d) listing in the Red River is resolved.*

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

Relying on DMRs that are not reflective of what conditions will likely be long-term in the Little River and downstream in the Red River could be considered misleading.

The report does not state or suggest that a lack of toxicity under current conditions (i.e., TDS concentrations under the current operating regime) implies no toxicity under all future conditions. DMR data established that the effluent is not toxic under current conditions. A toxicity test to estimate the toxic threshold of minerals in a mixture of plant effluent and receiving stream showed that the toxic threshold for toxicity due to minerals (as TDS, sulfate, and chloride) is well above anticipated mineral concentrations at the critical dilution of 26%. Accordingly, there is a large margin of safety associated with mineral discharges from the plant with respect to compliance with NPDES WET testing.

COMMENT 19

4.2.3 Conclusions, page 4-5:

The authors state that calculated IC25 values (1,744 mg/L for TDS; 232 mg/L for sulfate; and 600 mg/L for chloride) indicate that toxicity due to minerals in WET testing would not be expected at the critical dilution (26%) until effluent TDS values reached approximately 6,976 mg/L. And that these results indicate that the threshold for toxicity due to minerals (as TDS, sulfate, and chloride) is well above anticipated mineral concentrations at the critical dilution of 26%. Accordingly, their conclusion is that there is a large margin of safety associated with mineral discharges from the plant with respect to compliance with NPDES WET testing.

It is unclear what the basis for the statement that toxicity due to minerals would not be expected until TDS values reach approximately 6,976 mg/L. Although the IC25 may be considered functionally equivalent to a NOEC by definition, it represents a 25% reduction in the rate of survival, growth or reproduction among test organisms.

If preferable, SWEPCO can use the same reasoning based on the NOEC, IC10, or any other endpoint of EPA's choosing. See the example using the NOEC below.

Further, Table 4.2 indicates that average concentrations of 6,000 mg/L cause 100% lethality.

Note that that report states that "... toxicity *due to minerals* in WET testing would not be expected *at the critical dilution (26%)* until *effluent TDS values* reached approximately 6,976 mg/L." The report does not state or imply that TDS concentrations greater than 6,000 mg/L are not toxic. Note that there is an error in Section 4.2.3 of the report. Based on an IC25 of 1,744 mg/L and a critical dilution of 26%, the report should have stated that toxicity at the critical dilution would not be expected until TDS in the effluent reached 6,708 mg/L (1,744 ÷ 0.26) instead of 6,976 mg/L (see page 4-5 of the report). A similar calculation based on the TDS NOEC of 1,260 mg/L predicts no toxicity due to minerals at the critical dilution at an effluent concentration of 4,848 mg/L (1,260 ÷ 0.26). In either case, the threshold for toxicity due to TDS is well above anticipated permit limit of 1,620 mg/L (monthly average).

COMMENT 20

5.2 Critical Flow Conditions, page 5-1:

Instream TDS concentrations in the Red River were modeled for two critical flow conditions. The authors note that calculations and model results for 7Q10 flow conditions were used to develop proposed criteria for the Little River, and for the Red River between the Little River and the AR-LA state line. The results for harmonic mean flow conditions were used to confirm that the proposed criteria in Arkansas will still allow the Louisiana criterion for TDS in the Red River (780 mg/L) to be maintained.

It's important that ADEQ be aware that the State of Louisiana is currently reviewing its mineral criteria. It is EPA's understanding that water quality data taken in the Red River near Shreveport, between 1991 and 2014 indicate that TDS concentrations of 780 mg/L are just above the 90th percentile. This may mean that it if the Arkansas' proposed criteria are adopted, there is a significant likelihood of TDS impairments in the downstream segment of the Red River in Louisiana.

Based on EPA's statement that "TDS concentrations of 780 mg/L are just above the 90th percentile," it can be concluded that TDS concentrations in the Red River near Shreveport exceed the criterion of 780 mg/L less than 10% of the time. The threshold for impairment using Louisiana's assessment methodology is 30%; therefore, the proposed criterion will not cause an impairment in the Red River in Louisiana.

It is important to note that 40 CFR 131.10(b) requires states to consider the water quality standards of downstream states when revising their criteria.

This report did consider attainment of downstream water quality standards in Louisiana. The proposed Red River criterion is reflective of current conditions, not an increase in mineral concentrations. Therefore, if current conditions are not causing an impairment in Louisiana, then the proposed criterion will not cause an impairment in Louisiana.

COMMENT 21

5.5 Model Results for 7Q10 Conditions, page 5-7:

Neither the RED0046 data nor the RED0009 data were considered to be a good representation of well-mixed concentrations in the Red River by the authors. Both the RED0046 station and the RED0009 station are located where the Red River does not appear to be laterally well-mixed because of significant tributary inflows a short distance upstream of each station.

The discussion explains that because of the location of the sampling sites for both RED0046 and RED0009, the data are likely measuring a disproportionate percentage of tributary water that has not mixed completely with the entire flow of the Red River. The authors contend that both tributaries (especially the Little River) contribute water that typically has TDS concentrations much lower than concentrations in the Red River. Because these two stations appear to be underestimating the TDS concentrations in the Red River and should not be used for comparison with predicted TDS values from the mass balance modeling, presumably because their inclusion could result in an underestimation the TDS concentrations in the Red River as compared to predicted TDS values from the mass balance modeling.

While it is possible that the inflow from the Little River at (RED0046) and the Sulphur River at (RED0009) may not be well-mixed, the problem with leaving them out is that it will likely mean an underestimation of TDS concentrations to the Red River, particularly in the lower reach near the LA state line.

It appears that the commenter believes that RED0046 and RED0009 are located in the tributaries rather than on the main stem. Inflows from the Little River and Sulphur River were not excluded from the mass balance model. If inflows from these rivers had been excluded, TDS concentrations in the Red River at the Louisiana state line would have been overestimated (not underestimated). The flow rates and TDS concentrations that were used for these two inflows are shown in Tables 5.1 through 5.3 of the report, Tables J.2 and J.3 in Appendix J, and in the model output in Appendix K (Data Types 20, 22, 24, and 26).

It is unclear how the segment reaches in Table 5.4 compare spatially to the long-term sampling sites.

Table 5.4 is a table of TDS concentrations for point sources. Table 5.5 shows TDS concentrations predicted by the model for each assessment reach, but it already shows the 90th and 95th percentiles of data at the long-term monitoring sites (third column in table). Figure J.1 in Appendix J provides a schematic diagram of the assessment reaches and point source inputs.

COMMENT 22

5.6 Model Results for Harmonic Mean Conditions, page 9:

The authors explain that the reason for simulating harmonic mean conditions was to confirm that proposed TDS criteria for the Red River in Arkansas would allow the Louisiana criterion for TDS in the Red River to be maintained under critical conditions. The harmonic mean simulation presented predicts that the TDS concentration at the AR-LA state line will be 661 mg/L, which is well below the Louisiana criterion for TDS in the Red River (780 mg/L). The conclusion is that the proposed criteria based on the mass balance modeling will be protective of the Louisiana criterion for TDS.

However, the harmonic mean simulation used the same input TDS concentrations as the 7Q10 simulation. As noted in the previous section, the exclusion of inflow from the Little River at (RED0046) and the Sulphur River at (RED0009) my mean an underestimation of TDS concentrations in the Red River, resulting in potential impairment of the current 780 mg/L TDS criterion that applies at the LA state line.

Please see SWEPCO's response to Comment 21 regarding inflows from Little River and Sulphur River. Section 5.0 of the report explains how the model works and gives the reasoning why it is inappropriate to use data from Red River stations (RED0046 and RED0009) to estimate water quality for tributary inflows.

As noted in comments on section 5.5, it is EPA's understanding that water quality data taken in the Red River near Shreveport, between 1991 and 2014 indicate that TDS concentrations of 780 mg/L are just above the 90th percentile. The 780 mg/L value is likely to go down.

Comment acknowledged. SWEPCO agrees that the Louisiana criterion is currently being met.

It would be advisable to consider what potential effect lower criteria in the Red River at the AR/LA state line may have on the predicted TDS criterion of 661 mg/L if LA revises its criteria down.

SWEPCO does not believe it is appropriate to speculate what future criteria may be proposed and potentially adopted for Louisiana and then perform analyses to see if the potential future criteria may be met under the proposed SSC in Arkansas.

COMMENT 23

6.2.2 Domestic Water Supply, page 6-4:

The domestic water supply use for the reach of the Red River between the OK-AR state line and the Little River confluence has previously been removed. The authors provide data that indicate that the reach of the Red River from the Little River confluence to the AR-LA state line can also be expected to exceed secondary drinking water standards due to the same factors. Figure 6.1 *shows that the Red River TDS concentrations at Fulton (downstream of the mouth of the Little River) frequently exceeded the secondary drinking water standard of 500 mg/L during the period of record. The authors also noted that both the Arkansas Department of Health and the Arkansas Natural Resource Commission to confirm that the stream is not used as an existing domestic water supply. Their conclusion is that the domestic water supply use is neither an existing nor attainable use in the Red River downstream of the mouth of the Little River.*

Although it is within Arkansas' authority to remove the domestic water supply use for the segment of the Red River below the confluence with the Little River to the LA state line, AR must consider the downstream state standards and ensure that its action would not affect domestic water supply/drinking water uses in Louisiana. See 40 CFR 131.10(b).

For many years (since 1999 at least), the Red River in Louisiana has been designated for drinking water supply with a TDS criterion of 780 mg/L TDS; SWEPCO must assume that Louisiana, with EPA's approval, considers this TDS criterion to be protective for domestic water supply/drinking water use.

COMMENT 24

7.0 Alternatives Evaluation, page 7-1:

Arkansas' UAA guidance and CPP require that a petition to increase dissolved minerals concentrations above existing conditions must include an evaluation of alternatives to the direct discharge of the water. Four alternatives that have been reviewed including:

1. *Distillation treatment,*
2. *Treatment using a constructed wetland,*
3. *Pumping the wastewater to a larger stream that holds the potential for dilution of the minerals, and*
4. *Reverse osmosis (RO) treatment of the wastewater.*

From the outset, the use of constructed wetlands was dismissed as an option for this facility. The authors based this exclusion on the argument that constructed wetlands can only be used to reduce sulfate, which results in the production of bicarbonate in place of sulfate (Hedin et al. 1989). The authors do note that a constructed wetland could, in principle, reduce sulfate in the discharge from this facility, the resulting TDS concentration would not be decreased (due to the replacement of the sulfate ions with bicarbonate ions), but argue that no net benefit would be obtained, stressing that TDS is the only concern for this evaluation.

The premise in rejecting a constructed wetland appears to be based on the premise that a constructed wetlands would only reduce sulfate to bicarbonate, which would not provide a net reduction in TDS. Looking at the Hedin et al. paper, it is specific to the treatment of acid mine drainage, not the type of discharge that would result from blow down cooling water from a *power plant. The paper does indicate that with an increase in sulfate reduction, bicarbonate alkalinity will be produced and pH will increase, but it does not say that sulfate is directly reduced to bicarbonate.*

Sulfate cannot be reduced to bicarbonate and the report provides the appropriate reference that explains the chemistry that is the basis for the conclusion of the evaluation (Hedin et al. 1989). Further discussion is provided below.

In treatment of acid mine drainage, sulfate would primarily be reduced to sulfite and tend to react with available metal to form sulfide precipitates. The Hedin paper refers to bacterial production of bicarbonate formation, particularly in anoxic limestone drains, but does not refer to the reduction of sulfate to bicarbonate. Which is not unexpected since as noted earlier, the paper is looking at treatment of acid mine drainage, not sulfate or other TDS constituents in particular. Given this, EPA considers a constructed wetland to be a viable and the preferred alternative to altering the applicable TDS criterion.

The sulfate reduction reactions are not specific to acid mine drainage. The chemistry of the sulfate ion does not depend on its source and sulfate is not reduced to bicarbonate in any context. To understand the reasons constructed wetlands cannot be used to reduce TDS, it is useful to review the typical chemical reactions that occur in sulfate reduction. For sulfate-reducing bacteria to carry out their function, a source of carbon must be available. In a constructed wetland, the source of the carbon can take many forms, so a generic formula for the reaction has been developed.

Using sodium as the primary cation for this water, the reaction for sulfate reduction can be expressed as follows:

$$Na_2SO_4 + CH_3COOH + 2H^+ \rightarrow HS^- + 2NaHCO_3 + 3H^+$$

As stated by the commenter, the sulfide ion is subsequently available to react with heavy metals (Me) as follows:

$$HS^- + Me^{2+} \rightarrow MeS + H^+$$

While it is true that the metal sulfide will likely precipitate, the generation of sodium bicarbonate more than offsets the mass of sodium sulfate that has been reduced. In fact, using the above molecular weights of the two compounds, one mole of sodium sulfate (molecular weight of 98 grams/mole) reacts with organic carbon to produce two moles of sodium bicarbonate (molecular weight of 84 grams/mole * 2 moles = 168 grams).

While the specific pathways can be complex, the overall reaction, if the process is taken to completion, demonstrates the reasons that constructed wetlands are not used for TDS reduction.

The authors contend that there are two alternatives for achieving compliance with the existing TDS criteria for the Little River and Red River:

1. *RO treatment to remove or reduce dissolved minerals, and*
2. *Pumping the effluent to a larger river that holds the potential for dilution of the minerals.*

In considering these options, the authors state that there is not a river in the vicinity that could be used as dilution to completely avoid a change in the water quality standards. Although the Red River has sufficient volume, it has a TDS criterion of 500 mg/L, the expected concentration of TDS in the effluent from this facility would not meet the Red River TDS criterion and would still require the completion of a UAA or the installation of partial RO treatment.

EPA considers ADEQ's use of TDS criteria applicable to the Red River, particularly the way the criterion has been applied as the emerging central element here. As noted in previous comments, ADEQ issued permit Turk/SWEPCO is operating under is based on the existing 500 mg/L TDS criterion for the Red River as end-of-pipe limits. The permit carries those limits because the receiving Red River segment was on the state's 2008 303(d) list. From a numeric perspective, ADEQ has issued the permit with a monthly average of 500 mg/l TDS end-of-pipe. This end-of-pipe value equates to an instream waste concentration of 43 mg/L. If ADEQ based the permit on the Little River instream standard of 100 mg/L, once dilution and mixing is allowed, the result is an allowable end-of-pipe discharge of up to 3800 mg/L TDS. While the end-of-pipe concentration is higher, this approach would meet the instream waste concentration based on the ecoregion-based 100 mg/L TDS while allowing the Turk/SWEPCO facility to operate efficiently.

EPA strongly recommends that rather than revise TDS criteria particularly for the Little River, in what appears to be an effort to avoid this permitting scenario, that this approach be considered.

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 25

7.1.2.2 Option 2: RO Treatment/Discharge to Little River at Future Effluent Limits, page 7-9:

The authors anticipate that the TDS criterion in the Little River, and thus the effluent limitations in future NPDES permits for the SWEPCO plant, could be lowered to 100 mg/L. The conclusion drawn is that this would require that all of the effluent be treated through an RO system if it continues to be discharged to the Little River, in order to achieve an effluent limit of 100 mg/L for TDS.

However, as noted previously, the 100 mg/L criterion that applies to the Little River is not the same as a derived NPDES permit limit. The permit limit that would be derived from the

100 mg/L TDS criterion once dilution and mixing is allowed, would likely be an allowable end-of-pipe discharge of up to 3800 mg/L. Given that this concentration would allow the facility to meet the 100 mg/L TDS criterion in the Little River, there would be no need to consider RO.

It is SWEPCO's understanding that discussions between ADEQ and EPA have addressed EPA's concern regarding this recurring comment.

COMMENT 26

7.3 Summary of Costs, page 7-10:

The authors summarize the estimated costs of various treatment scenarios compared to the cost of direct discharge based on the proposed site-specific criteria in Table 7.1. The cost described here appear to be the potential cost associated with RO treatment of the entire volume of the Turk/SWEPCO discharge. It is unclear what volume of the discharge would need to be treated.

Please see Sections 7.1.2.1 through 7.1.2.3. Each of the three scenarios states how much of the discharge would be treated in order to meet the stated permit limitations.

EXHIBIT 5

Response to EPA Technical Comments
SWEPCO Technical Justification for a Site-Specific Criterion in the Little River

On October 20, 2015, Region 6 of the US Environmental Protection Agency (EPA) provided technical comments dated "September XX, 2015," to the Arkansas Department of Environmental Quality (ADEQ) on Southwestern Electric Power Company's (SWEPCO's) *Technical Justification for a Site-Specific Temperature Criterion in the Little River, Hempstead and Little River Counties, Arkansas*, which was submitted to ADEQ on September 10, 2014.

EPA's comments have been reproduced below, followed by SWEPCO's responses in blue text. EPA's comments are given in italics for ease of distinguishing between the comment and SWEPCO's response, and the comments have been numbered to allow for referencing within the document.

COMMENT 1

1.1 Background & Overview, page 1-1

This document states that the Turk/SWEPCO facility's National Pollutant Discharge Elimination System (NPDES) permit (No. AR0051136) includes a daily maximum temperature permit limit of 35°C (95°F). Given that Arkansas Reg. 2 specifies and the authors acknowledge that the applicable temperature limits for streams is 30°C (86°F), the basis for the maximum temperature limit of 35°C (95°F) in SWEPCO's current permit is unclear.

Comment acknowledged.

The document also notes that the Little River downstream of Millwood Lake has a lower temperature criterion than Millwood Lake and the Red River immediately downstream of the Little River. Both Millwood Lake and the Red River in Arkansas have a temperature criterion of 32°C (89.6°F) (APCEC 2011). Figure 1.2 is presented to illustrate the spatial inconsistency of the temperature criteria.

EPA is correct. Comment acknowledged. As the report states in Section ES.1:

> If the Little River is designated as impaired for temperature due to recent temperature measurements, the facility's NPDES permit limit for temperature at Outfall 001 would be reduced to the Little River instream criterion of 30°C (86°F) without the usual allowance for a mixing zone (i.e., using typical end-of-pipe calculations to develop permit limits for a thermal discharge). The facility's operation would be adversely impacted by a temperature impairment designation in the Little River that may limit or prevent discharges during warm weather and reduce the efficiency of the facility's operation during other times of the year. Adjusting the temperature criterion for the Little River downstream of Millwood Lake to reflect current ambient conditions during the critical summer conditions

will (a) prevent the Little River from being inappropriately listed as impaired and (b) result in NPDES temperature limitations for the SWEPCO discharge that are appropriate and protective of the designated uses of the Little River.

Please note that the draft ADEQ 2014 303(d) list includes this reach of the Little River as impaired for temperature.

The document notes that Millwood Lake has a temperature criterion of 32°C (89.6°F), the Little River, downstream of Millwood Lake has a 30°C (86°F), and the Red River immediately downstream of the Little River has a temperature criterion of 32°C (89.6°F) (APCEC 2011) to illustrate the spatial inconsistency of the temperature criteria downstream of Millwood Lake. Spatial inconsistency has no bearing on toxic or conventional criteria that are protective of aquatic life uses (ALU) and is not a basis for altering applicable criteria.

The technical basis for the proposed SSC is identified and discussed in the report (see Sections ES-1, 3.4.4, and 4.0); the basis for the SSC for temperature in the Little River is not spatial inconsistency.

It is not unusual for temperatures in a reservoir to be higher than upstream and typically downstream lotic waters given the retention time and particularly the shallow depth of Millwood Lake.

SWEPCO agrees that it is not unusual for temperatures in a reservoir to be higher than downstream lotic water, but this fact is only true for deeper reservoirs with a cool- or cold-water discharge. Although Millwood Lake dam has an outlet near the bottom, Millwood Lake is shallow and generally unstratified such that the water temperature at the outlet reflects the temperature of the lake. Temperature measurements taken at the outlet as well as in-lake profiles confirm this statement (see Table 6.1 of the report). It is incorrect to state that the hydraulic residence time of Millwood Lake results in cooler downstream lotic waters.

Although we acknowledge that it may be difficult to manage the flow through a lake as shallow as Millwood given its design, relatively high retention time and higher tailwater race temperatures, but it's unclear how that would affect the entire length of the Little River or why the riparian cover downstream along the Little River could not be enhanced or restored.

The terms "high" or "low" retention times can be ambiguous; however, when compared to other reservoirs of similar surface areas, Millwood Lake has a relatively *low* retention time. Millwood Lake is a shallow lake with short hydraulic residence time (see page 6-3 of the report). The physical setting of a warm-water discharge from Millwood Lake primarily determines the downstream temperature regime of the Little River. Given the Little River's width in this reach (below Millwood Lake), restoring the riparian cover along this wide river would not significantly affect the river's temperature regime.

COMMENT 2

1.1 Background & Overview, page 1-3

The authors note that if the temperature criterion is not changed and the impairment status continues, the facility's NPDES permit limit for temperature at Outfall 001 would be reduced to the Little River instream criterion of 30°C (86°F) without the usual allowance for a mixing zone (i.e., using typical end-of-pipe calculations to develop permit limits for a thermal discharge). As such, the authors note that facility's operation would be adversely impacted by a temperature impairment designation in the Little River that may limit or prevent discharges during warm weather and reduce the efficiency of the facility's operation during other times of the year.

Does this mean that the decision was keeping the existing criteria in place versus operating efficiency (i.e., cost)? If so, the basis for the proposed amendment 40 CFR 131.10(g)(6), which requires an economic analysis to determine if SWEPCO can support upgrades to its process/facilities w/out substantial and widespread impacts.

The basis for the decision to develop the proposed SSC was based on the potential for this reach of the Little River to become listed as impaired on the 303(d) list, thus resulting in end-of-pipe permit limitations set at the current instream criterion for the facility. The SSC was proposed to reflect ambient conditions. The proposed criterion is based on data that are not impacted by SWEPCO's discharge. A correction to the existing criterion is needed even without the discharge.

If the described scenario comes to pass (which is already supported by the draft 2014 Arkansas 303(d) list), it will result in the economic impacts described in the report.

COMMENT 3

1.1 Background & Overview, page 1-4:

The authors indicate that adjusting the temperature criterion for the Little River downstream of Millwood Lake is necessary to reflect current ambient conditions during the critical summer conditions and would result in NPDES temperature limitations that are appropriate and protective of the designated uses of the Little River. An important question is if current ambient conditions reflect the highest attainable condition given the requirements outlined in 40 CFR 131.10?

The temperature data provided in the report support this conclusion. Furthermore, there is nothing that SWEPCO, ADEQ, or the US Army Corps of Engineers (USACE) can do to "improve" water temperatures such that the existing criterion could be attained 90% of the time (to avoid being listed as impaired). The recommended SSC is based on data collected from stations *upstream* of the SWEPCO discharge.

COMMENT 4

2.1 NPDES Permit, page 2-1

The document again refers to the Turk/SWEPCO discharge to the Little River under NPDES Permit No. AR0051136 and the effluent limitation for temperature of 35°C (95°F). As noted previously, it's unclear how this facility can have an NPDES permit that allows a 35°C (95°F) when the applicable temperature for streams is the 32°C (89.6°F). Is there a specific implementation procedure or mixing zone allowance?

Please refer to ADEQ's Statement of Basis for Permit No. AR0051136.

COMMENT 5

2.2 Applicable Water Quality Standards, page 2-2

The authors suggest that the temperature regime of the Little River downstream of Millwood Lake has been altered as a result of physical hydrologic alteration of the system caused by the construction of Millwood Lake. The authors contend that Millwood Lake and its confluence with the Little River has a typical width between 200 and 400 feet with only a small portion of the channel being shaded by trees along the banks.

Based on images of the USACE dam, the Little River may be "200-400' wide" immediately below the dam as stated here, but appears to constrict below River Run Park and appears to be generally consistent with the average stream of reference streams in the Gulf Coastal Plain ecoregion.

Without supporting information for multiple downstream locations on the Little River below the Millwood, this claim does not appear to be supported. Photographs, specifically aerial photos should be included in this proposal to support this claim.

The comment above is incorrect. As noted on page 2-2 of the report, the reference streams in the Gulf Coastal ecoregion had an average width of 23 ft (range was 6.4 ft to 35 ft) with an average canopy coverage of 84% (range was 47% to 100%). The Little River below Millwood Lake dam is about an order of magnitude wider than the ecoregion reference streams and, as a result, has significantly less instream cover. Figures 1 and 2 (below) show Google Earth imagery of the Little River from Millwood Lake dam to the mouth of the river on July 23, 2009, when flows were likely to be low. Visual inspection of the figures indicates somewhat uniform width throughout the entire reach. The figures also indicate the locations of 31 transects downstream of River Run Park for which wetted width was measured using the Google Earth measuring tool. The transects were selected to represent a range of wetted stream widths. Wetted width ranged from 174 to 479 ft and averaged 244 ft.

Figure 1. Google Earth image of upper portion of Little River downstream of Millwood Lake dam showing the locations of transects measured using the Google Earth measuring tool.

Figure 2. Google Earth image of lower portion of Little River downstream of Millwood Lake dam showing the locations of transects measured using the Google Earth measuring tool.

COMMENT 6

2.3 Water Temperature Monitoring, page 2-4

Tables 2.4 and 2.5 presents summary statistics for water temperature data collected by SWEPCO from April to October 2012. These tables indicate that the Turk/SWEPCO discharge increases instream temperatures. With the exception of a higher maximum temperature reading upstream of SWEPCO, which may be a single event, the 95th percentile, percent daily max > 30°C and percent daily max > 32°C indicate that the facility adversely impacts temperature in the Little River.

The data summary presented in Table 2.4 of the report was confusing and misleading. The summary statistics for each station represented the entire data set obtained at each station. Because the temperature recorders were not deployed at each station simultaneously, the summary statistics for some of the stations included data recorded earlier in the year, when water temperatures were cooler. Therefore, the data summarized in Table 2.4 contained a seasonal component that confounded differences among stations and was not apparent from the data as presented. The following revised Table 2.4 provides a summary of the data using the same period of record (July through August of 2013).

Table 2.4. Revised statistics for Little River temperature monitoring using a common period of record (July through August of 2013).

Summary Statistic	ML-0	LR-2	LR-1.5	LR-1	LR-0	LR-00
Number of days with measurements	62	62	62	62	62	62
Number of measurements	5,952	5,952	5,952	5,952	5,923	5,952
Minimum (°C)	25.5	24.2	24.9	25.0	26.3	26.3
Mean (°C)	29.2	28.6	28.7	29.5	29.5	29.3
Maximum (°C)	34.3	32.3	32.0	32.9	34.7	33.0
25^{th} percentile (°C)	28.2	27.9	28.0	28.8	28.8	28.5
Median (50^{th} percentile) (°C)	29.1	28.6	28.7	29.6	29.6	29.4
75^{th} percentile (°C)	30.2	29.3	29.5	30.2	30.2	30.1
95^{th} percentile (°C)	32.1	30.6	30.5	31.5	31.4	31.1
Percent of all data > 30°C	28.6%	10.4%	11.9%	33.9%	32.1%	27.1%
Percent of daily maximum data > 30°C	59.7%	30.6%	38.7%	69.4%	64.5%	56.5%
Percent of all data > 32°C	5.5%	0.1%	0.0%	1.2%	1.9%	1.6%
Percent of daily maximum data > 32°C	27.4%	1.6%	0.0%	14.5%	14.5%	4.8%

The summary in the revised Table 2.4 shows the following:

1. No evidence of warmer water temperature downstream of the discharge as compared to immediately upstream (LR-00 versus LR-0, respectively);

2. Daily maximum temperatures in Millwood Lake (ML-0) that exceed the criterion almost 60% of the time and daily maximum temperatures immediately below the dam (LR-2) and one mile downstream from the dam (LR-1.5) that exceed the criterion between 31% and 39% of the time; and

3. Frequent exceedances of the 30°C instream criterion as shown by 75th percentile values greater than 30°C at four out of six stations in the Little River.

COMMENT 7

2.3 Water Temperature Monitoring, page 2-8

The authors note that temperatures in the Little River during 2013 (Figures 2.3 and 2.4) appear very similar to those measured in Millwood Lake near the dam (Figure 2.5). They note that exceedances of the Little River temperature criterion occur at all of the Little River sampling locations, both upstream and downstream of the SWEPCO outfall, during 2012 and 2013 (Figures 2.2 through 2.4).

These figures generally show that there is an increase in temperature associated with the time of the year sampled. There is a clear correlation with ambient air temperature and water temperature, which among other factors can have a significant influence instream temperatures. This correlation is not considered here.

A regression of air temperature and water temperature is not necessary for this section of the report. The monitoring data demonstrate that the reach of the Little River upstream of the SWEPCO discharge exceeds instream criteria and that the discharge does not have an appreciable effect on temperatures.

The comparison with temperatures in Millwood Lake near the dam are of limited value since this lake is relatively shallow and retention times tend to be fairly high in most lakes.

Again, please note that Millwood Lake has a relatively low retention time. The comparison to temperatures in Millwood Lake near the dam is highly relevant because it shows that the temperature of the Millwood Lake dam outflow is the same as the temperature of the lake.

In addition, the data reported in Fig. 2.8 which show a decrease in temperature from LR0 to LR00 does not appear to be consistent with the summary statistics presented for the same site in Table 2.4, which reports an increase of all and daily maximum data > 30°C.

The revised Table 2.4 addresses this inconsistency.

COMMENT 8

2.3 Water Temperature Monitoring, page 2-10:

Warming in a large shallow impoundment like Millwood is expected as it is in the immediate tail water area. However, it's unclear if this narrative is suggesting that temperatures in the Little River are the result of the Turk/SWEPCO discharge or continuing the claim that the river remains wide and unshaded further downstream.

SWEPCO contends, and the data demonstrate, that the temperatures in the Little River are the result of the ambient conditions and are not due to the SWEPCO discharge.

As noted earlier, a simple internet search produced maps and photographs that suggest that this is not the case downstream.

Please see the response to Comment 5 (along with Figures 1 and 2 of this document) regarding the stream width of Little River downstream from Millwood Lake dam. Additionally, the revised Table 2.4 demonstrates that temperatures in the Little River consistently exceed the criterion upstream of the SWEPCO discharge. The temperatures in the Little River are the result of ambient conditions and are not due to the SWEPCO discharge.

COMMENT 9

2.4 Evaluation of Little River Water Temperatures Upstream of SWEPCO Outfall 001, page 2-10

The discussion indicates that Table 2.5 provides an inventory of water temperature data collected in the Little River downstream of Millwood Lake and upstream of SWEPCO Outfall 001 that were used to evaluate the temperature criterion for the Little River. However, Table 2.5 also includes data from LR00, which is reported as 1 mile below SWEPCO Outfall 001.

That is correct. Although Table 2.5 includes data from LR-00, which is reported as one mile below SWEPCO's Outfall 001, the proposed criteria are based on the data collected upstream of Outfall 001.

COMMENT 10

2.4 Evaluation of Little River Water Temperatures Upstream of SWEPCO Outfall 001, page 2-15

A comparison of temperature statistics between the two FTN monitoring locations near the dam below Millwood Lake and the two locations farther downstream (near SWEPCO) indicate that that locations farther downstream have slightly higher temperatures during July through August and more exceedances of the 30°C (86°F) criterion (Tables 2.3 and 2.4).

SWEPCO agrees.

This paragraph touches on the potential source affecting ambient temperatures in Millwood Lake and the Little River, but provide no details. The summary data, statistics, and statements presented here do not appear to have considered that air temperature is highly correlated with the significant positive heat flux components including solar radiation and with stream water temperature. The correlation is supported by the USGS' Stream Segment Temperature Model (SSTEMP), which asserts that air temperature will usually be the single most important factor in determining mean daily water temperature.

A regression of air temperature and water temperature is not necessary for this section of the report. The monitoring data as summarized in the revised Table 2.4 and on Figures 2.9 through 2.11 of the report clearly indicate that reach of the Little River upstream of the SWEPCO discharge exceeds instream criteria and that the discharge does not have an appreciable effect on temperatures. In any case, meteorological influences that are beyond SWEPCO's control cause ambient water temperatures to exceed the existing criterion without any effects from a thermal discharge.

The authors also note that ADEQ's (303(d)) assessment for 2014 was conducted using the SWEPCO 2012 and 2013 data and FTN 2013 data from this stream reach and that ADEQ's draft 2014 303(d) list includes a temperature impairment for the Little River downstream of Millwood Lake. Did SWEPCO and FTN use ADEQ monitoring stations to collect these data?

No, ADEQ did not have any monitoring stations on the Little River.

Is there information to support the reported listing?

Please see ADEQ's draft 2014 303(d) list
(http://www2.adeq.state.ar.us/water/branch_planning/303d/pdfs/list_of_impaired_waterbodies_20140401.pdf).

While the assessment methodology used to determine impairment appears to be consistent with ADEQ methodology, it is unclear if 3rd party (SWEPCO and FTN) data be was used by ADEQ to support a 303(d) listing?

It is SWEPCO's understanding that ADEQ used data collected by FTN and SWEPCO for the 2014 draft 303(d) listing.

In instances where the temperature exceeds the criteria, it would likely result in a reduction in overall species richness and/or abundance because of excessive heat. Discussions of the macroinvertebrate and fish communities do not appear to show such effects.

EPA is correct. The biological data show no effects due to the discharge.

COMMENT 11

2.5.1 Threatened and Endangered Aquatic Species, page 2-18

The document reports that there have been no live A. wheeleri *collected from just above or below the Turk/SWEPCO discharge. Their absence indicates that the Turk/SWEPCO discharge is having an effect on water quality and the presence of* A. wheeleri. *Although the physical characteristics and inputs to Millwood Lake may affect the ability of the Little River to support* A. wheeleri, *an important aspect of a UAA is to not only to identify current conditions. The document does not provide any discussion of whether temperature or other stressors may be affecting or limiting the presence of* A. wheeleri *in this portion of the Little River.*

The effects to *A. wheeleri* are due to the hydraulic modification (i.e., construction of Millwood Lake dam on the Little River). The reports note that construction of the dam affected mussel distribution and abundance before construction of the SWEPCO facility. Studies performed after Millwood Lake was formed but prior to construction of the facility did not document the presence of *A. wheeleri* in the Little River in the vicinity of the future intake and outfall locations.

*Although the rabbitsfoot mussel (*Quadrula cylindrica cylindrica*) is known to occur in some streams in southwest Arkansas, including the Little River upstream of Millwood Lake, it has not been documented in the Little River downstream of the Lake to the Red River. The rabbitsfoot is likely limited by the physical characteristics Millwood Lake and its effect on the Little River, as well as the Turk/SWEPCO discharge.*

SWEPCO agrees that the rabbitsfoot is not found in the Little River downstream of Millwood Lake. The changes in the physical characteristics, and therefore habitat, of the Little River due to construction of the Millwood Lake dam occurred before construction of the SWEPCO facility.

COMMENT 12

3.4.3.2 Fish, Ecoregion Key and Indicator Species

The authors describe presence and absence of ecoregion key and indicator species per APCEC (2011) which is summarized in Table 3.7. Of three key and indicator species expected to be present based on habitat preferences, one species was present in the pooled list. One species not expected to be present (redfin shiner) was present in the pooled list. The reported data is not specific as to site - is this a comparison of upstream/downstream of the SWEPCO discharge?

Sampling locations are given in Section 3.4.2 of the report.

The location of this sampling would be useful, as it would give some indication of whether the presence of only 25% of key and indicator species is the result of a generally degraded/impacted system, resulting from hydromodification and high ambient air temperatures driving water temperature, or exacerbated by temperature inputs from the SWEPCO facility.

Figure 3.1, which is referenced in the text, shows the sample reaches and the text in Section 3.4.2.1 describes how these reaches were sampled. SWEPCO noted the presence of one of the three expected key/indicator species and the presence of one key/indicator species that was not expected. SWEPCO is unsure how commenter arrived at the value of 25%; there is either one species present out of three expected or two species present out of four expected.

It is also misleading to use percentages to describe small numbers such as these. Since there are virtually no temperature impacts due to the plant, the presence of one out of three (or two out of four) key/indicator species, to the extent it needs explaining, must be due to factors other than temperature inputs from the plant.

COMMENT 13

3.4.4 Discussion and Conclusions, page 3-22

The following is a preface to responses to comments on this section to clarify the approach and findings of this section.

The fish community data were analyzed two different ways. The first compared upstream versus downstream reaches (see Section 3.4.2 of the report for sampling locations); the methodology is described in Section 3.4.3.2 of the report ("Fish: Upstream versus Downstream"). This analysis demonstrated virtually no difference between the upstream and downstream samples (percent similarity between the two reaches was 81.3%; Morisita's similarity index value was 0.96). This analysis addressed the impact of the discharge on the fish community but did not address whether the fish community as a whole, under the elevated temperature regime (which is due to ambient warming), met the designated use.

The second analysis addressed use attainment of the overall community under the elevated temperature regime. Since there was no difference between upstream and downstream fish collections, the upstream and downstream data were combined with additional data collected by the US Geological Survey (USGS) in 2009 and 2013 within the immediate vicinity of the upstream sampling reach. The species list from this pooled data set was then evaluated as follows:

A. Species Composition

The pooled data set was evaluated to assess whether or not the species present represented the expected assemblage of ecoregion fish species based on biogeography, habitat preferences, seasonality and gear selectivity. The absence of species that "should" occur would indicate potential impacts due to water quality. The analysis was performed as follows:

1. Based on information in the literature, a list of "expected" species was generated based on geographic distribution and habitat preferences (Appendix D). This reference list provided a list of fish species that might be expected to be present in the Little River downstream of Millwood Lake dam based on geographical distribution and habitat preferences. Note that this list can only be a presence/absence list. It is not possible to generate expected relative abundance in the reference list.
2. This reference list of expected species was then compared to the pooled list.
3. Differences between the final reference and pooled lists were evaluated to determine if the differences could be attributed to factors such as habitat preferences, seasonality, rarity, or gear selectivity, as opposed to water quality.

This evaluation found that the pooled list contained 37 of the 52 (71%) expected species found in the reference list. SWEPCO evaluated the 15 "absent" species with respect to microhabitat preferences, seasonal distribution, and susceptibility to the sampling gear used and concluded that the pooled species list closely resembles expectations based on zoogeography, habitat preferences, and gear selectivity. The commenters did not dispute this finding.

B. Temperature Tolerances

The tolerance of the existing community to thermal stress was assessed by compiling tolerance values from the literature and analyzing the distribution of tolerance values of fish in the pooled collection.

The result of this analysis indicated that the *expected* (reference) community was made up of tolerant to moderately tolerant species and should be relatively insensitive to moderate changes in water quality, including temperature. The distribution of tolerance classes among the fish species present in the pooled list was similarly skewed towards tolerant and moderately tolerant species and is a reflection of the expected fish community.

The analysis of the fish sampling data demonstrated that that the fish species composition of the Little River downstream of Millwood Lake dam (1) is not affected by the discharge, and (2) matches expectations based on biogeography, habitat, and tolerance.

The commenters did not dispute this finding.

Therefore, the existing temperature regime, which is the result of the combination of hydrologic modification and ambient climate, supports the designated fishery use.

The authors observed that the strongly similar fish and benthic communities upstream and downstream of the discharge. The suggestion is that this finding indicates that the current operation of the discharge has negligible effect on the existing biological communities. Although relative abundance upstream/downstream showed reasonably good comparison at around 71%

The 71% value does not refer to the upstream/downstream comparison. The analysis of upstream versus downstream demonstrated virtually no difference between the upstream and downstream samples (percent similarity between the two reaches was 81.3%; Morisita's similarity index value was 0.96).

The Meador and Carlisle (2007) data only showed 61% of the expected species are present and only 25% of the expected species for the Little River present in the pooled sample. It is unclear if this is the result of a degraded system or that the discharge has more than a negligible effect.

The report describes how the list of expected species was compiled in Section 3.4.2.2. The Meador and Carlisle data do not provide a list of expected species. They provide tolerance values for a list of North American fish species. The report stated that of the 52 expected species, Meador and Carlisle provide tolerance vales for 32 species (61%). This does not mean that only 61% of the expected species were present. The report does not state or imply "...only 25% of the expected species for the Little River were present in the pooled sample."

COMMENT 14

3.4.4 Discussion and Conclusions, page 3-23

The discussion notes that ecoregion key and indicator species are generally not expected to be present in the reach of the Little River due to the habitat preferences of those species and that the low numbers of key and indicator species present in the pooled list (two species) is a reflection of this expectation. This statement appears to contradict Table 3.7, comparing expected key/indicator species in the Little River to what was present in the pooled list (25%).

Table 3.7 shows that only three (or four, depending on how they are counted; see response to Comment 12) of the 12 ecoregion key/indicator species are expected to be present based on habitat. Of these, we collected two. Noting that only three or four key/indicator species would generally be expected to be present does not contradict the observation that two key/indicator species were present.

EXHIBIT 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

October 20, 2015

Sarah Clem
ADEQ Branch Manager
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Environmental Protection Agency comments on the Proposed 3rd party rule by the Southwestern Electric Power Company John W. Turk, Jr. Power Plant (SWEPCO facility)

Dear Ms. Clem:

The Arkansas Pollution Control and Ecology Commission (APC&EC) held a public hearing on November 17, 2014, to receive comments on a third-party proposal by the Southwestern Electric Power Company John W. Turk, Jr. Power Plant (Turk/SWEPCO) regarding water quality standards changes to APC&EC Regulation 2. The proposed amendments to Regulation 2 include a modification of the Total Dissolved Solids (TDS) water quality criterion and temperature criterion for the Little River from Millwood Lake to the mouth of the Little River, and modification of the TDS water quality criterion and removal of the designated, but not existing, domestic water supply use for the Red River from the mouth of the Little River to the Arkansas/Louisiana state line. The Environmental Protection Agency Region 6 (EPA) would like to offer the following general and enclosed more detailed comments for the Arkansas Department of Environmental Quality's (ADEQ) consideration.

We are concerned that the supporting use attainability analysis (UAA) did not provide a clear basis to support the contention that only naturally occurring sources of TDS are causing the impairment in the Little River. We acknowledge that there are predominately natural and anthropogenic sources of minerals/TDS introduced into the Red River through Texas and Oklahoma as described in the supporting UAA. These sources are some 200 miles upstream of confluence of the Little River. Further, the UAA did not provide information on additional sources of minerals or sources of dilution in Arkansas that may influence conditions in the Red River. Although there may be some basis to support a revised TDS criterion below the confluence with the Little River to some point downstream, given that the designated fishery use is being attained in the Red River, a revised criterion from the confluence of the Little River to the Arkansas/Louisiana line does not appear to be clearly supported.

EPA appreciates the opportunity to comment on the proposed 3rd party proposal. If you have any questions, please contact me at (214) 665-6646.

Sincerely,

Russell Nelson
Regional Standards Coordinator
Watershed Management Section

Enclosure

Technical Comments on:

Exhibit F
Use Attainability Analysis
For Dissolved Minerals in Little and Red Rivers
Hempstead and Little River Counties, Arkansas (September 5, 2014)

Southwestern Electric Power Company, Inc, Dallas, TX
NPDES No. AR0051136

UAA Prepared by
FTN Associates, Ltd., Little Rock, Arkansas

These comments are being provided to the Arkansas Department of Environmental Quality (ADEQ) for the document titled *Use Attainability Analysis for Dissolved Minerals in Little and Red Rivers, Hempstead and Little River Counties, Arkansas*. This use attainability analysis (UAA) is intended support the modification of Arkansas water quality standards (designated uses and water quality criteria), to remove the domestic water supply use in the Red River and establishment of site-specific criteria for total dissolved solids (TDS) in both the Red and Little Rivers, within the Gulf Coastal ecoregion.

<u>Technical Comments</u>

Executive Summary

ES.7 Proposed TDS Criteria Little River

Page xi:
The proposed TDS criterion for the Little River below Millwood Lake is based on a weight-of-evidence approach utilizing a mass balance model. The document states that a mass balance was prepared that would reflect naturally occurring elevated TDS concentrations in the Little River. The document refers to TDS data collected upstream of SWEPCO by FTN and SWEPCO during October 2010 through October 2013 that showed that the current site-specific TDS criterion 100 mg/L criterion was exceeded approximately 10% of the time. The authors conclude that a TDS criterion of 136.1 mg/L would be necessary in the Little River to reflect the naturally occurring mineral regime and to allow SWEPCO to operate efficiently.

It's unclear what the basis for presuming that only naturally occurring sources of TDS result in the 10% exceedance rate. Later, the document refers to input from the Little River itself above Millwood Lake and from Mine Creek, noting that inputs from the latter are significantly higher per volume than other tributaries to Millwood Lake. The name Mine Creek alone suggests that this creek is a likely source of anthropogenic. Given the mass balance budget described in Table J.1 describes the background in the Little River as 98 mg/L and the SWEPCO discharge as contributing 1620 mg/L, it is unclear how a presumption that the inputs to the Little River are anthropogenic. This tends to undermine the validity of the mass balance and any conclusions that may be drawn from it.

Differentiating between natural background and anthropogenic sources causing exceedances is important. As articulated in Tudor Davies 1997 policy memo, the water quality standards regulation at 40 CFR 131.11 (b)(1) requires States and authorized Tribes to adopt numeric water quality criteria that are based on section 304(a) criteria, section 304(a) criteria modified to reflect site-specific conditions, or other scientifically defensible methods.

In summarizing the aquatic life evaluation, the document indicates that the aquatic life composition of the current fish community below Millwood dam is a subset of what would be expected given available habitat. What is described here represent a snapshot of what is likely impacted and/or degraded conditions in the Little River. While document current conditions is an important, the objective of a UAA should be determining what the highest attainable use that can be attained. The objective of a UAA is to determine what the highest attainable use the waters of interest can support. 40 CFR 131.10(d) requires at a minimum, that uses be deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control.

1.0 Introduction

1.1 Background and Overview

Page 1-1:
The discussion here appears to be suggest that the (predominate) natural (and anthropogenic) mineral and TDS sources from TX and OK are not adequately accounted for and result in exceedances of AR's 500 mg/L criterion in the lower segment of the Red River below the confluence of the Little River to the AR-LA state line. Since there is certainly some dilution in the Red River as it moves to the confluence with the Little River and on downstream, it will be critical to provide clear support that these predominately natural upstream in TX and OK, and those in AR contribute to an inability to attain the current 500 mg/L criterion in the lower segment. The spatial inconsistence identified in and of themselves are not a basis for modifying criteria.

Page 1-1 and 1-3:
In describing this permit as not typical, the authors are referring to ADEQ's use of the 500 mg/L TDS criterion that applies to the Red River as an "end of pipe" value rather than the 100 mg/L TDS criterion that applies to the Little River. Based on the fact sheet, it appears that ADEQ based 500 mg/L TDS criterion in the SWEPCO permit on the applicable criterion in the Red River to ensure that the discharge would not contribute to the impairment of the Red River because it is on the state's most recent EPA approved 303(d) list for exceedances of chloride, sulfate and TDS.

Region 6 permitting staff have suggested that if the 100 mg/L TDS criterion applicable to the Little River were applied, when dilution and mixing are considered, a limit of 3800 mg/L would be possible and would be protective of the designated fishery use in both the Little River and the Red River.

Page 1-4 Table 1.2:
The increase for both median and 95th percentile concentrations of TDS from the historical data the more recent data collected by SWEPCO suggest that the concentrations are the result of something other than "naturally occurring exceedences" as suggested in the next paragraph.

Page 1-5:
The authors refer to little to no assimilative capacity for TDS in the Little River at times (absent the SWEPCO facility's discharge) as a result of "naturally occurring exceedances" of the current site-specific 100 mg/L TDS criterion occurring "upstream" of the SWEPCO discharge, refers to more in depth discussed in Sections 3.0 and 5.0. However, there is very little discussion of possible upstream naturally occurring" sources for the Little River in these sections. The only sources for the Little River discussed in the document to any degree are tributaries to Millwood Lake, particularly Mine Creek. Although Mine Creek is identified as the most significant contributor of minerals to Millwood Lake and downstream to the Little River, there is no information concerning possible mining impacts to that creek. As a result, the basis for attributing a lack of assimilative capacity and a 10% exceedance rate for the current 100 mg/L TDS criterion in the Little River to naturally occurring sources has not been established. What are these natural sources of high TDS - Mine Creek? And are they natural or anthropogenic?

2.0 Background

2.3 Existing Water Quality and Impairments

2.3.1 Little River

2.3.1.1 TDS Sources to the Little River

This section includes an evaluation of existing data from tributaries upstream of Millwood Lake to identify potential recent sources of TDS that might explain the increased TDS values in samples collected from the Little River downstream of the dam on Millwood Lake. The major tributaries of Millwood Lake include the Little River, Cossatot River, Saline River, and Mine Creek (Figure 1.1). Table 2.2 identifies the major tributaries to Millwood Lake, including the Cossatot River, Saline River and Mine Creek and summaries of their TDS contribution. Although Mine Creek only contributes 2% of the inflow, the TDS concentrations are significantly higher than the other streams.

There is some inconsistency between Tables 1.1 and 1.2 presenting USGS data from 1967-1995 and SWEPCO data from 2010-2013 (although it's not clear what sites the SWEPCO data came from) that show an increase in TDS concentrations over time. The time-series plots of TDS data from these ADEQ monitoring stations on the tributaries upstream of Millwood Lake identified in Figures 2.1 through 2.4 that show no clear evidence of significant changes in TDS levels in any of the streams, yet the authors report an increase in TDS concentration downstream of Millwood Lake.

2.3.1.2 Water Quality Impairments for Minerals in the Little River

The authors indicate that ADEQ does not considers the Little River downstream of Millwood Lake to be impaired and have not included it on any 303(d) list. Further, the document notes that this stream is classified by ADEQ as "unassessed" due to a lack of data for water quality (including minerals). It is important to note that "unassessed" simply means that there is no data and does not necessarily mean that the Little River is either impaired or unimpaired. That lack of data may be why neither ADEQ nor EPA have included the Little River on the state's 303(d) list.

2.3.2 Red River
2.3.2.1 TDS Sources to the Red River in Arkansas
2.3.2.2 TDS Sources to the Upper Red River (Oklahoma, Texas)

Pages 2-5 to 2-8:
Much of the literature cited in the Executive Summary and in these sections is dated, relying on several sources from a time period when oil production was high with minimal environmental regulation. Despite those issues, it is reasonable to say that there are significant natural as well as anthropogenic sources of minerals in the Red River and its tributaries.

While the more current information tends to show that the predominant mineral sources to the Red River are likely natural, despite remediation efforts by the US Army Corps of Engineers (USACE), it is likely that brine disposal and intrusions from oil production into the Little Wichita and other sites are sources that affect the Red River in Texas, Oklahoma and contribute to the loading to a lesser extent in Arkansas. Sources of information for oil and gas production and remediation should be available from the Texas Railroad Commission and the Oklahoma Corporation Commission.

Not having, or possibly not being able to provide any information to support historical oil extraction impacts and their contribution to minerals/TDS concentrations significantly weakens the claim that the "overwhelming portion" historical of the TDS inputs to the system are from natural sources.

2.3.2.3 Water Quality Impairments for Minerals in the Red River

Page 2-9:
The authors note that upstream criteria for the Red River in Texas and Oklahoma reflect the elevated ambient mineral concentrations that are due to inputs from salt springs and seeps from the arid and semi-arid headwater regions. This is generally true, given salt springs are found as far west as the High Plains and Tableland Level II ecoregions. Although less predominate, there also anthropogenic and natural inputs from the Central Plains, Crosstimbers, Blackland Prairie and East and South Central Plains ecoregions.

It is important for Arkansas to recognize that an upstream state can establish uses and criteria in their waters as appropriate. 40 CFR 131.10(b) requires that those states take the downstream state's standards. Recent court decisions have affirmed EPA's ability to look at downstream waters to ensure protection.

This section also discusses assessment procedures used by states that share jurisdiction over portions of the Red River. Referring to Table 2.6, which compares criteria for minerals and impairments identified on state 303(d) lists, which shows that the Red River is not considered to be impaired upstream in Oklahoma and Texas or downstream in Louisiana. The authors state that this is partly due to different assessment procedures that are used in other states, suggesting that these states use less protective exceedance rates. As an example, the authors note that Louisiana does not consider a stream to be impaired for dissolved minerals unless 30% of the observed data exceed the water quality standard compared to Arkansas' 10% exceedance rate. The authors also state that Oklahoma and Texas also use less-stringent assessment procedures for dissolved minerals than Arkansas, and also state that the criteria in their water quality standards are less stringent than the criteria in Arkansas's standards. However, the authors have not explained how these approaches are any less protective than those used by Arkansas.

It is important to understand that simply comparison of exceedance percentages used in assessing use attainment does not tell the entire story. Assessing attainment includes defining the water quality indicators it measures and the procedures for analyzing and interpreting data in order to decide whether standards are met or water quality is impaired. This should include collection and analysis of multiple types of data providing information relevant to assessing attainment with approved WQS. As a result, a comparison of Louisiana's current use of a 30% exceedance rate to Arkansas 10% is not necessarily appropriate, although it should be noted that Region 6 is working with Louisiana to revise its approach. Oklahoma compares the mean of all values to a yearly mean standard, then looks for greater than 10% exceedances against a sample standard. In Texas, minerals criteria represent annual averages of all values that were collected and compared to the criterion for each parameter. Use attainment is based on the average concentration that applies to the entire length or area of the segment. For TDS, a value is calculated by multiplying specific conductance measured at the surface by a factor of 0.65. The chloride, sulfate, and TDS criteria are not supported if the average value exceeds the criteria.

The authors also state that Oklahoma and Texas water quality standards as less stringent than the criteria in Arkansas. Given the natural saline seeps and historical oil extraction activity along the Red River that this document discussed previously, higher criteria would be expected upstream in Texas and Oklahoma. The burden for SWEPCO is to show that predominately natural sources upstream in Oklahoma and Texas upstream as distant as Lake Texoma and/or that natural sources in Arkansas itself alter concentrations in the lower segment of the Red River to support the proposed criteria modifications.

Page 2-10:
In a discussion of Table 2 describing applicable criteria and 303(d) listings, the authors refer to ADEQ's practice in recent years of making specific permitting decisions and calculations based on the state's most recent 303(d) list that has been approved by EPA. This approach means that ADEQ is applying the 500 mg/L TDS criterion that applies to the Red River below its confluence with the Little River as an end-of-pipe limit rather than the 100 mg/L criterion that applies to the Little River which is the receiving water for the Turk/SWEPCO discharge.

Based on the NPDES permit fact sheet, applying the 100 mg/L TDS criterion that applies to the Little River, when dilution and mixing is considered. a limit of up to 3800 mg/l would be possible and still meet the in-stream criterion of 100 mg/L which would protect beneficial uses in the Little River and downstream. However, applying the 500 mg/L TDS criterion as an end-of-pipe limit results in a more restrictive permit limit. Without any information to the contrary, the effect of ADEQ's approach does not appears to have a significant environmental benefit for either the Little River or Red River, but appears to have the opposite effect. While applying 500 mg/L TDS criterion as an end-of-pipe limit may result in a small reduction in overall loads, the more restrictive limit reportedly requires the facility to operate at less than optimum efficiency. Thus ADEQ's approach appears to be the primary driver for Turk/SWEPCO to seek revised criteria for the Red River, which may be a less desirable environmental outcome.

2.4 Threatened and Endangered Species

2.4.1 Threatened and Endangered Aquatic Species

Page 2-12:
This section of the document discusses several endangered species listed by the US Fish and Wildlife Service (USFWS) including the Ouachita rock pocketbook *(Arkansia wheeleri)*, which is federally listed throughout its range in Arkansas and Oklahoma. The document reports that there have been no live *A. wheeleri* collected from just above or below the Turk/SWEPCO discharge. Their absence indicates that the Turk/SWEPCO discharge is having an effect on water quality and the presence of *A. wheeleri*. Although the physical characteristics and inputs to Millwood Lake may affect the ability of the Little River to support *A. wheeleri*, an important aspect of a UAA is to not only to identify current conditions. The document does not provide any discussion of whether minerals/TDS or other stressors may be affecting or limiting the presence of *A. wheeleri* in this portion of the Little River.

The authors also note that the USFWS recently listed the rabbitsfoot mussel *(Quadrula cylindrica cylindrica)* as threatened (Federal Register 2013). That species is known from some streams in southwest Arkansas, including the Little River upstream of Millwood Lake. This species not been documented in the Little River downstream of Millwood Lake or the Red River. The rabbitsfoot is likely limited by the physical characteristics Millwood Lake and its effect on the Little River, as well as the Turk/SWEPCO discharge.

3.0 FIELD SURVEY

3.1 Overview

Page 3-1:
Rather than relying on biological evaluations in a upstream versus downstream comparison from a point source discharge and a comparison of communities in reference and receiving streams, the approach for field surveys is attempting to show that characteristics in Millwood Lake and at the Denison dam dominate the mineral regime in the Little and Red Rivers rather than the Turk/SWEPCO discharge.

There are sources of minerals above Millwood dam, primarily the Little River and Mine Creek upstream of Millwood Lake and there are certainly significant natural and anthropogenic sources of mineral in the upper reaches of the Red River in Texas and Oklahoma. The burden for Arkansas is to clearly show that the sources above Millwood dam are at least predominantly anthropogenic. Similarly, Arkansas must be able to make a reasonable showing that the predominately natural and some anthropogenic sources some 200 miles upstream have a significant effect on water quality in the Red River as far downstream as its confluence of the Little River and show that there are no natural or anthropogenic sources from the TX-AR line to the confluence.

If the Turk/SWEPCO discharge is not contributing to the potential exceedances in the Little River or potentially impacting the Red River, the important question as to whether the facility is seeking to revise the criteria in the Little River and the Red River because the criteria are inappropriate or because of ADEQ's policy decision to applying a criterion as an end-of-pipe limit rather than basing it on applicable criteria considering dilution and mixing in the receiving water.

3.4.1.2 Macroinvertebrate Data Analysis

Page 3-10:
In discussions of field observations the authors indicated an attempt was made to assess the susceptibility of the existing benthic macro invertebrate community to a slight increase in TDS. Tolerance indicator values (TIVs) for specific conductance for various invertebrate taxa provided in Carlisle et al. 2007 were reviewed. However, the authors note that too few of the taxa listed in Carlisle et al. 2007 were present in the data set for this study to allow for a meaningful evaluation of ion tolerance. Accordingly, the benthic data presented herein provide a description of the presently attained fisheries use and a baseline for future studies.

It should be noted that small increases in TDS alone may have minimal effect on the existing benthic community however, TDS is rarely seen independent of other stressors. In a quick search, a number of sources were identified that discuss the effect TDS has on Appalachian streams. For example, Timpano et al. (2010), in discussing the effects of TDS in coalfield streams. As a way of isolating the effects, Timpano et al. used headwater streams to represent a gradient where confounding factors could be minimized. This and other similar papers done in Appalachian could have been used to inform this aspect of the analysis. One of the problems with the approach take here is a lack of reference stream comparisons.

3.4.2.2 Fish Data Analysis

Page 3-11:
Fish data were first assessed to determine if there were impacts due to the Turk/SWEPCO discharge "under current conditions" by evaluating differences in total species richness, relative abundance, diversity, and similarity measures between upstream and downstream reaches.

Although unclear, it appears that "under current conditions" likely means under limits specified in the current NPDES, which as noted earlier, are based on a monthly average of 500 mg/l TDS applying Red River Criteria end-of-pipe. This end of pipe value equates to an instream waste concentration of 43 mg/L. As noted earlier, if ADEQ were to base the Turk/SWEPCO permit on the Little River instream standard of 100 mg/L, once dilution and mixing is allowed, this would result in an allowable end-of-pipe discharge of up to 3800 mg/l to still meet the instream waste concentration of 100 mg/L. These conditions should be modeled and presented as a comparison rather than solely those based on ADEQ's current approach of basing permits on past 303(d) listings. Without this, there is some question to the validity to the findings here and in other aspects of this proposal.

3.4.4 Discussion and Conclusions

Page 3-22:
The authors note that the evaluation of the fish community demonstrated similar fish communities upstream and downstream of the Turk/SWEPCO discharge in the Little River. The combined collections from their study and USGS sampling during 2009 and 2013 provide evidence that the designated fisheries use in the Little River is currently attained under the existing mineral conditions.

Further, the document reports that an evaluation of the mineral tolerances of the existing fish community indicate a fish community that can be expected to be relatively insensitive to moderate changes in TDS (as indicated by specific conductance). The UAA notes that fish species that were classified as intolerant to TDS or for which data in Meador and Carlisle (2007) were lacking can be shown to be present in the Red River, which has substantially higher TDS than will be experienced in the Little River due to the operation of the Turk/SWEPCO plant. The conclusion drawn is that the anticipated increase in TDS due to the operation of the Turk/SWEPCO plant will support the designated fisheries use in the Little River downstream of the Millwood Lake dam.

The question these conclusion raise is even if the designated fisheries use in the Little River would potentially be maintained with the proposed increase in TDS criterion to 138 mg/L, why is it necessary if that use is being attained at the current 100 mg/L criterion? The answer seems to go back to Turk/SWEPCO's desire to operate at maximum efficiency. Under current conditions, the facilities efficiency appears to only be affected by ADEQ's approach in using limits based on the 500 mg/L criterion for the Red River as an end-of-pipe value. As noted previously, given that the Turk/SWEPCO discharge appears to have a negligible effect on the Red River, if ADEQ were to use existing criteria and allow for mixing and dilution in the Little River, there would be no need for this proposal.

3.5 Fisheries Evaluation in the Red River

Page 3-24:
The objective of this evaluation was to determine whether the existing mineral regime supports the designated fisheries use as indicated by fish populations. The approach relied on the historical record of mineral concentrations in the Red River from ADEQ monitoring stations RED0025, RED0046, and RED0045 and the use of a sampling survey and historical data review

of fish populations in the Arkansas portion of the Red River conducted by Buchanan et al. (2003). The intent was to characterize the existing fish communities and evaluate whether those existing communities are supported by the existing mineral regime, thus indicating attainment of the fisheries designated use.

Although the Buchanan et al. (2003) data suggest that mineral conditions during 1995 and 2001 supported a high fisheries use attainment, it is somewhat problematic to rely on data that represents a single snapshot in time from 14 years ago. The authors draw the conclusion that since the Red River was meeting designated uses during the Buchanan et al. study and that because TDS data from the post-study period (2002 through 2013) indicate that mineral concentrations where generally higher during the time frame of the Buchanan et al. study, that fisheries beneficial uses are likely currently being attained. While the post-study period (2002 through 2013) TDS data gives an indication that uses are currently being attained, it does not provide the same level of confidence as current field data would. Showing that broadly written designated aquatic life uses can be supported under the existing mineral regime isn't necessarily a high bar given how broadly beneficial use definitions tend to be written. Determining attainment tends to depend on the individual state's assessment methodologies rather than the use definition.

3.6 Biological Evaluation: Summary and Conclusions
3.6.1 Little River
3.6.2 Red River

Page 3-25:
The evaluation of the·biological data demonstrated similar fish and communities upstream and downstream of the Turk/SWEPCO facility. The authors conclude that these finding reported suggest that the designated fisheries use is being attained that that the projected mineral concentration - presumably the proposed 138 mg/L TDS criterion will not be adversely affect attainment of the fisheries use.

Although the data indicate that the designated fisheries use is currently being attained, the document does not provide compelling information to support the contention that the proposed 138 mg/L TDS criterion will not adversely affect attainment. Further, concerns with impacts to benthic macroinvertebrate communities downstream of the discharge at the current criterion have been identified in previous comments.

4.0 TOXICITY ANALYSIS
4.1 Evaluation of Routine WET Testing

Page 4-1:
The recurring concern here is that the conditions simulated for toxicity analysis are reflective of current permit conditions, not what would likely be the conditions if the Red River was not listed.

More specifically, section 4.1 reports that a review of NPDES DMRs from what is likely the current permit (from November 1, 2012) indicate no episodes of sub-lethal toxicity for *C. dubia* and *P. promaleas*. Since the current permit is based on 500 mg/L as an end-of-pipe limit, sub-lethal effects would not be expected. The question is, how C. dubia and *P. promaleas* would respond under conditions that would be expected if a limit of up to 3800 mg/L was in place for the facility as it may be once the current 303(d) listing in the Red River is resolved.

Relying on DMRs that are not reflective of what conditions will likely be long-term in the Little River and downstream in the Red River could be considered misleading.

4.2.3 Conclusions

Page 4-5:
The authors state that calculated IC25 values (1,744 mg/L for TDS; 232 mg/L for sulfate; and 600 mg/L for chloride) indicate that toxicity due to minerals in WET testing would not be expected at the critical dilution (26%) until effluent TDS values reached approximately 6,976 mg/L. And that these results indicate that the threshold for toxicity due to minerals (as TDS, sulfate, and chloride) is well above anticipated mineral concentrations at the critical dilution of 26%. Accordingly, their conclusion is that there is a large margin of safety associated with mineral discharges from the plant with respect to compliance with NPDES WET testing.

It is unclear what the basis for the statement that toxicity due to minerals would not be expected until TDS values reach approximately 6,976 mg/L. Although the IC25 may be considered functionally equivalent to a NOEC by definition, it represents a 25% reduction in the rate of survival, growth or reproduction among test organisms. Further, Table 4.2 indicates that average concentrations of 6,000 mg/L cause 100% lethality.

5.0 MASS BALANCE MODELING
5.2 Critical Flow Conditions

Page 5-1:
Instream TDS concentrations in the Red River were modeled for two critical flow conditions. The authors note that calculations and model results for 7Q10 flow conditions were used to develop proposed criteria for the Little River, and for the Red River between the Little River and the AR-LA state line. The results for harmonic mean flow conditions were used to confirm that the proposed criteria in Arkansas will still allow the Louisiana criterion for TDS in the Red River (780 mg/L) to be maintained.

It's important that ADEQ be aware that the State of Louisiana is currently reviewing its mineral criteria. It is EPA's understanding that water quality data taken in the Red River near Shreveport, between 1991 and 2014 indicate that TDS concentrations of 780 mg/L are just above the 90th percentile. This may mean that it if the Arkansas' proposed criteria are adopted, there is a significant likelihood of TDS impairments in the downstream segment of the Red River in Louisiana.

It is important to note that 40 CFR 131.10(b) requires states to consider the water quality standards of downstream states when revising their criteria.

5.5 Model Results for 7Q10 Conditions

Page 5-7:
Neither the RED0046 data nor the RED0009 data were considered to be a good representation of well-mixed concentrations in the Red River by the authors. Both the RED0046 station and the RED0009 station are located where the Red River does not appear to be laterally well-mixed because of significant tributary inflows a short distance upstream of each station.

The discussion explains that because of the location of the sampling sites for both RED0046 and RED0009, the data are likely measuring a disproportionate percentage of tributary water that has not mixed completely with the entire flow of the Red River. The authors contend that both tributaries (especially the Little River) contribute water that typically has TDS concentrations much lower than concentrations in the Red River. Because these two stations appear to be underestimating the TDS concentrations in the Red River and should not be used for comparison with predicted TDS values from the mass balance modeling, presumably because their inclusion could result in an underestimation the TDS concentrations in the Red River as compared to predicted TDS values from the mass balance modeling.

While it is possible that the inflow from the Little River at (RED0046) and the Sulphur River at (RED0009) may not be well-mixed, the problem with leaving them out is that it will likely mean an underestimation of TDS concentrations to the Red River, particularly in the lower reach near the LA state line.

It is unclear how the segment reaches in Table 5.4 compare spatially to the long-term sampling sites.

5.6 Model Results for Harmonic Mean Conditions

Page 9:
The authors explain that the reason for simulating harmonic mean conditions was to confirm that proposed TDS criteria for the Red River in Arkansas would allow the Louisiana criterion for TDS in the Red River to be maintained under critical conditions. The harmonic mean simulation presented predicts that the TDS concentration at the AR-LA state line will be 661 mg/L, which is well below the Louisiana criterion for TDS in the Red River (780 mg/L). The conclusion is that the proposed criteria based on the mass balance modeling will be protective of the Louisiana criterion for TDS.

However, the harmonic mean simulation used the same input TDS concentrations as the 7Q10 simulation. As noted in the previous section, the exclusion of inflow from the Little River at (RED0046) and the Sulphur River at (RED0009) my mean an underestimation of TDS concentrations in the Red River, resulting in potential impairment of the current 780 mg/L TDS criterion that applies at the LA state line. As noted in comments on section 5.5, it is EPA's understanding that water quality data taken in the Red River near Shreveport, between 1991 and

2014 indicate that TDS concentrations of 780 mg/L are just above the 90th percentile. The 780 mg/L value is likely to go down.

It would be advisable to consider what potential effect lower criteria in the Red River at the AR/LA state line may have on the predicted TDS criterion of 661 mg/L if LA revises its criteria down.

6.0 DESIGNATED USES

6.2 Red River

6.2.2 Domestic Water Supply

Page 6-4:
The domestic water supply use for the reach of the Red River between the OK-AR state line and the Little River confluence has previously been removed. The authors provide data that indicate that the reach of the Red River from the Little River confluence to the AR-LA state line can also be expected to exceed secondary drinking water standards due to the same factors. Figure 6.1 shows that the Red River TDS concentrations at Fulton (downstream of the mouth of the Little River) frequently exceeded the secondary drinking water standard of 500 mg/L during the period of record. The authors also noted that both the Arkansas Department of Health and the Arkansas Natural Resource Commission to confirm that the stream is not used as an existing domestic water supply. Their conclusion is that the domestic water supply use is neither an existing nor attainable use in the Red River downstream of the mouth of the Little River.

Although it is within Arkansas' authority to remove the domestic water supply use for the segment of the Red River below the confluence with the Little River to the LA state line, AR must consider the downstream state standards and ensure that its action would not affect domestic water supply/drinking water uses in Louisiana. See 40 CFR 131.10(b).

7.0 ALTERNATIVES EVALUATION

Page 7-1:
Arkansas' UAA guidance and CPP require that a petition to increase dissolved minerals concentrations above existing conditions must include an evaluation of alternatives to the direct discharge of the water. Four alternatives that have been reviewed including:

1. Distillation treatment,
2. Treatment using a constructed wetland,
3. Pumping the wastewater to a larger stream that holds the potential for dilution of the minerals, and
4. Reverse osmosis (RO) treatment of the wastewater.

From the outset, the use of constructed wetlands was dismissed as an option for this facility. The authors based this exclusion on the argument that constructed wetlands can only be used to reduce sulfate, which results in the production of bicarbonate in place of sulfate (Hedin et al.

1989). The authors do note that a constructed wetland could, in principle, reduce sulfate in the discharge from this facility, the resulting TDS concentration would not be decreased (due to the replacement of the sulfate ions with bicarbonate ions), but argue that no net benefit would be obtained, stressing that TDS is the only concern for this evaluation.

The premise in rejecting a constructed wetland appears to be based on the premise that a constructed wetlands would only reduce sulfate to bicarbonate, which would not provide a net reduction in TDS. Looking at the Hedin et al. paper, it is specific to the treatment of acid mine drainage, not the type of discharge that would result from blow down cooling water from a power plant. The paper does indicate that with an increase in sulfate reduction, bicarbonate alkalinity will be produced and pH will increase, but it does not say that sulfate is directly reduced to bicarbonate. In treatment of acid mine drainage, sulfate would primarily be reduced to sulfite and tend to react with available metal to form sulfide precipitates. The Hedin paper refers to bacterial production of bicarbonate formation, particularly in anoxic limestone drains, but does not refer to the reduction of sulfate to bicarbonate. Which is not unexpected since as noted earlier, the paper is looking at treatment of acid mine drainage, not sulfate or other TDS constituents in particular. Given this, EPA considers a constructed wetland to be a viable and the preferred alternative to altering the applicable TDS criterion.

The authors contend that there are two alternatives for achieving compliance with the existing TDS criteria for the Little River and Red River:

1. RO treatment to remove or reduce dissolved minerals, and
2. Pumping the effluent to a larger river that holds the potential for dilution of the minerals.

In considering these options, the authors state that there is not a river in the vicinity that could be used as dilution to completely avoid a change in the water quality standards. Although the Red River has sufficient volume, it has a TDS criterion of 500 mg/L, the expected concentration of TDS in the effluent from this facility would not meet the Red River TDS criterion and would still require the completion of a UAA or the installation of partial RO treatment.

EPA considers ADEQ's use of TDS criteria applicable to the Red River, particularly the way the criterion has been applied as the emerging central element here. As noted in previous comments, ADEQ issued permit Turk/SWEPCO is operating under is based on the existing 500 mg/L TDS criterion for the Red River as end-of-pipe limits. The permit carries those limits because the receiving Red River segment was on the state's 2008 303(d) list. From a numeric perspective, ADEQ has issued the permit with a monthly average of 500 mg/l TDS end-of-pipe. This end-of-pipe value equates to an instream waste concentration of 43 mg/L. If ADEQ based the permit on the Little River instream standard of 100 mg/L, once dilution and mixing is allowed, the result is an allowable end-of-pipe discharge of up to 3800 mg/L TDS. While the end-of-pipe concentration is higher, this approach would meet the instream waste concentration based on the ecoregion-based 100 mg/L TDS while allowing the Turk/SWEPCO facility to operate efficiently.

EPA strongly recommends that rather than revise TDS criteria particularly for the Little River, in what appears to be an effort to avoid this permitting scenario, that this approach be considered.

7.1.2.2 Option 2: RO Treatment/Discharge to Little River at Future Effluent Limits

Page 7-9:
The authors anticipate that the TDS criterion in the Little River, and thus the effluent limitations in future NPDES permits for the SWEPCO plant, could be lowered to 100 mg/L. The conclusion drawn is that this would require that all of the effluent be treated through an RO system if it continues to be discharged to the Little River, in order to achieve an effluent limit of 100 mg/L For TDS.

However, as noted previously, the 100 mg/L criterion that applies to the Little River is not the same as a derived NPDES permit limit. The permit limit that would be derived from the 100 mg/L TDS criterion once dilution and mixing is allowed, would likely be an allowable end-of-pipe discharge of up to 3800 mg/L. Given that this concentration would allow the facility to meet the 100 mg/L TDS criterion in the Little River, there would be no need to consider RO.

7.3 Summary of Costs

Page 7-10:
The authors summarize the estimated costs of various treatment scenarios compared to the cost of direct discharge based on the proposed site-specific criteria in Table 7.1. The cost described here appear to be the potential cost associated with RO treatment of the entire volume of the Turk/SWEPCO discharge. It is unclear what volume of the discharge would need to be treated.

Technical Comments on:

EXHIBIT G
TECHNICAL JUSTIFICATION FOR A SITE-SPECIFIC TEMPERATURE CRITERION IN THE LITTLE RIVER, HEMPSTEAD & LITTLE RIVER COUNTIES, ARKANSAS

Technical Comments

1.0 INTRODUCTION
1.1 Background & Overview

Page 1-1:
This document states that the Turk/SWEPCO facility's National Pollutant Discharge Elimination System (NPDES) permit (No. AR0051136) includes a daily maximum temperature permit limit of 35 °C (95 °F). Given that Arkansas Reg. 2 specifies and the authors acknowledge that the applicable temperature limits for streams is 30°C (86°F), the basis for the maximum temperature limit of 35°C (95°F) in SWEPCO's current permit is unclear.

The document also notes that the Little River downstream of Millwood Lake has a lower temperature criterion than Millwood Lake and the Red River immediately downstream of the Little River. Both Millwood Lake and the Red River in Arkansas have a temperature criterion of 32 °C (89.6 °F) (APCEC 2011). Figure 1.2 is presented to illustrate the spatial inconsistency of the temperature criteria.

The document notes that Millwood Lake has a temperature criterion of 32°C (89.6°F), the Little River, downstream of Millwood Lake has a 30°C (86°F), and the Red River immediately downstream of the Little River has a temperature criterion of 32°C (89.6°F) (APCEC 2011) to illustrate the spatial inconsistency of the temperature criteria downstream of Millwood Lake. Spatial inconsistency has no bearing on toxic or conventional criteria that are protective of aquatic life uses (ALU) and is not a basis for altering applicable criteria. It is not unusual for temperatures in a reservoir to be higher than upstream and typically downstream lotic waters given the retention time and particularly the shallow depth of Millwood Lake.

Although we acknowledge that it may be difficult to manage the flow through a lake as shallow as Millwood given its design, relatively high retention time and higher tailwater race temperatures, but it's unclear how that would affect the entire length of the Little River or why the riparian cover downstream along the Little River could not be enhanced or restored.

Page 1-3:
The authors note that if the temperature criterion is not changed and the impairment status continues, the facility's NPDES permit limit for temperature at Outfall 001 would be reduced to the Little River instream criterion of 30°C (86°F) without the usual allowance for a mixing zone (i.e., using typical end-of-pipe calculations to develop permit limits for a thermal discharge). As such, the authors note that facility's operation would be adversely impacted by a temperature impairment designation in the Little River that may limit or prevent discharges during warm weather and reduce the efficiency of the facility's operation during other times of the year.

Does this mean that the decision was keeping the existing criteria in place versus operating efficiency (i.e., cost)? If so, the basis for the proposed amendment 40 CFR 131.10(g)(6), which requires an economic analysis to determine if SWEPCO can support upgrades to its process/facilities w/out substantial and widespread impacts.

Page 1-4:
The authors indicate that adjusting the temperature criterion for the Little River downstream of Millwood Lake is necessary to reflect current ambient conditions during the critical summer conditions and would result in NPDES temperature limitations that are appropriate and protective of the designated uses of the Little River. An important question is if current ambient conditions reflect the highest attainable condition given the requirements outlined in 40 CFR 131.10?

2.0 BACKGROUND
2.1 NPDES Permit

Page 2-1:
The document again refers to the Turk/SWEPCO discharge to the Little River under NPDES Permit No. AR0051136 and the effluent limitation for temperature of 35°C (95°F). As noted previously, it's unclear how this facility can have an NPDES permit that allows a 35°C (95°F) when the applicable temperature for streams is The 32°C (89.6°F). Is there a specific implementation procedure or mixing zone allowance?

2.2 Applicable Water Quality Standards

Page 2-2:
The authors suggest that the temperature regime of the Little River downstream of Millwood Lake has been altered as a result of physical hydrologic alteration of the system caused by the construction of Millwood Lake. The authors contend that Millwood Lake and its confluence with the Little River has a typical width between 200 and 400 feet with only a small portion of the channel being shaded by trees along the banks.

Based on images of the USACE dam, the Little River may be "200-400' wide" immediately below the dam as stated here, but appears to constrict below River Run Park and appears to be generally consistent with the average stream of reference streams in the Gulf Coastal Plain ecoregion. Without supporting information for multiple downstream locations on the Little River below the Millwood, this claim does not appear to be supported. Photographs, specifically aerial photos should be included in this proposal to support this claim.

2.3 Water Temperature Monitoring

Page 2-4:
Tables 2.4 and 2.5 presents summary statistics for water temperature data collected by SWEPCO from April to October 2012. These tables indicate that the Turk/SWEPCO discharge increases instream temperatures. With the exception of a higher maximum temperature reading upstream of SWEPCO, which may be a single event, the 95th percentile, percent daily max > 30°C and percent daily max > 32°C indicate that the facility adversely impacts temperature in the Little River.

Page 2-8:

The authors note that temperatures in the Little River during 2013 (Figures 2.3 and 2.4) appear very similar to those measured in Millwood Lake near the dam (Figure 2.5). They note that exceedances of the Little River temperature criterion occur at all of the Little River sampling locations, both upstream and downstream of the SWEPCO outfall, during 2012 and 2013 (Figures 2.2 through 2.4).

These figures generally show that there is an increase in temperature associated with the time of the year sampled. There is a clear correlation with ambient air temperature and water temperature, which among other factors can have a significant influence instream temperatures. This correlation is not considered here. The comparison to temperatures in Millwood Lake near the dam are of limited value since this lake is relatively shallow and retention times tend to be fairly high in most lakes.

In addition, the data reported in Fig. 2.8 which show a decrease in temperature from LR0 to LR00 does not appear to be consistent with the summary statistics presented for the same site in Table 2.4, which reports an increase of all and daily maximum data > 30°C.

Page 2-10:
Warming in a large shallow impoundment like Millwood is expected as it is in the immediate tail water area. However, it's unclear if this narrative is suggesting that temperatures in the Little River are the result of the Turk/SWEPCO discharge or continuing the claim that the river remains wide and unshaded further downstream. As noted earlier, a simple internet search produced maps and photographs that suggest that this is not the case downstream.

2.4 Evaluation of Little River Water Temperatures Upstream of SWEPCO Outfall 001

Page 2-10:
The discussion indicates that Table 2.5 provides an inventory of water temperature data collected in the Little River downstream of Millwood Lake and upstream of SWEPCO Outfall 001 that were used to evaluate the temperature criterion for the Little River. However, Table 2.5 also includes data from LR00, which is reported as 1 mile below SWEPCO Outfall 001.

Page 2-15:
A comparison of temperature statistics between the two FTN monitoring locations near the dam below Millwood Lake and the two locations farther downstream (near SWEPCO) indicate that that locations farther downstream have slightly higher temperatures during July through August and more exceedances of the 30 °C (86 °F) criterion (Tables 2.3 and 2.4).

This paragraph touches on the potential source affecting ambient temperatures in Millwood Lake and the Little River, but provide no details. The summary data, statistics and statements presented here do not appear to have considered that air temperature is highly correlated with the significant positive heat flux components including solar radiation and with stream water temperature. The correlation is supported by the USGS' Stream Segment Temperature Model (SSTEMP), which asserts that air temperature will usually be the single most important factor in determining mean daily water temperature.

The authors also note that ADEQ's (303(d)) assessment for 2014 was conducted using the SWEPCO 2012 and 2013 data and FTN 2013 data from this stream reach and that ADEQ's draft 2014 303(d) list includes a temperature impairment for the Little River downstream of Millwood Lake. Did SWEPCO and FTN use ADEQ monitoring stations to collect these data? Is there information to support the reported listing? While the assessment methodology used to determine impairment appears to be consistent with ADEQ methodology, it is unclear if 3rd party (SWEPCO and FTN) data be was used by ADEQ to support a 303(d) listing?

In instances where the temperature exceeds the criteria, it would likely result in a reduction in overall species richness and/or abundance because of excessive heat. Discussions of the macroinvertebrate and fish communities do not appear to show such effects.

2.5 Threatened and Endangered Species

2.5.1 Threatened and Endangered Aquatic Species

Page 2-18:
The document reports that there have been no live *A. wheeleri* collected from just above or below the Turk/SWEPCO discharge. Their absence indicates that the Turk/SWEPCO discharge is having an effect on water quality and the presence of *A. wheeleri*. Although the physical characteristics and inputs to Millwood Lake may affect the ability of the Little River to support *A. wheeleri*, an important aspect of a UAA is to not only to identify current conditions. The document does not provide any discussion of whether temperature or other stressors may be affecting or limiting the presence of *A. wheeleri* in this portion of the Little River.

Although the rabbitsfoot mussel *(Quadrula cylindrica cylindrica)* is known to occur in some streams in southwest Arkansas, including the Little River upstream of Millwood Lake, it has not been documented in the Little River downstream of the Lake to the Red River. The rabbitsfoot is likely limited by the physical characteristics Millwood Lake and its effect on the Little River, as well as the Turk/SWEPCO discharge.

3.0 BIOLOGICAL EVALUATION

3.1 Overview

3.4.3.2 Fish

Ecoregion Key and Indicator Species

The authors describe presence and absence of ecoregion key and indicator species per APCEC (2011) which is summarized in Table 3.7. Of three key and indicator species expected to be present based on habitat preferences, one species was present in the pooled list. One species not expected to be present (redfin shiner) was present in the pooled list. The reported data is not specific as to site - is this a comparison of upstream/downstream of the SWEPCO discharge? The location of this sampling would be useful, as it would give some indication of whether the presence of only 25% of key and indicator species is the result of a generally degraded/impacted system, resulting from hydromodification and high ambient air temperatures driving water temperature, or exacerbated by temperature inputs from the SWEPCO facility.

3.4.4 Discussion and Conclusions

Page 3-22:
The authors observed that the strongly similar fish and benthic communities upstream and downstream of the discharge. The suggestion is that this finding indicates that the current operation of the discharge has negligible effect on the existing biological communities. Although relative abundance upstream/downstream showed reasonably good comparison at around 71%, the Meador and Carlisle (2007) data only showed 61% of the expected species are present and only 25% of the expected species for the Little River present in the pooled sample. It is unclear if this is the result of a degraded system or that the discharge has more than a negligible effect.

Page 3-23:
The discussion notes that ecoregion key and indicator species are generally not expected to be present in the reach of the Little River due to the habitat preferences of those species and that the low numbers of key and indicator species present in the pooled list (two species) is a reflection of this expectation. This statement appears to contradict Table 3.7, comparing expected key/indicator species in the Little River to what was present in the pooled list (25%).

EXHIBIT 7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

October 22, 2015

Sarah Clem
ADEQ Branch Manager
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Environmental Protection Agency comments on the Proposed 3rd party rule by Domtar A. W. LLC (DOMTAR)

Dear Ms. Clem:

The Arkansas Pollution Control and Ecology Commission (APC&EC) held a public hearing at Ashdown, AR on January 26, 2015, to receive comments on a third-party proposal by Domtar A.W. LLC (DOMTAR) to change APC&EC Regulation 2, the Arkansas Water Quality Standards, through a "technical adjustment," for the Red River from the Arkansas-Oklahoma state line to the Arkansas-Louisiana state line. The proposed amendments to Regulation 2 include:

- Modification of the Total Dissolved Solids (TDS) water quality criterion for the Red River from the Arkansas-Oklahoma state line to mouth of the Little River, from 850 milligrams per liter (mg/L) to 940 mg/L, and the sulfate (SO_4) criterion from 200 mg/L to 250 mg/L; and
- Modification of the sulfate criterion for the Red River from the mouth of the Little River to the Arkansas-Louisiana state line from 200 mg/L to 225 mg/L.

The Environmental Protection Agency Region 6 would like to offer the following comments for the Arkansas Department of Environmental Quality's (ADEQ) consideration.

We are concerned that there is limited information supporting the proposed 3rd party rule. DOMTAR provided a "Summary Rationale" (Rationale) that indicates that the mineral concentrations in the Red River in Arkansas are primarily the result of naturally occurring sources in upstream states. We acknowledge that there are predominately natural as well as anthropogenic sources of minerals/TDS introduced into the Red River through Texas and Oklahoma. Although the proposal did not provide any information describing TDS or mineral levels, sources of minerals, or dilution in Arkansas that support the proposed TDS or sulfate criteria for the Red River, it does refer to a study initiated by Southwestern Electric Power Company John W. Turk, Jr. Power Plant (Turk/SWEPCO). Given that the DOMTAR proposal is specific to a revised TDS and sulfate criterion in the upper segment of the Red River and sulfate in the lower segment, whereas the SWEPCO proposal is specific to TDS criteria in the Little River and lower Red River, the study alone cannot be used to support the revisions proposed by

DOMTAR. It is worth noting that in referring to SWEPCO study, the Rationale notes that the Aquatic Life Designated Use is being attained within the Little and Red Rivers.

The DOMTAR proposal includes spiked toxicity test suggests there is no acute or chronic toxicity due to dissolved minerals levels. These tests relied on calculated ion concentrations of inorganic salts to mimic the ionic strength and makeup based on a single river sample. This test only provide an estimate of the toxic threshold for dissolved minerals for a single test species (*Ceriodaphnia dubia*) at a single point in the Red River. Similarly, we are concerned that the experimental design assumes that concentrations of TDS in the river, (i.e., ionic components $S0_4^{-2}$, Cl^-, Na^+, Mg^{+2}, and Ca^{+2}) do not vary downstream of the original sample site through the entire upper segment of the Red River. This approach does not appear to consider actual conditions where minor changes in ionic concentration in mineral salts and conductivity can have significant effects on aquatic species. It is unclear how a single sample location would be indicative of conditions throughout the segment of the Red River through Arkansas which would be covered by the proposed criteria modifications. Rather than establishing criteria to protect aquatic life based on an actual bioassessment of the Red River in Arkansas, the approach appears to be using spiked toxicity testing that should be used for permitting decisions to support proposed aquatic life criteria.

The proposal also cites *Fishes of the Red River in Arkansas* (Buchanan et al. 2003). Buchanan et al. (2003) demonstrates the designated fisheries use was being attained at the time of the survey (1995-2001) and suggests that fish species were more abundant and robust than either the Texas or Louisiana reaches of the Red River. For example, Buchanan et al. (2003) noted that two species have only been reported from the Arkansas segment, eleven species found in Arkansas have not been reported from the upstream segment, and seven species have not been reported from downstream segment in Louisiana. The study also reported that the Arkansas segment had 68% of the species reported from the upstream reaches, and 61% of those from the downstream segment.

Given that fish species are more abundant in the Arkansas reach, which has the lowest TDS and sulfate criteria, the limited information provided does not clearly show that the proposed criteria will not result in adverse effects on aquatic life. Although a Use Attainability Analysis (UAA) as defined in 40 CFR 131.3(f) is not required here, 40 CFR 131.6 requires that adequate information be provided to support the proposed revisions. We recommend that a bioassessment be developed to determine if the proposed criteria will be protective of aquatic life and designated uses in the Red River.

EPA appreciates the opportunity to comment on the proposed 3rd party proposal. If you have any questions, please contact me at (214) 665-6646.

Sincerely,

Russell Nelson
Regional Standards Coordinator
Watershed Management Section

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

FEB - 9 2016

Mr. Caleb Osborne
Associate Director – Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Final submittal of Regulation No. 2, as amended, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas

Dear Mr. Osborne:

The Environmental Protection Agency (EPA) has completed its review of the amendments to *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* that were made in relation to the Third Party Rulemaking process initiated by Southwestern Electric Power Company (SWEPCO). The amended Regulation No. 2 was adopted by the Arkansas Pollution Control and Ecology Commission on October 23, 2015 and became effective on November 5, 2015. It was submitted to the EPA for approval on December 21, 2015.

At this time EPA is taking no action on the submitted amendment to Regulation No. 2 as the information provided in the submission was not sufficient to determine that the site specific criteria changes are protective of the aquatic life use in the Little River and the Red River. In addition, insufficient information was provided to demonstrate that the site specific criteria changes are protective of downstream uses in Louisiana.

A list of recommendations of additional information that can be provided to support these site specific criteria changes has been provided in the attached enclosure. EPA would be happy to meet with the Arkansas Department of the Environmental Quality, SWEPCO, and their consultant, FTN, at a technical level to discuss these recommendations in detail. If you have any questions or concerns, please contact me at 214-665-3187, or contact Russell Nelson at 214-665-6646 or Karen Kesler at 214-665-3185.

Sincerely,

William K. Honker, P.E.
Director
Water Division

Enclosure

Enclosure

Recommendations

- Identify the sources of TDS coming into Millwood Lake and calculate the loadings on the Little River below Millwood dam for each of the sources
- Present all data used to derive the TDS criterion for the Little River
- Provide water quality data for the Little River downstream of the SWEPCO outfall, particularly TDS, can either be newly or previously collected data from after the plant was operational
- Collect or provide existing temperature data downstream of SWEPCO outfall in winter months
- Provide numeric values for tolerance ranges of indigenous aquatic species in the Little River for temperature and TDS
- Use best fit regression model to determine temperature criterion
- Provide more complete data identifying the percent loading of minerals due to natural versus anthropogenic sources in the Red River; provide citations supporting the identification of the sources
- Revise the TDS mass balance with values that take into account changes in output from point source dischargers along the Red River if the Red River is delisted
- Demonstrate that the SSC changes in the Red River will be protective of the aquatic life use
    - Numeric tolerance values from lab and field studies of species found in the Red River
    - TDS values during the Buchanan et al. 2003 study only were ≥ 860 mg/L at Index (upstream of the reach of the SSC), therefore additional information needs to be presented to show that the aquatic life use will be met with the new proposed criteria

Heather Ferguson

From:	Kesler, Karen [Kesler.Karen@epa.gov]
Sent:	Friday, February 26, 2016 2:16 PM
To:	jim (jtm@ftn-ASSOC.COM)
Cc:	clem@adeq.state.ar.us; Crocker, Philip; Nelson, Russell; Watson, Jane
Subject:	Request for additional information concerning the SWEPCO rulemaking

Dear Mr. Malcom,

During our discussion last week with ADEQ I expressed some concerns about the mass balance model from the SWEPCO UAA that was utilized to estimate whether the new site specific TDS criteria on the Red River from the confluence of the Little River to the Arkansas-Louisiana was protective of Louisiana's downstream criteria. As I have continued to think about the appropriateness of this mass balance this week, I believe I have come across another issue with the way it was executed. In the UAA for the SWEPCO rulemaking, the mass balance section states that:

> Instream TDS concentrations in the Red River were modeled for two critical flow conditions: 7Q1O and harmonic mean flow. Regulation 2.106 of the Arkansas water quality standards (APCEC 2011; the latest version that is currently approved by EPA) specifies 7Q10 (referred to as "Q7 -10" in the standards) as the critical flow for meeting dissolved mineral criteria in streams such as the Little River and Red River that have site-specific criteria that are listed in Regulation No. 2.511 without an asterisk. Harmonic mean flow is the critical flow for meeting chloride, sulfate, and TDS criteria in Louisiana according to Section III5.C.8 of the Louisiana water quality standards (LDEQ 2012).

However, when I went back and reviewed Regulation 2 the definition for critical flows was that listed below:

> Critical flows: The flow volume used as background dilution flows in calculating concentrations of pollutants from permitted discharges. These flows may be adjusted for mixing zones. The following critical flows are applicable:
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> For a seasonal fishery - 1 cfs minus the design flow of any point source discharge (may not be less than zero).
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> For human health criteria - harmonic mean flow or long term average flow.
>
> For minerals criteria - harmonic mean flow or 4 cfs, except in those waters listed in Reg. 2.511. Those waters in Reg. 2.511 which are noted with an asterisk will have a critical flow of 4 cfs. (Also see minerals implementation procedure in CPP)
>
> For all others - the critical flow will be Q7-10.

This indicates that a harmonic mean is more appropriate for the mass balance than the 7Q-10 is, which was used to set the value for the site specific criteria. The demonstration of downstream protection is contingent upon this difference in flow utilized to assess the levels of minerals in the Red River. The 860 mg/L value that was determined through the 7Q-10 model would be protective of Louisiana when it was assessed with a harmonic mean flow. However, minerals criteria in Arkansas are actually permitted using the harmonic mean flow, not the 7Q-10, meaning that the 860 mg/L criteria would actually violate Louisiana's criteria of 780 mg/L since they are both using the same flow regime. Based on this information, it does not seem that the 860 mg/L criteria is protective of Louisiana's 780 mg/L criteria. In addition, after reviewing the reference to Louisiana's standards, the reference to harmonic mean flow seems to apply to mixing zones:

C. Mixing, Mixing Zone, and Flow Application

8. For chloride, sulfate, and total dissolved solids, criteria are to be met below the point of discharge after complete mixing. Because criteria are developed over a long-term period, harmonic mean flow will be applied for mixing.

When speaking to EPA staff in Assessments for Louisiana and speaking to LDEQ is appears the Louisiana criteria for minerals are determined by taking the arithmetic mean plus three standard deviations and that they do not consider flow. Based on this information, additional material would need to be provided to demonstrate downstream protection of Louisiana's criteria. I appreciate your help in providing all the necessary information to assess the appropriateness of the site specific criteria proposed by the SWEPCO rulemaking.

Sincerely,
Karen Kesler

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From:	Jim Malcolm [jtm@ftn-assoc.com]
Sent:	Monday, March 07, 2016 12:50 PM
To:	'Kesler, Karen'
Cc:	'clem@adeq.state.ar.us'; 'Crocker, Philip'; 'Nelson, Russell'; 'Watson, Jane'; James Malcolm
Subject:	RE: Request for additional information concerning the SWEPCO rulemaking

Dear Karen,

Sorry for the delay in my reply but I wanted to discuss our reply with Sarah Clem before sending it out, we have completed that discussion.

This is written regarding your recent supplemental questions on the SWEPCO rulemaking. Thank you for reading this portion of the report very closely. Your question raises an important issue regarding implementation of the criteria we proposed which is a slightly different issue, to us, versus EPA's review and approval of the proposed criteria.

ADEQ has implemented AR minerals criteria at various flow conditions including 7Q-10 flow conditions based on the EPA approved version of Regulation No. 2 which you quoted below (e.g. see the existing TMDL for this watershed). This version was also the current version when we submitted the UAA report to the Arkansas Pollution Control & Ecology Commission. The SWEPCO and Domtar TDS and sulfate proposed SSC were developed anticipating implementation under 7Q-10 flow conditions to match the existing, previously approved (by EPA) TMDL. As such, once EPA has completed their review of the proposed criteria for minerals, SWEPCO will propose updates to the TMDL but we will not propose to modify the critical flow conditions – this will assure both continuation of the existing water quality conditions of the Red River (for minerals) as well as downstream compliance with LDEQ's TDS criteria. We agree with you that the LDEQ regulations (referenced below) require harmonic mean (HM) flow as critical flow for meeting dissolved minerals criteria in their state. As you stated, the HM flow conditions model was run and included to demonstrate our proposed TDS criterion will result in downstream compliance with the LA criteria. The HM flow simulation uses the same point source loads as in the 7Q-10 simulation.

If for some reason, both ADEQ and EPA desire to implement new SSC for TDS on the Red River based on a TMDL/permit that were HM flow conditions, we would need to recalculate the criterion. This would result in a much lower proposed TDS criterion in the range of 730 mg/L. We do not recommend changing the flow basis for our proposed criteria at this point but would defer to the agencies if they so desired.

Please do not hesitate to contact me or Phil Massirer with any further questions or comments. We will be providing ADEQ with our responses to your recent comments that were discussed in the ADEQ offices by later today. Hopefully, you will see the ADEQ review summary of the responses very soon.

Sincerely, Jim

ftn Associates Ltd.

Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220

Little Rock, AR 72211
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(501) 225-7779 *work*
(501) 412-8185 *mobile*
www.ftn-assoc.com *webpage*

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
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Cc: clem@adeq.state.ar.us; Crocker, Philip; Nelson, Russell; Watson, Jane
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Sincerely,
Karen Kesler

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Monday, March 07, 2016 12:59 PM
To: Jim Malcolm
Cc: clem@adeq.state.ar.us; Crocker, Philip; Nelson, Russell; Watson, Jane
Subject: RE: Request for additional information concerning the SWEPCO rulemaking

Hi Jim,

Thank you for your reply. Once we have a chance to discuss this issue further, I'll let you know if we need any additional information or if the criteria needs to be recalculated. I appreciate your help on clarifying this part of the supporting material for the rulemaking.

Thanks,
Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Monday, March 07, 2016 12:50 PM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Cc: clem@adeq.state.ar.us; Crocker, Philip <crocker.philip@epa.gov>; Nelson, Russell <nelson.russell@epa.gov>; Watson, Jane <watson.jane@epa.gov>; James Malcolm <jtm@ftn-assoc.com>
Subject: RE: Request for additional information concerning the SWEPCO rulemaking

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Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220
Little Rock, AR 72211

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(501) 225-7779 *work*
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www.ftn-assoc.com *webpage*

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To: jim (jtm@ftn-ASSOC.COM)
Cc: clem@adeq.state.ar.us; Crocker, Philip; Nelson, Russell; Watson, Jane
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Sincerely,
Karen Kesler

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Wentz, Tate [WENTZ@adeq.state.ar.us]
Sent: Wednesday, March 30, 2016 3:57 PM
To: kesler.karen@epa.gov; nelson.russell@epa.gov
Cc: Clem, Sarah; jtm@ftn-ASSOC.COM; agates@mwlaw.com
Subject: Domtar and SWEPCO Supplemental Information
Attachments: TM-W Honker 2016-03-07 Domtar.pdf; TM-W Honker 2016-03-08 SWEPCO.pdf; Domtar_signed.pdf; SWEPCO_signed.pdf

Russell and Karen,
Please find attached digital copies of Domtar and SWEPCO supplemental information to complete documentation for the proposed site-specific criteria. We placed hard copies in the mail today.

Please let Sarah or I know if you have any additional questions or comments.

Tate Wentz
Aquatic Ecologist Coordinator
AFS Certified Fisheries Professional
Office of Water Quality-Planning Branch
Arkansas Department of Environmental Quality
North Little Rock, AR 72118
501-682-0661

ADEQ
ARKANSAS
Department of Environmental Quality

CERTIFIED MAIL: 91 7199 9991 7035 3549 1694

March 30, 2016

Bill Honker, Director (6WQ)
Water Quality Protection Division
United States Environmental Protection Agency
Region 6
1445 Ross Avenue Suite 1200
Dallas, TX 75202-2733

Re: Supplemental Information to Address EPA Recommendations to Complete Documentation for Southwestern Electric Power Company's Proposed Site-Specific Criteria for Temperature in the Little River and Use Attainability Analysis For Dissolved Minerals in the Little River and Red River

Dear Mr. Honker,

ADEQ is pleased to provide you with Southwestern Electric Power Company's (SWEPCO) response to EPA's February 9, 2016 request for additional information. Office of Water Quality staff has reviewed SWEPCO's response to EPA and has no additional comments.

If you or your staff have any questions regarding, please feel free to contact me or Sarah Clem (clem@adeq.state.ar.us/501-682-0660).

Sincerely,

Caleb Osborne
Associate Director of the Office of Water Quality
Arkansas Department of Environmental Quality

CC: Russell Nelson, Water Quality Protection Division, EPA Region 6
Karen Kesler, Water Quality Protection Division, EPA Region 6
Jim Malcom, FTN Associates, LTD
Allan Gates, Mitchell, William, Selig, Gates & Woodyard, P.L.L.C.

Associates Ltd.
water resources / environmental consultants

TECHNICAL MEMORANDUM

DATE: March 8, 2016

TO: **William K. Honker**
United States Environmental Protection Agency, Region VI

FROM: **Jim Malcolm, Patrick Downey, Philip Massirer**
FTN Associates, Ltd.

SUBJECT: Supplemental Information to Address EPA Recommendations to Complete Documentation for Southwestern Electric Power Company's Proposed Site-Specific Criteria for Temperature in the Little River and Use Attainability Analysis for Dissolved Minerals in the Little River and Red River
FTN No. R06510-0010-002

1.0 BACKGROUND

On October 23, 2015, Region 6 of the US Environmental Protection Agency (EPA) provided technical comments to the Arkansas Department of Environmental Quality (ADEQ) on two reports[1] prepared for Southwestern Electric Power Company (SWEPCO) in support of a third-party rulemaking to modify dissolved minerals criteria in the Little River and Red River and the temperature criterion in the Little River. On January 15, 2016, SWEPCO provided EPA with responses to EPA's technical comments and additional information in support of the rulemaking. On February 9, 2016, ADEQ received additional comments on the responses and information provided by SWEPCO, along with requests for additional information. Representatives of EPA, ADEQ, SWEPCO, and FTN Associates, Ltd. (FTN) met at the ADEQ office on Friday, February 19, 2016, to clarify EPA's requests for additional information and discuss the projects. This memorandum addresses the comments received from EPA as clarified in the meeting at ADEQ.

2.0 ADDITIONAL INFORMATION IN SUPPORT OF THE PROPOSED RULEMAKING

EPA's comments as provided in correspondence dated February 9, 2016, are reproduced in italics below and have been numbered for reference purposes. SWEPCO's responses follow each comment.

[1] *Use Attainability Analysis for Dissolved Minerals in Little and Red Rivers, Hempstead and Little River Counties, Arkansas*, submitted to ADEQ on September 5, 2014, and *Technical Justification for a Site-Specific Temperature Criterion in the Little River, Hempstead and Little River Counties, Arkansas*, submitted to ADEQ on September 10, 2014.

1. *Identify the sources of TDS coming into Millwood Lake and calculate the loadings on the Little River below Millwood dam for each of the sources*

   Attachment 1 provides a discussion of TDS loads to Little River below Millwood Lake dam.

2. *Present all data used to derive the TDS criterion for the Little River*

   The proposed TDS criterion for the Little River was derived from the sampling data collected by SWEPCO and FTN from October 2010 to October 2013 as part of the UAA effort. The data are provided as Attachment 2.

3. *Provide water quality data for the Little River downstream of the SWEPCO outfall, particularly TDS, can either be newly or previously collected data from after the plant was operational*

   FTN and SWEPCO did not collect water quality data downstream of the SWEPCO outfall because current TDS measurements collected downstream of the SWEPCO outfall would not reflect anticipated future discharge conditions. SWEPCO's current permit limit for TDS is set equal to the Red River TDS criterion of 500 mg/L because the Red River is listed as impaired due to TDS on the Arkansas 2008 303(d) list (see Section 1.1 of the report). This "end-of-pipe" permit limit for TDS prevents the SWEPCO plant from operating as designed (i.e., re-circulation of cooling water up to ten cycles in the cooling tower).

   A mass balance was prepared (utilizing anticipated operating conditions) to estimate effluent TDS concentrations. The model provided a proposed TDS criterion that would allow SWEPCO to operate the facility efficiently while still protecting the existing and attainable designated uses of the stream. The modeling was described in Section 5.0 of the report and additional documentation was provided in Appendices J through L. The model showed that an instream TDS criterion of 136.1 mg/L would be necessary in the Little River. This criterion would enable the SWEPCO plant to operate as designed once revised effluent limitations for TDS at Outfall 001 are calculated and incorporated into the facility's NPDES permit. The proposed TDS criterion for the Little River is 138 mg/L and is derived from the ecoregion reference stream values listed in Arkansas Pollution Control and Ecology Commission Regulation No. 2.511(B). The model results showed that TDS concentrations in the Little River under optimal plant operating conditions should remain below 138 mg/L under critical low-flow (7Q10) conditions.

4. *Collect or provide existing temperature data downstream of SWEPCO outfall in winter months*

   Based on discussions held during the February 19 meeting at ADEQ, EPA withdrew its request for these data due to the Δ5°F (Δ2.8°C) criterion in the Arkansas water quality standards that is considered protective of aquatic life.

5. *Provide numeric values for tolerance ranges of indigenous aquatic species in the Little River for temperature and TDS*

   Please see Attachment 3.

6. *Use best fit regression model to determine temperature criterion*

   The regression model with the higher coefficient of determination (R^2) was not the sole basis for the proposed criterion, because the high R^2 value was not indicative of the regression model's accuracy for predicting high water temperatures, which is important for developing a proposed temperature criterion. Attachment 4 provides a discussion of the modeling performed and the rationale for the proposed criterion.

7. *Provide more complete data identifying the percent loading of minerals due to natural versus anthropogenic sources in the Red River; provide citations supporting identification of the sources*

   Sections 2.3.2.1 and 5.0 of the report provided information on sources of minerals to the Red River, which was then supplemented with additional information provided in the first set of responses to EPA comments (dated January 15, 2016). Appendices J and K to the report provided the model input and output. Additional data are provided in Attachment 5; a list of point sources to the Red River in Arkansas was extracted from the 2014 Arkansas 305(b) report and lists of point sources to the Red River in Texas and Oklahoma downstream of Lake Texoma were compiled by querying EPA's ECHO database for NPDES permits within the eight-digit hydrologic unit codes (HUCs) 111401-01 through -06 in Oklahoma and within HUCs 111401-01, 111401-05, and 111401-06 in Texas.

8. *Revise the TDS mass balance with values that take into account changes in output from point source dischargers along the Red River if the Red River is delisted*

   Point sources will have to comply with the limits established in the total maximum daily load (TMDL) report. The proposed criteria have been demonstrated to be protective, and the TMDL and NPDES processes will ensure that the instream concentrations will be capped at the proposed criteria.

9. *Demonstrate that the SSC changes in the Red River will be protective of the aquatic life use*

   a. *Numeric tolerance values from lab and field studies of species found in the Red River*

   b. *TDS values during the Buchanan et al. 2003 study only were > 860 mg/L at Index (upstream of the reach of the SSC), therefore additional information needs to be presented to show that the aquatic life use will be met with the new proposed criteria*

   Please see Attachment 6.

We appreciate the opportunity to work with you on this project. If you have questions or comments regarding this information, please do not hesitate to call Jim Malcolm, Pat Downey, or Philip Massirer, PE, at (501) 225-7779.

ATTACHMENT 1

TDS Sources and Loads to the Little River

1.0 POINT SOURCES AND TDS LOADS TO MILLWOOD LAKE

In the meeting at ADEQ's offices on February 19, 2016, it was understood that EPA's recommendation #1 on the SWEPCO proposed criteria (regarding sources of TDS to Millwood Lake and loadings on the Little River below Millwood Lake dam) could be addressed by identifying point sources in the Millwood Lake watershed and estimating their loadings of TDS.

Using EPA's Enforcement and Compliance History Online (ECHO) website, 25 facilities with individual NPDES permits were identified in the Millwood Lake watershed. The TDS load from each facility was estimated based on effluent flow rates and concentrations. The effluent flow rates were based on average (if available) or design flow rates in EPA's ICIS-NPDES database (accessed on EPA's ECHO web site). None of the facilities report TDS concentrations on discharge monitoring reports (DMRs); therefore, effluent TDS concentrations were assumed to be 400 mg/L for publicly owned treatment works (POTWs) and 1,000 mg/L for non-POTWs. These calculations yielded a total point source load of about 30 tons/day of TDS to Millwood Lake. Due to the lack of DMR data for TDS, no temporal trend could be identified for the point source loads. The point source facilities and their effluent flow rates and assumed TDS concentrations are listed in Table 1 below.

To provide perspective for the point source load, the total TDS load to Millwood Lake was estimated based on the long-term average release from Millwood Lake dam (3,642 million gallons per day [MGD] for October 1966 through September 2015) and the median TDS concentration for the Little River approximately 1 mile upstream of SWEPCO's outfall (63 mg/L based on 56 samples collected by FTN and SWEPCO between October 2010 and October 2013; see Attachment 2 to the memorandum). This yielded a total load of about 957 tons/day. Based on this result, the point source load is about 3% of the total load.

The nonpoint source load was estimated to be about 927 tons/day (the total load minus the point source load). A search was conducted to look for information concerning natural versus anthropogenic nonpoint source loads in the Millwood Lake watershed, but sufficient information was not found.

Table 1. Point source facilities, effluent flow rates, and assumed TDS concentrations.

NPDES ID	Facility Name	Facility Type	TDS Concentration (mg/L)	Flow (MGD)	TDS Load (lbs/day)
AR0002909	WEYERHAEUSER NR CO. - DEQUEEN	NON-POTW	1,000	0.216	1,803
AR0002917	WEYERHAEUSER NR CO. - DIERKS MILL	NON-POTW	1,000	0.494	4,122
AR0003018	TYSON FOODS, INC. - GRANNIS	NON-POTW	1,000	0.864	7,210
AR0021261	MINERAL SPRINGS, CITY OF-WWTP	POTW	400	0.20	668
AR0021377	LOCKESBURG, CITY OF	POTW	400	0.15	501
AR0021709	DIERKS, CITY OF	POTW	400	0.23	768
AR0021733	DEQUEEN, CITY OF	POTW	400	4.00	13,352
AR0021776	NASHVILLE, CITY OF	POTW	400	2.30	7,677
AR0023817	FOREMAN, CITY OF	POTW	400	0.28	935
AR0035483	HATFIELD, CITY OF	POTW	400	0.07	234
AR0035785	HORATIO, CITY OF	POTW	400	0.15	501
AR0040886	WILTON, TOWN OF - WWTF	POTW	400	0.09	300
AR0041246	MILLWOOD WATER CORP	NON-POTW	1,000	0.03	250
AR0041734	TYSON FOODS, INC. NASHVILLE	NON-POTW	1,000	1.11	9,263
AR0045144	TOLLETTE, CITY OF	POTW	400	0.10	334
AR0047996	GILLHAM REGIONAL WASTEWATER	POTW	400	0.20	668
AR0048593	LOCKSBURG PLT #1544	NON-POTW	1,000	0.10	835
AR0049034	COSSATOT ROCK, LLC	NON-POTW	1,000	0.10	835
AR0049247	COVE, CITY OF	POTW	400	0.075	250
OK0000736	WEYERHAEUSER COMPANY	NON-POTW	1,000	0.10	835
OK0000795	TYSON FOODS, INC-BROKEN BOW	NON-POTW	1,000	0.10	835
OK0021521	BROKEN BOW PUBLIC WORKS AUTH.	POTW	400	0.761	2,540
OK0027677	IDABEL PUBLIC WORKS AUTHORITY	POTW	400	1.65	5,508
OK0032387	WRIGHT PUBLIC WORKS AUTHORITY	POTW	400	0.014	47
OK0044458	MIXON BROS. WOOD PRESERVING	NON-POTW	1,000	0.10	835
Total point source load					61,102

Land use data for the Millwood Lake watershed were downloaded from the USGS National Land Cover Database (NLCD). Based on 2011 data, the Millwood Lake watershed consists of approximately 61.6% forest/shrub, 25.9% pasture/hay/grass, 7.0% wetlands and water, 5.3% developed land, and 0.2% of other land (cultivated cropland and barren land). NLCD data from 2001 showed similar percentages: 67.8% forest/shrub, 19.9% pasture/hay/grass, 7.1% wetlands and water, 5.1% developed land, and 0.1% of other land. This shows that about 6% of the watershed changed from forest/shrub to pasture/hay/grass between 2001 and 2011. However, no information was found to estimate nonpoint source TDS loadings for different land uses. Therefore, it was not possible to evaluate what effect (if any) this land use change would have on the nonpoint source TDS load at Millwood Lake dam.

The TDS loads entering Millwood Lake were also analyzed temporally. Monthly TDS loads for the largest inflow to Millwood Lake (the Little River) were estimated for January 1991 through December 2015. These loads were estimated using USGS daily flow data and ADEQ routine samples (approximately monthly intervals) for the Little River at State Highway 41 near Horatio (USGS gage 07340000 and ADEQ station RED0002). These loads are shown on Figure 1 with a linear trend line that shows a decreasing trend over time.

Daily flow data were not available to calculate monthly TDS loads for other tributaries to Millwood Lake. However, TDS concentrations for other tributaries do not show significantly increasing trends over time (see Figures 2.2 through 2.4 in the UAA report). Therefore, it is expected that the TDS loads for those tributaries would not show increasing trends over time.

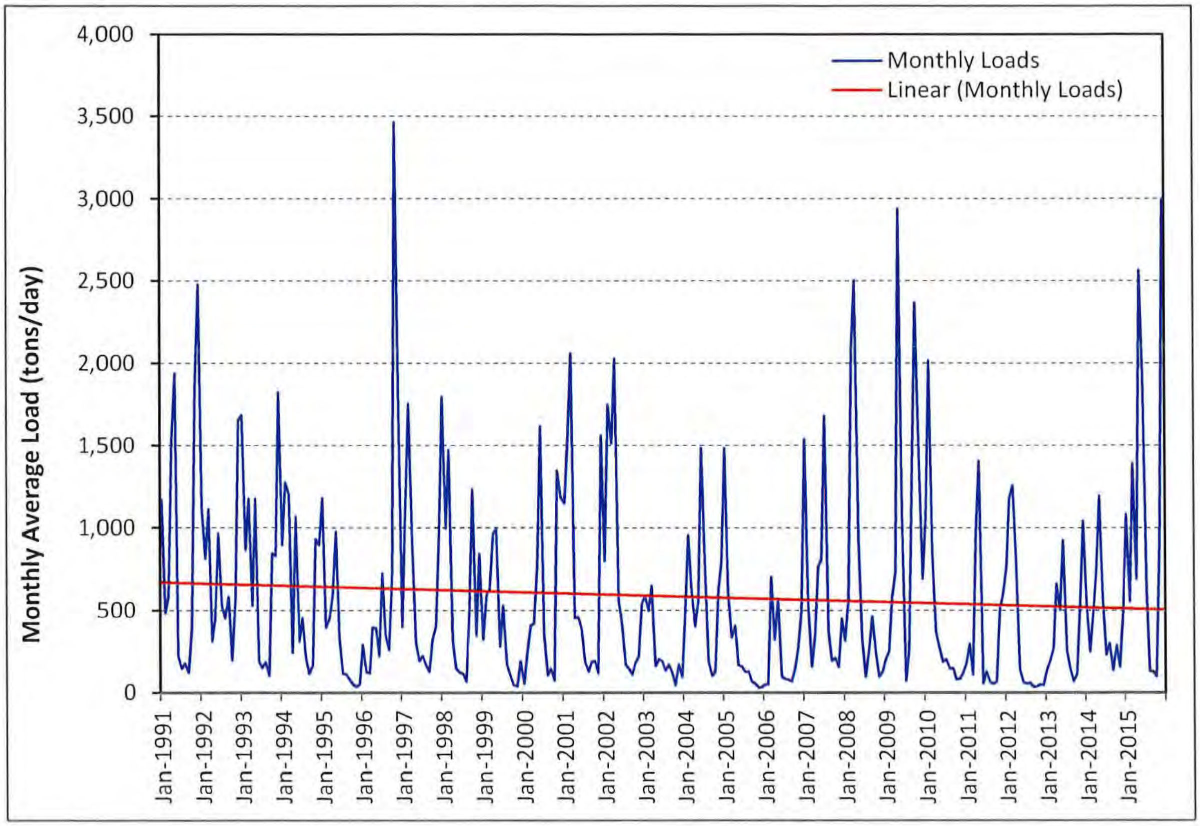

Figure 1. Monthly average TDS loads for Little River near Horatio (upstream of Millwood Lake).

ATTACHMENT 2

Water Quality Data Collected by SWEPCO and FTN in Little River

Dissolved mineral data in Little River upstream of Turk Outfall 001

Date	TDS (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Collected by
10/12/10	64	107	48	AEP
11/18/10	20	11	6	AEP
01/25/11	16	8	6	AEP
03/11/11	84	8	8	AEP
04/28/11	66	7	9	AEP
05/16/11	48	5	5	AEP
06/22/11	36	5	6	AEP
07/20/11	80	6	5	AEP
08/02/11	84	6	6	AEP
08/26/11	68			AEP
09/23/11	92			AEP
10/10/11	74	8	6	AEP
11/03/11	68	9	7	AEP
11/30/11	96	6	6	AEP
12/09/11	62	5	6	AEP
12/20/11	24	7	6	AEP
01/03/12	48	4	6	AEP
01/12/12	36	5	6	AEP
01/16/12	28	4	6	AEP
02/03/12	38			AEP
02/07/12	44	4	5	AEP
03/21/12	48	5	6	AEP
04/30/12	40	3	5	AEP
05/07/12	53	4	5	AEP
06/05/12	60	7	8	AEP
06/25/12	80	7	7	AEP
07/09/12	64	8	8	AEP
01/04/13	80	10	7	AEP
03/02/13	48	7	7	AEP
03/20/13	99	5.1	5.7	FTN
05/02/13	77	3.4	4.5	FTN
05/03/13	64	5	6	AEP
05/06/13	60			AEP
05/08/13	45	3.3	4.6	FTN
05/13/13	28	6	6	AEP
05/24/13	52	7	7	AEP
05/29/13	62	5	6	AEP
05/31/13	58	3.2	4.6	FTN
06/06/13	60	5	6	AEP
06/14/13	61	1.8	3.1	FTN
06/14/13	48	5	5	AEP
06/20/13	56	5	5	AEP
07/01/13	10	3.3	4.2	FTN
07/14/13	108	4	6	AEP
07/19/13	130	3.7	4.5	FTN
07/19/13	94	5	5	AEP
07/26/13	104	4	5	AEP
08/06/13	89	4.4	4.8	FTN

Date	TDS (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Collected by
08/07/13	72	6	6	AEP
08/12/13	96	4.5	4.9	FTN
08/15/13	47	4.5	4.3	FTN
08/16/13	94	6	6	AEP
08/22/13	88	6.2	5.7	FTN
08/29/13	100	4.8	4.6	FTN
09/19/13	71	4.9	4.3	FTN
10/17/13	150	5.5	4.7	FTN
Count:	56	51	51	
Min:	10	1.8	3.1	
25th %tile:	48	4.2	5.0	
Median:	63	5.0	6.0	
75th %tile:	84	6.6	6.0	
90th %tile:	98	8.0	7.0	
95th %tile:	105	8.5	8.0	
Max:	150	11.0	9.0	
Start Date	10/12/10			
End Date	10/17/13			

ATTACHMENT 3

Discussion of TDS and Temperature Tolerance Ranges for Indigenous Aquatic Species in the Little River

1.0 ION TOLERANCE

1.1 Ion Tolerance in Fish

The use attainability analysis (UAA) report documented the presence of 40 species of fish collected by FTN in August 2013 and by the US Geological Survey (USGS) in June 2009 and August 2015 (referred to as the "pooled" list in the UAA report) in the Little River downstream of the Millwood Lake dam. The report concluded that the species makeup of these collections closely resembled expectations based on zoogeography (i.e., fish species known to be present in the Gulf Coastal Plain ecoregion), habitat preferences, and gear selectivity. EPA did not dispute this conclusion or ask for further documentation of this conclusion in any of its comments.

A comparison of the species present in the pooled list with the list of species present in the Red River (based on Buchanan et al. 2003) reveals that 37 of the 40 species from the pooled list (92%)[1] were present in the Red River based on the Buchanan et al. (2003) survey. As shown in Tables 1 and 2, the 10th percentile TDS values from the Garland and Index monitoring stations on the Red River during the Buchanan et al. study period are well above the proposed Little River TDS criterion of 138 mg/L. This information documents that virtually all of the fish species found in the Little River are also found in the Red River where TDS concentrations are substantially higher than the proposed TDS criterion. This finding proves that the proposed TDS criterion of 138 mg/L for the Little River is well within the TDS tolerance range of the fish present in the Little River. Therefore the proposed TDS criterion for the Little River will support the fisheries designated use based on the existing fish communities.

[1] The fish species present in the Little River but not present in the Red River were bowfin (*Amia calva*), redfin shiner (*Lythrurus umbratilus*) and logperch (*Percina caprodes*).

Table 1. Summary of TDS concentrations in the Red River at Index (USGS 07337000) during and after the Buchanan et al. (2003) study.

Summary Statistic		TDS at Index (USGS 07337000) (mg/L)	
		Study Period	**Post-Study Period**
Percentile	10	427	246.0
	25	632	428.3
	50	720	584.5
	75	912	792.0
	90	1,128	903.4
	95	1,198	932.9
Number of Values		37	72
Period of Record		4/2/1996 – 12/11/2001	1/2/2002 – 10/22/2013

Table 2. Summary of TDS concentrations in the Red River at Garland (RED0045) during and after the Buchanan et al. (2003) study.

Summary Statistic		TDS at Garland (RED0045) (mg/L)	
		Study Period	**Post-Study Period**
Percentile	10	157.2	156.0
	25	216.0	247.5
	50	464.0	438.5
	75	660.5	624.0
	90	801.8	750.6
	95	886.2	819.3
Number of Values		63	138
Period of Record		4/2/1996 – 12/11/2001	1/2/2002 – 10/22/2013

1.2 Ion Tolerance in Benthic Macroinvertebrates

1.2.1 Comparison with Field-Based Aquatic Life Benchmark for Conductivity

EPA (2011) used conductivity as a surrogate measure of TDS to develop a benchmark value of 300 μS to protect aquatic life. The analysis is most applicable to high-gradient streams in the Appalachian Region (or comparable ecoregions) that are dominated by salts of Ca^{+2}, Mg^{+2}, SO_4^{2-} and HCO_3^-. Although the aforementioned salts dominate the Little River ionic matrix, the Little River is not located within a comparable ecoregion. The benthic macroinvertebrate communities that typify the high-gradient streams that were the focus of the EPA 2011 study exhibit large numbers of sensitive EPT taxa. The protective benchmark conductivity value of 300 µS is a reflection of the presence of those sensitive taxa. These sensitive taxa are not part of the existing benthic macroinvertebrate community of the Little River, which was shown in the UAA report to be dominated by Chironomidae and a single genus of Trichoptera. Therefore evaluating the Little River benthic community using the benchmark developed in EPA 2011 represents a conservative approach, because the benchmark is based on much more sensitive taxa than are found in the Little River.

Water quality data collected from the Little River during 2011 through 2013 indicated a poor correlation (R^2 = 0.20) between TDS and conductivity in the Little River (Figure 1). However, a conservative estimate of the level of TDS that would correspond to 300 µS was obtained by computing the upper 95th confidence interval of the ratio of conductivity to TDS and multiplying this factor by 138 mg/L. The data and statistics used for this computation are provided in Tables 3 and 4. Based on this computation, a conservative (i.e., high) estimate of the conductivity that would be associated with the proposed TDS criterion of 138 mg/L is 218 µS, which is below the benchmark value of 300 µS.

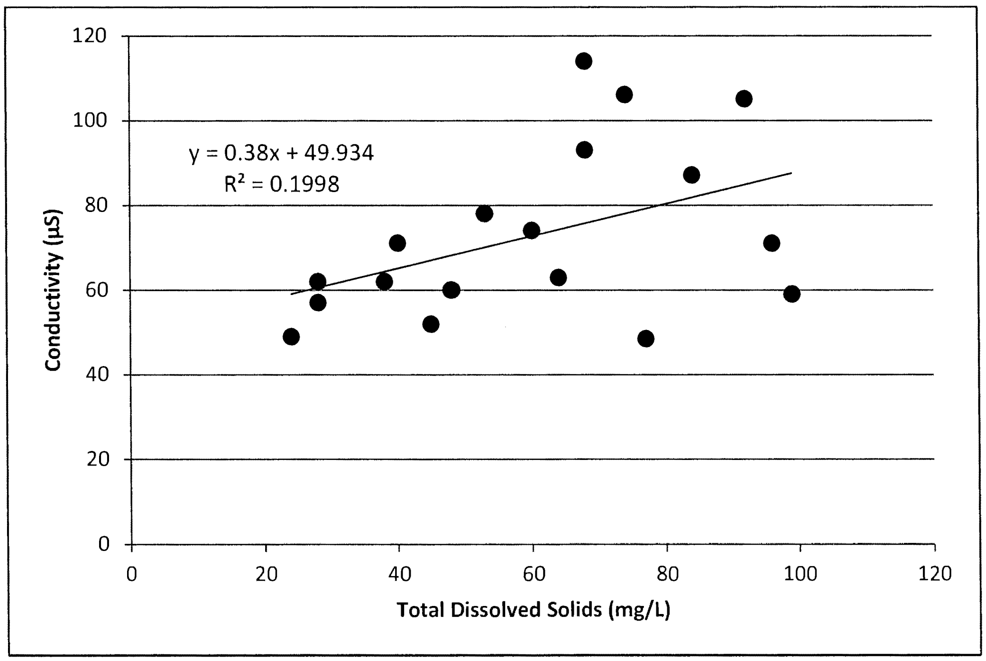

Figure 1. Scatter plot of relationship between TDS and conductivity measured in samples collected from the Little River downstream of Millwood Lake dam.

Table 3. Paired conductivity and TDS measurements from various sampling locations in the Little River downstream of the Millwood Lake dam.

Sampling Date	Conductivity (µS)	TDS (mg/L)	Conductivity/TDS
08/3/2011	87	84	1.036
08/26/2011	93	68	1.368
09/23/2011	105	92	1.141
10/11/2011	106	74	1.432
11/03/2011	114	68	1.676
11/30/2011	71	96	0.740
12/09/2011	338	62	Outlier; deleted from analysis
12/21/2011	49	24	2.042
01/03/2012	60	48	1.250
01/18/2012	57	28	2.036
02/03/2012	62	38	1.632
04/30/2012	71	40	1.775
05/07/2012	78	53	1.472
03/20/2013	59	99	0.596
05/02/2013	49	77	0.630
05/03/2013	63	64	0.984
05/06/2013	74	60	1.233
05/08/2013	52	45	1.156
05/13/2013	62	28	2.214

Table 4. Summary statistics from conductivity and TDS data provided in Table 3.

Summary Statistic	Value
Conversion factor (average conductivity/TDS)	1.3562
Standard deviation	0.4778
Number of values	18
Alpha	0.05
95% confidence interval (CI)	$\pm$ 0.2207
Upper CI of conversion factor	1.5769
Estimated conductivity of 138 mg/L based on upper CI of conversion factor	138 x 1.5769 = 217.6188

1.2.2 Evaluation of the Tolerance of Indigenous Benthic Macroinvertebrates to Dissolved Ions

1.2.2.1 Non-Chironomid Taxa

The UAA study included sampling of benthic macroinvertebrates from woody debris, which is a dominant substrate type in the Little River below Millwood Lake dam. Communities were similar upstream versus downstream of the SWEPCO discharge point so that all samples were combined. Table 5 summarizes XC95 values ("95% Extirpation Concentration") for the taxa present in the Little River samples based on Appendices D and H of EPA 2011.

Table 5. Summary of relative abundance and XC95 values (from EPA 2011) for benthic macroinvertebrate taxa collected from woody debris substrates in the Little River.

Order	Family	Genus	Relative Abundance	XC95 (μS)	
				Kentucky[1]	West Virginia[2]
Coleoptera	Elmidae	*Stenelmis*	<0.01	> 1,520	>9,790
Diptera	Ceratopogonidae	*Bezzia*	0.03	ND	380
Diptera	Chironomidae		0.77	see Table 8	
Ephemeroptera	Caenidae	*Caenis*	0.02	>1,410	>3,923
Ephemeroptera	Heptageniidae	*Stenacron*	0.01	> 862	782
Megaloptera	Corydalidae	*Nigronia*	<0.01	>1,197	>9,790
Odonata	Coenagrionidae	*Argia*	0.01	>1,410	ND
Odonata	Gomphidae	*Erpetogomphus*	<0.01	ND	ND
Trichoptera	Polycentropodidae	*Polycentropodidae*	<0.01	>570	>4,713
Trichoptera	Polycentropodidae	*Cyrnellus*	0.14	ND	ND

Notes:
1. Based on Appendix H of EPA 2011.
2. Based on Appendix D of EPA 2011.

XC95 values are statistically derived conductivity values associated with a 95% or greater probability that a particular genus will be absent at a site. Therefore an XC95 value near 218 μS for a particular taxon would indicate that a TDS value of 138 mg/L could potentially limit the abundance of that taxon. XC95 values indicate a conductivity level associated with *absence* of a taxon. Therefore, for the purposes of this evaluation, any taxon with an XC95 value less than 900 μS (three times EPA's field-based conductivity benchmark of 300 μS) was considered to be potentially susceptible to adverse effects (i.e., decreased abundance) due to a TDS level corresponding to 281 μS.

Table 5 shows that Chironomidae and a single genus of Trichoptera (*Cyrnellus*) comprised 91% of individuals collected. XC95 values were available for six of the remaining eight non-chironomid taxa, which comprised 9% of the population sampled. XC95 values of the remaining six taxa were generally greater than 900 µS (i.e., exceeding the 300-µS benchmark by three-fold or more) and ranged to up to nearly 10,000 µS; the exceptions were *Bezzia* and *Stenacron* (XC95 values of 380 and 782 µS, respectively), which comprised 4% of the individuals. This analysis indicates that TDS concentrations near 138 mg/L might potentially adversely affect the distribution and abundance of *Bezzia* and *Stenacron*, which comprise 4% of the benthic macroinvertebrate population in the Little River.

Potential effects on the trichopteran *Cyrnellus*, which made up 14% of the individuals in the Little River samples, could not be evaluated using EPA 2011 because this genus was not present in the EPA 2011 data set. There is only one North American species of *Cyrnellus* (*C. fraternus*), which is also found in South America[2]. Johnson et al. (1998) described the microdistribution of *C. fraternus* in the Elm Fork of the Trinity River in north Texas. The full text document for this study was not available, so any ancillary water quality data taken as part of the study are also unavailable. The USGS monitoring station located on Elm Fork (USGS 08050400[3]) does not include TDS or conductivity data. However, conductivity monitoring data are available from April 6, 2010, through March 1, 2016, at nearby Little Elm Creek (USGS 08052700[4]). Little Elm Creek is somewhat smaller than the Elm Fork (75.5 mi^2 versus 174 mi^2 at the respective monitoring locations). Conductivity data from Little Elm Creek can serve as a surrogate to represent conductivity in the Elm Fork because both waterbodies are located in the Cross Timbers ecoregion and should have similar geology. Table 6 summarizes available daily conductivity values from the Little Elm Creek monitoring station. If these values can be considered to be representative of Elm Fork, then they indicate that the Little River TDS criterion of 138 mg/L will support *C. fraternus* because the conductivity values greatly exceed the 218 µS value that corresponds to 138 mg/L TDS.

[2] http://www.waterbugkey.vcsu.edu/php/genusdetail.php?idnum=15&g=Cyrnellus&ls=larvae&f=Polycentropodidae
[3] Located at latitude 33°37'27" and longitude 97°093'22" (North American Datum of 1927 [NAD27]).
[4] Located at latitude 33°17'00" and longitude 96°53'33" (NAD27).

Table 6. Summary of daily average conductivity monitoring from Little Elm Creek.[5]

Summary Statistic	Daily Average Conductivity Values	
	Median	80th Percentile
Minimum	383	602
Mean	673	861
Maximum	989	1,420
Number of values	351	
Period of record	April 16, 2010, to March 1, 2016	

This analysis indicates that TDS values exceeding the proposed site-specific criterion will support *C. fraternus*, which makes up 14% of the individuals in the Little River benthic macroinvertebrate samples.

1.2.2.2 Chironomid Taxa

Chironomidae, which made up 77% of the individuals in the Little River samples (Table 5), were not identified to genus, so the XC95 values for the 61 chironomid genera available in EPA 2011 cannot be directly applied to the Little River data set. However, 55 of the 61 XC95 values in EPA 2011 were reported as "greater than" values that were substantially greater than 218 μS, with only two of those values (>681 μS and >824 μS) being less than 900 μS (Table 7). Of the six definitive XC95 values for chironomid genera from EPA (2011), presented in Table 8, five are less than 900 μS.

This information suggests that TDS concentrations at or near 138 mg/L could potentially adversely affect 7 of the 55 (9%) chironomid genera for which XC95 data are available. Available information on the geographic distribution of these genera was not sufficiently detailed to definitively assess whether the Little River is within the geographic range of these genera. However, Hudson et al. (1990) provide notes on biology, habitat, and distribution of chironomid taxa in Alabama, Florida, Georgia, Tennessee, South Carolina, and North Carolina. Table 8 provides this information for the genera having definitive XC95 values or XC95 values potentially less than 900 μS from EPA (2011). This information indicates that three of the seven

[5] Conductivity data from USGS Station 08052700 were downloaded as percentile values for each day of the calendar year for the period of record. Table 6 summarizes the minimum, mean, and maximum values for the median and 80th percentile values for the entire period of record.

genera having (or potentially having) XC95 value less than 900 µS are not likely to be found on woody debris habitat in the Little River.

Table 7. Summary of "greater than" XC95 values for chironomid general from EPA 2011.

Summary Statistic		XC95 Value (µS)
Percentile	5th	1,004
	25th	1,616
	50th	2,074
	75th	4,971
	95th	11,646
Minimum		686
Mean		4,349
Maximum		34,898
Number of values		55

Table 8. Chironomid genera having definitive XC95 values or XC95 values potentially less than 1,000 µS from EPA 2011.

Genus	XC95 Value (µS)	Habitat/Distribution Notes from Hudson et al. 1990	Occurrence on Woody Debris in Little River?
Conchapelopia	546	More common in mountains than coastal plains; most often found in flowing water; some species are very tolerant of chemical and organic pollution.	Possible
Demicryptochironomus	322	Larvae characteristic of clean sandy areas of streams and rivers in the southeast.	Not likely
Micropsectra	462	Most abundant and diverse in cool mountain streams, rarely in coastal plains.	Not likely
Microtendipes	> 681	Widespread especially *M. caducus* and *M. pedellus* in clean streams. *M. pedellus* abundant in nutrient-enriched streams.	Possible
Rheopelopia	1,457	Found in small, fast-flowing stream in NC and large rivers in GA.	Possible
Stempellina	644	Most species are widespread.	Yes
Stenochironomus	> 824	Lotic and lentic habitats.	Yes
Zavrelia	413	Restricted to cool streams of mountains and sand hills.	Not likely

This analysis indicates that chironomid genera are in general tolerant of elevated conductivity levels and that only a small proportion of genera are likely to be sensitive to conductivity levels at or near 218 µS (i.e., TDS concentrations at or near 138 mg/L). Therefore, TDS concentrations at or near the proposed TDS criterion of 138 mg/L should have negligible impacts on the existing chironomid population.

1.3 Summary and Conclusions

1.3.1 Fish

Virtually all of the fish species found in the Little River are also found in the Red River where TDS concentrations are substantially higher than the proposed TDS criterion for the Little River of 138 mg/L. This finding proves that the proposed TDS criterion for the Little River is well within the TDS tolerance range of the fish present in the Little River. Therefore the proposed TDS criterion for the Little River will support the fisheries designated use based on the existing fish communities.

1.3.2 Benthic Macroinvertebrates

A conservative (i.e., high) estimate of the conductivity that would be associated with the proposed TDS criterion of 138 mg/L is 218 µS, which is below EPA's field-based benchmark value of 300 µS. The 300-µS benchmark developed in EPA 2011 represents a conservative value when applied to the Little River because the benchmark is based on much more sensitive taxa than are found in the Little River. This finding indicates that proposed TDS criterion of 138 mg/L should not impair the benthic macroinvertebrate community (including communities occupying habitats other than woody debris) in the Little River.

TDS concentrations near 138 mg/L might potentially adversely affect the distribution and abundance of *Bezzia* and *Stenacron.* However, this potential effect would affect only 4% of the benthic macroinvertebrates inhabiting woody debris in the Little River.

TDS values exceeding the proposed site-specific criterion will likely support *C. fraternus*, which makes up 14% of the individuals in the Little River benthic macroinvertebrate samples.

XC95 values for chironomid genera documented in EPA 2011 were all greater than 218 µS and were overwhelmingly greater than 900 µS (three times the 300-µS benchmark developed in EPA 2011). This analysis shows that chironomid genera, which comprised 77% of the individuals found on woody debris substrates, are in general tolerant of elevated conductivity levels. Only a small proportion of genera are likely to be sensitive to conductivity levels at or near 218 µS (i.e., TDS concentrations at or near 138 mg/L). Therefore, TDS levels at or near the proposed TDS criterion of 138 mg/L should have negligible impacts on the existing chironomid population.

2.0 TEMPERATURE TOLERANCE

2.1 Temperature Tolerance in Fish

As discussed in Section 1.1, the UAA report documented the presence of 40 species of fish collected by FTN in August 2013 and by USGS in June 2009 and August 2015 (referred to as the "pooled" list in the UAA report) in the Little River downstream of Millwood Lake dam. The report concluded that the species makeup of these collections closely resembled expectations based on zoogeography (i.e., fish species known to be present in the Gulf Coastal Plain ecoregion), habitat preferences, and gear selectivity. Therefore, the reach of the Little River below Millwood Lake dam currently attains its designated aquatic life (fishery) use based on the fish community. EPA did not dispute this conclusion or ask for further documentation of this conclusion in any of its comments.

A comparison of the species present in the pooled list (based on recent sampling) with the list of species present in the Red River (based on Buchanan et al. 2003) reveals that 37 of the 40 species from the pooled list (92%) were present in the Red River based on the Buchanan et al. (2003) survey. Available temperature data obtained from the USGS monitoring station on the Red River at Index, AR (USGS 07337000) (Table 9) indicate that temperatures exceeding 32°C are a common feature of the Red River. Table 9 shows that maximum *mean* temperatures exceed 32°C 11% of the time during the period of record. Since this summary refers to daily *mean* temperatures, maximum temperatures in excess of 32°C can be expected to occur even more frequently. This characteristic of the Red River temperature regime is reflected in the temperature criterion of 32°C for the Red River (APCEC 2014). Therefore, since the large majority of the fish from the pooled list have also been documented in the Red River, temperatures in excess of 32°C will support the fisheries use in the Little River based on fish populations.

Table 9. Summary of maximum mean daily temperatures on each calendar day at Index, AR.

Summary Statistic		**Value (°C)**
Percentile	5th	12.3
	25th	17.6
	50th	23.3
	75th	29.9
	95th	32.8
Percentile Rank of 32°C		89.3
Minimum		7.5
Mean		23.2
Maximum		33.5
Period of record		October 1, 2003, to June 6, 2011

2.2 Benthic Macroinvertebrates

The proposed temperature criterion for the Little River below the Millwood Lake dam of 32°C is based on monitoring data collected during the UAA study and represents the conditions under which sampling of the indigenous macroinvertebrate community was performed. Therefore, it has already been shown that the indigenous macroinvertebrate community can tolerate a temperature regime that supports a 32°C criterion because the community was actually sampled under that regime. EPA's request to demonstrate that the indigenous biota can tolerate the conditions under which they were found represents circular logic.

No independent studies could be located that demonstrate that the indigenous macroinvertebrate taxa can tolerate the temperatures as high or higher than the indigenous taxa currently experience. Available field studies that addressed thermal tolerance occurred in northern locations and focused on cold-water species. The seasonal window for most field protocols for benthic macroinvertebrate sampling is generally early to mid-spring when maximum temperatures do not occur. Therefore benthic macroinvertebrate data sets with accompanying temperature data typically do not address the warm temperatures shown during the late summer in the Little River.

2.3 Summary and Conclusions

Available temperature data obtained from the USGS monitoring station on the Red River at Index, AR (USGS 07337000) (Table 9) indicate that temperatures exceeding 32°C are a common feature of the Red River. Since the large majority of the fish collect from the Little River have also been documented in the Red River, temperatures in excess of 32°C will support the fisheries use in the Little River based in fish populations.

No applicable laboratory data or field data from other locations could be located showing that the indigenous invertebrate species present in the Little River can tolerate temperatures approaching or exceeding 32°C. However, the simultaneous occurrence of the indigenous biota and temperatures approaching and exceeding 32°C proves that a temperature criterion of 32°C will support indigenous biota.

3.0 REFERENCES

APCEC. 2014. *Regulation No. 2: Regulation establishing water quality standards for surface waters of the state of Arkansas*. Little Rock, AR: Arkansas Pollution Control and Ecology Commission. Effective February 28, 2014.

EPA. 2011. *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams, Final Report* [EPA/600/R-10/023F]. Washington, DC: US Environmental Protection Agency.

Hudson, P.L., D.R. Lenat, B.A. Caldwell, and D. Smith. 1990. *Chironomidae of the southeastern United States: a checklist of species and notes on biology, distribution and habitat* [Paper 173]. Washington, DC: United States Department of the Interior, Fish and Wildlife Service. ISSN 1040-2411.

Johnson, Z.B., A.K. Riggs, and J.H. Kennedy. 1998. Microdistribution and secondary production of *Cyrnellus fraternus* (Trichoptera: Polycentropodidae) from snag habitats in the Elm Fork of the Trinity River, Texas. *Ann. Entomol. Soc. Am.* 91:641-646.

ATTACHMENT 4

Discussion of Best-Fit Regression Model Used for Temperature Criterion

1.0 DISCUSSION OF BEST FIT REGRESSION MODEL FOR TEMPERATURE CRITERION

The proposed criterion was developed using a weight-of-evidence approach with multiple sets of data and information, including the following:

- Observed water temperatures approximately 1 mile upstream of SWEPCO's outfall,
- Two regression models that predict daily maximum water temperatures, and
- Existing criteria for upstream and downstream waterbodies (Millwood Lake and the Red River).

The regression model with the higher coefficient of determination (R^2) was not the sole basis for the proposed criterion, because the high R^2 value was not indicative of the regression model's accuracy for predicting high water temperatures, which is important for developing a proposed temperature criterion.

The second regression model presented in the report (described on pages 4-3 and 4-4 of the report) had a higher R^2 value than the first regression model (described on pages 4-1 and 4-2), but the higher R^2 does not necessarily mean that it is the best regression for developing a proposed criterion. The R^2 value represents the percentage of the observed data variation that is explained by the model. Comparisons of R^2 values for different regression models must consider differences in the data upon which each regression is based.

The first regression model was developed using only data for July and August, while the second regression model was developed using data for February through September (a longer period of observed data was needed to develop sine curves to represent normal temperatures). For the first regression model, the observed water temperatures during July and August exhibit a relatively small range of variation (27.6°C to 34.7°C). For the second regression model, though, the observed water temperatures for February through September exhibit a larger range of variation (8.6°C to 34.7°C). Therefore, a certain error in the predicted temperatures (say, 1.0°C for example) represents a much larger percentage of the observed data variation for the first regression model than for the second regression model. In other words, if both regression models have the same error in predicted temperatures, the first regression model will inherently have a lower R^2 value than the second regression model.

A better metric for evaluating the accuracy of each regression model is the standard error of estimate, which was slightly lower for the first regression model (1.0°C) than for the second regression model (1.17°C). This shows that both regression models have similar accuracy over the range of observed temperatures used to develop each regression.

For development of temperature criteria, the accuracy of model predictions is important for days with high observed water temperatures. Unfortunately, both of these regression models tended to under-predict water temperatures on days with high observed water temperatures. The two regression models under-predicted water temperatures by an average of 1.4°C and 1.8°C, respectively, on days during 2013 when the observed maximum water temperature was 32°C or greater. Therefore, the 95th percentiles of daily temperatures predicted by these regression models are probably biased low.

The observed water temperature data only cover a 2-year period, but they provide valuable measurements that show numerous temperatures exceeding both the existing criterion (30°C) and the proposed criterion (32°C). Because these data are actual measurements (as opposed to model predictions), they must be given strong consideration in a weight-of-evidence evaluation.

ATTACHMENT 5

Point Sources to the Red River

Figure A-3: Planning Segment 1B

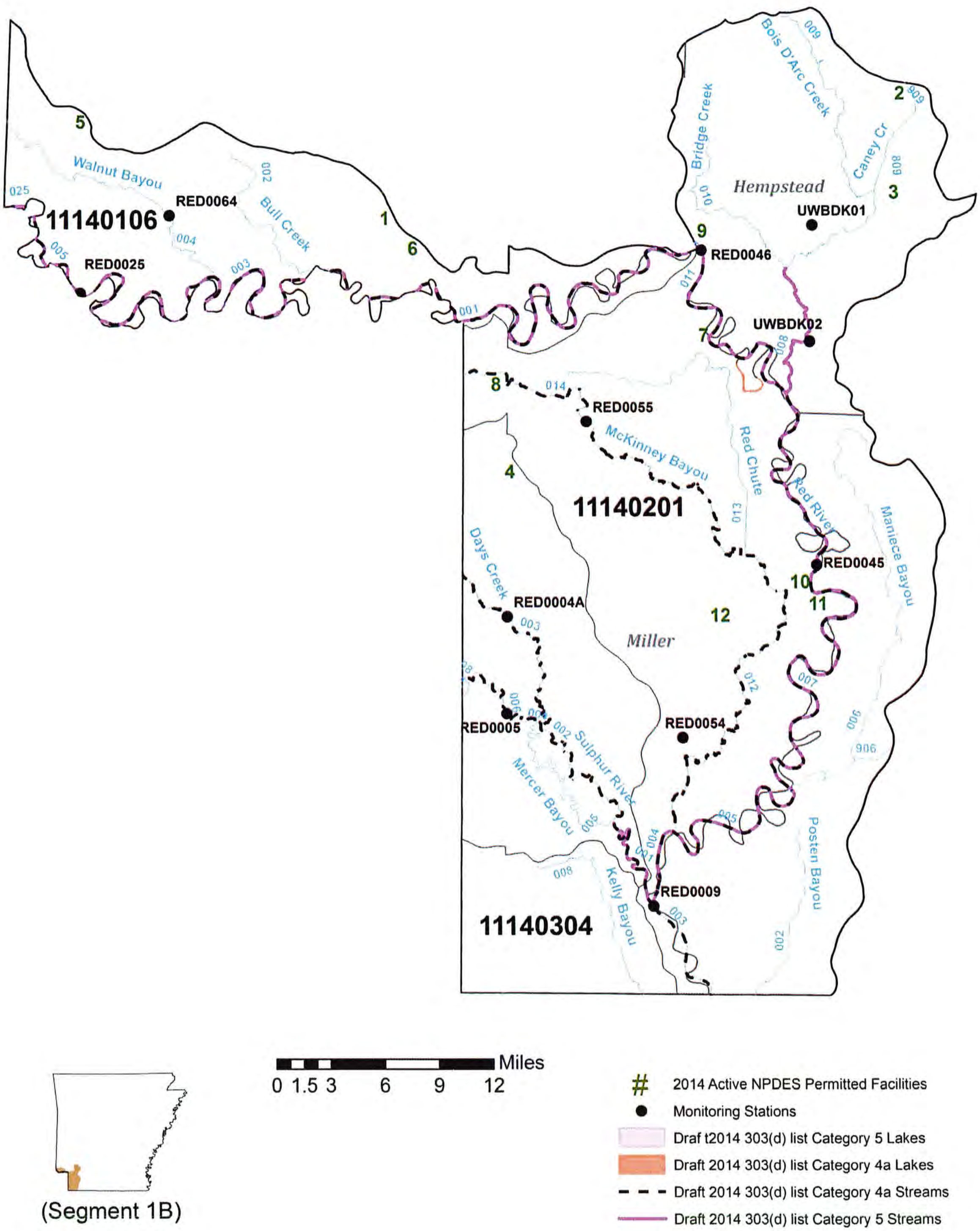

Table A-4: Active NPDES permits for Planning Segment 1B

Permit Number	Facility Name	Receiving Waters	Reach	USGS H.U.C.	County	Map No.
AR0002968	DOMTAR A.W. LLC	PIPING & OPEN CANAL,RED R	001	11140106	Little River	1
AR0021326	TYSON FOODS, INC. - HOPE PROCESSING PLANT	UNNAMED TRIB,CANEY CR,BOIS D'ARC CR,RED R	909	11140201	Hempstead	2
AR0038466	HOPE, CITY OF-BOIS D'ARDC WWTP	BLACK BR,BOIS D'ARC CR,RED R	009	11140201	Hempstead	3
AR0038822	COOPER TIRE & RUBBER COMPANY	TRIB,NIX CR,DAYS CR,SULPHUR R,RED R	003	11140302	Miller	4
AR0042846	ASH GROVE CEMENT COMPANY	FRENCH CR,WALNUT BU,RED R	004	11140106	Little River	5
AR0042951	ASHDOWN WW TREATMENT PLANT	DOMTAR CANAL,RED R	001	11140106	Little River	6
AR0048356	TYSON FOODS, INC.-RIVER VALLEY ANIMAL FOODS	RED R	011	11140201	Miller	7
AR0048691	TEXARKANA, CITY OF-NORTH WWTP	MCKINNEY BU,RED R	014	11140302	Miller	8
AR0048810	FULTON, CITY OF-WWTP	RED R	011	11140201	Hempstead	9
AR0050857	GARLAND, CITY OF	RED R	007	11140201	Miller	10
AR0051942	CHIEFTAIN SAND AND PROPPANT, LLC	RED R	007	11140201	Miller	11
AR0052035	WOOTEN SAND AND GRAVEL, INC.	MCKINNEY BU,RED R	012	11140201	Miller	12

Facilities with NPDES Permits located in HUCs 111401-01, -02, -03, -04, -05, and -06 in Oklahoma, queried from ECHO.

registry_id	fac_name	fac_street	fac_city	fac_state	fac_county	fac_lat	fac_long	npdes_ids
110000608236	Western Farmers Electric Coop	Hwy. 70	Hugo	OK	Choctaw	34.016330	-95.321880	OK0035327
110000816528	Trinityrail Maintenance Services Plant	1806 West Garrett Street	Hugo	OK	Choctaw	34.017753	-95.540873	OKP003019
110001143361	T Bar M Ranch	Rt. 1 Box 233	Hendrix	OK	Bryan	33.815292	-96.258688	OKG010337
110002047384	Durant City Utilities Auth	1222 Davis Road	Durant	OK	Bryan	33.937083	-96.384000	OK0039063
110007384954	Lattimore Matl Corp / Stringtown Crusher No 67	1 mi NE of town off Hwy 69	Stringtown	OK	Atoka	34.481833	-96.048972	OK0040762
110007388291	Unimin Corp / Roff Plt	3rd and Walling St	Roff	OK	Pontotoc	34.636833	-96.814278	OK0040291
110009154654	Antlers PWA	100 SE 2nd St	Antlers	OK	Pushmataha	34.217972	-95.612139	OK0002615 OK0020346
110009154761	Millerton Pub Wrks Authority	P.O. Box 239	Millerton	OK	McCurtain	33.979382	-95.022535	OK0037028
110009154869	Ok St Dept of Corrections-Howa	1970 East Whippoorwill Lane	Atoka	OK	Atoka	34.162306	-95.822167	OK0033413 OKG580069
110010808395	Mack Alford Corr. Center	P.O. Box 220	Stringtown	OK	Atoka	34.522778	-96.030000	OK0044113
110011007622	Wapanucka Public Works Auth.	P.O. Box 163	Wapanucka	OK	Johnston	34.378750	-96.428417	OK0034011
110011007891	Calera PWA	110 West Main Street	Calera	OK	Bryan	33.924972	-96.440167	OK0031682
110011008024	Boswell, Town of	410 6th St	Boswell	OK	Choctaw	34.033583	-95.860806	OK0032255
110011008337	Clayton PWA	P.O. Box 279	Clayton	OK	Pushmataha	34.577600	-95.354800	OK0029157
110011008676	Talihina PWA	P.O. Box 457	Talihina	OK	Latimer	34.747779	-95.059297	OK0028380
110011008738	Atoka, City of	350 East North Hills Rd	Atoka	OK	Atoka	34.405201	-96.109161	OK0028576
110011008827	Bokchito, City of	Bryan County	Bokchito	OK	Bryan	34.012722	-96.136750	OK0027014
110011009791	Allen, Town of	P.O. Box 402	Allen	OK	Pontotoc	34.876556	-96.423333	OK0020206
110011011591	Choctaw Manufacturing & Devlp	203 Choctaw Industrial Drive	Hugo	OK	Choctaw	34.016970	-95.534750	OKP003005
110011012812	Mansion Farm	P.O. Box 918	Holdenville	OK	Hughes	34.866944	-96.334444	OKG010292
110011012830	W-6 Swine Farms, Inc.	8159 E. 1515 Road	Calvin	OK	Hughes	34.816287	-96.234789	OKG010294
110011013358	Bolen Farms	Route 2, Box 328	Idabel	OK	McCurtain	33.823611	-94.839444	OKG010230
110011013401	Roger Stinchcomb #2	Route 2, Box 25b	Stonewall	OK	Pontotoc	34.635556	-96.613889	OKG010243
110011013410	Skiles Farm	Route 1, Box 62	Holdenville	OK	Johnston	34.443333	-96.555278	OKG010244
110011013633	Phillips Farms	P.O. Box 35	Garvin	OK	McCurtain	33.956111	-94.960278	OKG010088
110011013786	Holts Egg Farm	Route 2, Box 67	Stonewall	OK	Johnston	34.448333	-96.609444	OKG010130
110011013820	Wood Farm, Larry	Route 1, Box 2	Milburn	OK	Johnston	34.266667	-96.541667	OKG010139
110011013875	Roger Stinchcomb #1	Route 2, Box 25b	Stonewall	OK	Pontotoc	34.636666	-96.610277	OKG010156
110011014302	Mahard Egg Farm, Inc.- Granite	Route 1, Box 25a	Milburn	OK	Johnston	34.349903	-96.582227	OKG010059
110012299789	Colbert WWT	% Colbert Water Department	Colbert	OK	Bryan	33.845556	-96.495389	OKG580017
110012864837	Achille	500 N 2nd Ave	Achille	OK	Bryan	33.831180	-96.390140	OK0027979
110012874354	Bryan County RWS & SWMD #2	Bryan County	Mead	OK	Bryan	34.049972	-96.380306	OKG380014
110014332775	Soper Public Works Authority	600 Main St	Soper	OK	Choctaw	34.034972	-95.700000	OK0044563
110017843565	Alan Ritchey Matl Co LC / Popes Point	6992 SR 74741	Hendrix	OK	Bryan	33.821944	-96.150278	OK0045519
110020151075	Sawyer Facility	6.5 mi N of Hwy 70 via SH147	Sawyer	OK	Choctaw	34.114611	-95.382028	OKG950017
110022402728	Dolese Brothers Co.-Coleman	3 mi E & 1 mi S of Coleman	Coleman	OK	Atoka	34.258500	-96.366889	OKG950030
110022423028	Meridian Aggregates Co.-Hugo	3 mi N of US Hwy 70	Hugo	OK	Choctaw	34.054826	-95.532990	OKG950021
110022590766	Choctaw Co. RW & SD #1	510 Everidge	Grant	OK	Choctaw	33.924917	-95.508278	OK0037826
110022616436	Pushmataha Co RWD #3	8 mi E of Antlers on SH 3	Antlers	OK	Pushmataha	34.201647	-95.487147	OK0045616
110022632150	Coalgate PWA	3 South Main	Coalgate	OK	Coal	34.508222	-96.214361	OKG580028
110024410653	Fittstone, Inc.	County Road 167, West of 99	Fittstown	OK	Pontotoc	34.593889	-96.646389	OKG950010
110037270823	Valliant PWA	111 N. Dalton	Valliant	OK	McCurtain	33.991861	-95.093278	OKG580065

Facilities with NPDES Permits located in HUCs 111401-01, -02, -03, -04, -05, and -06 in Oklahoma, queried from ECHO.

registry_id	fac_name	fac_street	fac_city	fac_state	fac_county	fac_lat	fac_long	npdes_ids
110037271519	Wapanucka Oolitic Limestone Quarry	10203mile Corner Rd	Bromide	OK	Johnston	34.404444	-96.473056	OKG950047
110041245961	Hale Scout Reservation- Camp Tom Hale	1 Camp Tom Hale Road	Talihina	OK	Le Flore	34.735528	-94.888028	OK0045764
110044270794	Roos Resources,Inc.	7955 Cr 1670	Roff	OK	Pontotoc	34.569306	-96.824583	OKG950052
110044903174	Stringtown PWA	P.O. Box 98	Stringtown	OK	Atoka	34.459639	-96.063611	OK0030449
110046122995	Weyerhaeuser Nr Co Idabel Sawmill	5500 NW Texas St	Idabel	OK	McCurtain	33.928477	-94.869819	OK0043885
110055639411	Atoka Co. RW & SWMD #4	337 E. Hwy. 3	Atoka	OK	Atoka	34.351333	-96.059417	OKG380059
110064606369	Hugo Municipal Authority	201 South 2nd St.	Hugo	OK	Choctaw	33.988417	-95.525778	OK0028487
110064612094	International Paper Co. - Valliant	Adj to S Hwy 70 in Valliant	Valliant	OK	McCurtain	33.992768	-95.112880	OK0000744
110064620548	Kiowa Power Partner, LLC	4386 Old 69 Rd	Kiowa	OK	Pittsburg	34.683833	-95.934722	OK0044083
110067190596	E-Z Mart #108	802 N. Washington Ave	Durant	OK	Bryan	34.001387	-96.390410	OKG830048

Facilities with NPDES Permits located in HUCs 111401-01, -05, and -06 in Texas, queried from ECHO.

registry_id	fac_name	fac_street	fac_city	fac_state	fac_county	fac_lat	fac_long	npdes_ids
110000720970	City of Paris Water Treatment Plant	301 Lake Crook Road	Paris	TX	Lamar	33.724468	-95.567306	TX0075931
110000758056	Wastewater Treatment Plant	1800 E. F.M. 1417	Sherman	TX	Grayson	33.601667	-96.574167	TX0024325
110005103887	Grayson County College	6101 Grayson Dr	Denison	TX	Grayson	33.707972	-96.636611	TX0056235
110006801924	Sherman Ready Mix - WWTP	6102 Teresa Drive	Sherman	TX	Grayson	33.693623	-96.581363	TXG110118 TXG111225
110009115590	City of Honey Grove	2000f W FMR 100 & 3000 f N US	Honey Grove	TX	Fannin	33.613806	-95.918889	TX0117951
110009747015	Reno WWTF	1 1/3m SW FMR 195 & NW 7th St	Reno	TX	Lamar	33.695856	-95.479678	TX0082309
110009748023	Hooks Isd WWTP	E FMR 560 3 Mi N Ih-30	Hooks	TX	Bowie	33.517000	-94.285639	TX0118079
110009774896	Camp Maxey WWTP	0.5 mi SE Intx US Hwy 271 and FMM 2648	Lamar County	TX	Lamar	33.778417	-95.540222	TX0101214
110009778115	Town of Windom WWTP	0.25 mi SW Intx US Hwy 82 & FM	Windom	TX	Fannin	33.562583	-96.006889	TX0072711
110009779187	City of Dodd City WWTP	2200 f SW Sthwy 897/82 2500 f SE	Dodd City	TX	Fannin	33.569639	-96.068889	TX0057169
110009779613	City of Bells	US Hwy 69 and FM Hwy 1897, N	Bells	TX	Grayson	33.619806	-96.413028	TX0053368
110009779640	Avery WWTP	On Mill Creek, 1.5 mi NE city	Avery	TX	Red River	33.561972	-94.776444	TX0053503
110009780228	River Hills Owners Association	600' NW of FM 691 and FM 131	Denison	TX	Grayson	33.711167	-96.606444	TX0033154
110009780246	City of Whitewright	1 Blk W FMR 898/Mk&T Railrd	Whitewright	TX	Grayson	33.520858	-96.392039	TX0033294
110009781147	City of Ector	4700' N of US Hwy 82 & 800' W	Ector	TX	Fannin	33.589500	-96.278556	TX0025151
110009781441	City of Hooks WWTP	449 Willow Oak Drive	Hooks	TX	Bowie	33.477389	-94.252889	TX0022969
110009781557	City of Savoy WWTF	601 N Cedar St	Savoy	TX	Fannin	33.606361	-96.367944	TX0023299
110012702851	New Boston Lumber Mill	Hwy. 82 E.	New Boston	TX	Bowie	33.467499	-94.386940	TX0079723
110015743622	Paris Energy Center	0.5 mi N Intx US Hwy 271 and US Hwy 82	Paris	TX	Lamar	33.696750	-95.557722	TX0103586
110017693076	Coston & Son Ready Mix	155 East Oak Ave	Paris	TX	Lamar	33.677940	-95.554350	TXG110508
110027363234	Randolph WWTP	FMR 896,1/2 m S Sthwy 121	Randolph	TX	Fannin	33.479695	-96.247995	TX0027928
110031272469	Sherman Ready Mix	6202 Theresa St	Sherman	TX	Sherman	33.690992	-96.581447	TXG110755
110033462731	Bonham Concrete	827 W Sam Rayburn Dr	Bonham	TX	Fannin	33.577259	-96.187356	TXG110317 TXG111177
110037841681	Valley Steam Electric Station	1040 Cr 1225	Savoy	TX	Fannin	33.623890	-96.368126	TX0009067
110038112271	City of Denison Ms4	Within the Denison city limits	Denison	TX	Grayson	33.755555	-96.562500	TXR040230
110038179075	Texas Dept of Transportation	Paris Dist MS4	Paris	TX	Grayson	33.674139	-95.556036	TXR040166
110039874053	Paw Paw WWTP	1600' E & 2200' N of Intx Cent	Denison	TX	Grayson	33.772798	-96.501864	TX0047228
110042082572	Silgan Containers Paris Plant	500 NW Loop 286	Paris	TX	Lamar	33.718056	-95.568222	TX0008982
110045506476	Hope Concrete	5815 N Travis St	Sherman	TX	Grayson	33.647340	-96.613050	TXG111178
110059708400	Load Trail	220 FM 2216	Sumner	TX	Lamar	33.719020	-95.837720	TX0134431
110064591419	Sherman WWTP	1800 E FM 1417	Sherman	TX	Grayson	33.602434	-96.577777	TXL005020
110064609847	City of Bonham WWTP	2501 Seven Oaks Road east of Bonham	Bonham	TX	Fannin	33.587247	-96.160641	TX0021814
110064648234	Bonham WWTP	2073 FM 273	Bonham	TX	Fannin	33.639143	-96.165859	TX0135569

ATTACHMENT 6

Discussion of Aquatic Life Use Protection in the Red River

1.0 ASSESSMENT OF AVAILABLE DATA TO EVALUATE THE AQUATIC LIFE COMMUNITY & WATER QUALITY IN THE RED RIVER

The Buchanan et al. (2003) study and the availability of long-term monitoring data available from several long-term monitoring stations on the Red River provide a unique opportunity to link the results of an extensive and intensive survey of the fish communities with the TDS regime present during the study. This data set also has the distinct advantage of having been collected in the actual waterbody of interest. Therefore, conclusions based on this data set avoid the interpretational difficulties that inevitably arise when investigators are forced to rely on laboratory results (due to the usual difficulties encountered when applying laboratory studies to field situations) or other field studies (due to different taxa present).

We again wish to point out that EPA's concern that the age of the Buchanan et al. study (conducted from 1995 to 2001) undermines or weakens the conclusions based on the study is not valid because, as noted in responses submitted to EPA on January 15, 2016, the relevant issue regarding the use of the Buchanan et al. study is the water quality conditions present at the time of the study, not the calendar year(s) of the study. There is no reason to believe that the range of tolerance of any given species present during the study should be different from the range of tolerance that that species would show currently. Therefore, any species that tolerated the TDS concentrations present in the Red River from 1995 to 2001 should be able to tolerate the same or lower concentrations today.

The Buchanan et al. study included a comparison of the fish species present in the reach of the Red River upstream of the mouth of the Little River versus downstream of the mouth of the Little River ("upstream" and "downstream" reaches, respectively). The authors noted little difference in species richness between the upstream (67 species) and downstream (65 species) reaches. The upstream reach supported 67 of the total 72 species (93%) collected during the entire survey while the downstream reach supported 90% of the total species collected. Seven species were found only in the upstream segment and five species were found only in the downstream segment. The entire survey found nine species of darters (various species of *Amocrypta, Etheostoma, and Percina*), with all nine species found in the upstream reach and six species found in the downstream reach. These results demonstrate that both the upstream and downstream reaches of the Red River show "high fish species richness."

The Red River monitoring station at Index, AR (USGS 07337000) provides a long-term record of TDS concentrations representative of the upstream reach of the Red River. Table 1 summarizes TDS concentrations present during the Buchanan et al. study and demonstrates that the 95th percentile TDS concentration during the study was 1,198 mg/L at the Index location. This result clearly demonstrates that TDS conditions that result in a 95th percentile concentration that exceeds the proposed criterion by almost 40% (1,198 mg/L versus 860 mg/L) will support high fish species richness and a high level of fisheries use support.

Table 1. Summary of TDS concentrations in the Red River at Index (USGS 07337000) during and after the Buchanan et al (2003) study.

Summary Statistic		TDS at Index (USGS 07337000) (mg/L)	
		Study Period	**Post-Study Period**
Percentile	10	427	246.0
	25	632	428.3
	50	720	584.5
	75	912	792.0
	90	1,128	903.4
	95	1,198	932.9
Number of Values		37	72
Period of Record		4/2/1996 – 12/11/2001	1/2/2002 – 10/22/2013

Table 3.9 of the report suggested that TDS concentrations in the Red River downstream of its confluence with the Little River were lower than the proposed criterion for that reach during the Buchanan et al. study. However, Table 3.9, as presented, provided misleading results. The table was intended to show that TDS concentrations during the Buchanan et al. study were higher than the post-study period. However, it did not include the 95th percentile values from the monitoring stations, which formed part of the basis for the proposed 860 mg/L TDS criterion in the Red River downstream of the mouth of the Little River. The table also included data from the monitoring station at Fulton (RED0046), which was not used for the development of the criterion

because it is not representative of TDS conditions in the Red River at that location. This was explained in Section 5.5 of the report, which notes the following:

> *Neither the RED0046 data nor the RED0009 data were considered to be a good representation of well-mixed concentrations in the Red River. Both the RED0046 station and the RED0009 station are located in places where the Red River does not appear to be laterally well-mixed due to significant tributary inflows a short distance upstream of each station. Lateral gradients at these monitoring stations are likely created by inflows from the Little River (RED0046) and the Sulphur River (RED0009). In some instances, these lateral gradients can be observed from aerial photographs. According to a station description report from EPA's Legacy STORET web site, the RED0046 station is sampled at a railroad bridge pier on the east side of the river (i.e., the left bank), which is the same side of the river that the Little River enters. The RED0009 station is sampled at a boat ramp on the west side of the river, which is the same side of the river that the Sulphur River enters. Therefore, both the RED0046 data and the RED0009 data are likely measuring a disproportionate percentage of tributary water that has not mixed completely with the entire flow of the Red River. Both tributaries (especially the Little River) contribute water that typically has TDS concentrations much lower than concentrations in the Red River. Therefore, the data at these two stations appear to be underestimating the TDS concentrations in the Red River and should not be used for comparison with predicted TDS values from the mass balance modeling.*

The monitoring station at Garland (RED0045) is not similarly affected and provides the most representative data set for assessing TDS concentrations in the reach of the Red River downstream of the mouth of the Little River. Accordingly, Table 3.9 should not have included data from the monitoring station at Fulton (RED0046) and should have included the 95^{th} percentile values for the Garland station. Also, monitoring data from Index is not relevant for the purposes of assessing the reach of the Red River downstream of the Little River and should not have been included. The following Table 2 provides the percentile TDS values for the Garland station during and after the Buchanan et al. study and shows that the 95^{th} percentile for TDS at Garland was 886 mg/L during the Buchanan et al. study period (from 1995 to 2001).

Table 2. Summary of TDS concentrations in the Red River at Garland (RED0045) during and after the Buchanan et al. (2003) study.

Summary Statistic		TDS at Garland (RED0045) (mg/L)	
		Study Period	Post-Study Period
Percentile	10	157.2	156.0
	25	216.0	247.5
	50	464.0	438.5
	75	660.5	624.0
	90	801.8	750.6
	95	886.2	819.3
Number of Values		63	138
Period of Record		4/2/1996 – 12/11/2001	1/2/2002 – 10/22/2013

If a TDS regime characterized by a 95th percentile value of 886 mg/L supports a high level of fisheries use attainment ("high fish species richness" as characterized by Buchanan et al. 2003), then a TDS regime characterized by a 95th percentile value of 860 mg/L should support a similar level of use attainment. Therefore, the proposed site-specific criterion of 860 mg/L in the Red River downstream of the mouth of the Little River can be expected to support the attainable fisheries designated use (based on fish populations) in the Red River.

Heather Ferguson

From:	Allan Gates [AGates@mwlaw.com]
Sent:	Wednesday, April 27, 2016 5:41 PM
To:	Honker, William
Cc:	osbornec@adeq.state.ar.us; Garcia, David; Watson, Jane; Crocker, Philip; Kesler, Karen
Subject:	RE: Domtar & SWEPCO Third Party Rulemaking Proceedings

Dear Bill,

I am writing to inquire about the status of EPA's review of the Domtar and SWEPCO third party rulemaking changes to the Red River and Little River water quality criteria for minerals and temperature in Arkansas.

As I recall, the technical representatives for EPA, ADEQ, and the companies agreed in their February meeting on a timeline for review that targeted a decision by EPA in early to mid-April. It is my understanding that some of the documents to be delivered to EPA ran a week or two late. I am hoping that EPA will be able to make its decision in the same amount of time it originally proposed, and that a decision will soon be available.

We recognize the Domtar change to the sulfate criterion will probably be denied based on downstream impacts in Louisiana, but we hope the remainder of the changes can be approved soon. In particular, the temperature change in the SWEPCO petition is very time sensitive.

Would you please let me know when you think the Agency will make its decision on these rulemaking proceedings?

Thank you again for your assistance.

Best regards,

Allan

MITCHELL | WILLIAMS

Allan Gates
T 501.688.8816 | F 501.918.7816
agates@mwlaw.com | MitchellWilliamsLaw.com
425 W. Capitol Ave. | Ste. 1800 | Little Rock, AR 72201
Mitchell, Williams, Selig, Gates & Woodyard, P.L.L.C.

From: Honker, William [mailto:honker.william@epa.gov]
Sent: Wednesday, March 02, 2016 8:32 AM
To: Allan Gates
Cc: osbornec@adeq.state.ar.us; Garcia, David; Watson, Jane; Crocker, Philip; Kesler, Karen
Subject: RE: Domtar & SWEPCO Third Party Rulemaking Proceedings

Allan,

Thanks for the feedback on the recent meeting. Sorry for the delay in responding to your question.

With regard to the portion of the Domtar petition that applies to the change in the sulfate criterion for the lower reach of the Red River, our proposed procedural path would be to deny this aspect of the petition with the clear rationale that it would not be protective of the downstream standard in LA. We could reconsider such a request if and when the LA standard were revised (with our approval) to a value consistent with the request.

Please feel free to contact me if you'd like to discuss further.

Bill

William K. Honker, P.E.
Director, Water Division (6WQ)
EPA Region 6
Dallas, TX
214-665-3187
http://www.epa.gov/region6/water/index.htm

From: Allan Gates [mailto:AGates@mwlaw.com]
Sent: Friday, February 19, 2016 6:09 PM
To: Honker, William
Cc: osbornec@adeq.state.ar.us
Subject: Domtar & SWEPCO Third Party Rulemaking Proceedings

Dear Bill,

This morning members of your staff met in Little Rock with ADEQ staff and consultants representing Domtar and SWEPCO. I am told the meeting was very productive. It is my understanding everyone involved reached agreement on how the questions raised by EPA would be answered. It is also my understanding the participants reached agreement on a specific schedule for bringing EPA's review of these rulemakings to a point where a decision can be made.

I want to thank you on behalf of Domtar and SWEPCO for making this matter a significant priority for your staff's attention.

I also want to compliment your staff for the cooperative and professional manner in which they helped bring the remaining questions into clear focus.

The discussions today did include one question on which I would like your thoughts. The computer modeling for the Domtar and SWEPCO rulemaking proceedings indicates that the change in the sulfate criterion in the lower reach of the Red River in Arkansas will result in a predicted exceedance of the sulfate standard immediately downstream in Louisiana. Domtar candidly acknowledged this issue in its papers, and the company plans to take the issue up with appropriate officials in Louisiana.

Here is my question for you: What is the best procedural path for dealing with the Arkansas part of the Domtar petition? Is it best to deny the petition with the understanding that it will be reopened after Louisiana takes action? Would it be better to postpone final action on the Domtar petition until Louisiana has acted? I imagine this type of question has come up in the past. We would welcome your thoughts on how things should proceed.

For our part, if the downstream impact predicted in Louisiana is the only reason the Domtar petition cannot be approved by EPA at the present time, we would like EPA's action to make that point clear. Then Domtar could proceed to address the downstream effects in Louisiana secure in the knowledge that everything else about the changes in Arkansas have been resolved.

I want to thank you and your staff once again for the prompt and professional manner in which the Domtar and SWEPCO rulemaking review has been handled by you and your staff.

Best regards,

Allan

Allan Gates
T 501.688.8816 | F 501.918.7816
agates@mwlaw.com | MitchellWilliamsLaw.com
425 W. Capitol Ave. | Ste. 1800 | Little Rock, AR 72201
Mitchell, Williams, Selig, Gates & Woodyard, P.L.L.C.

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Thursday, April 28, 2016 8:29 AM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: quick questions on the SWEPCO temperature regressions

Hi Jim,

I am currently reviewing the additional material on the SWEPCO/Domtar submissions and I had a few quick follow up questions. I was wondering if you could send me the p values and the results of the normality tests on the residuals for the regressions that were used for determining the temperature criteria. Also, were any data transformations performed?

Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From:	Jim Malcolm [jtm@ftn-assoc.com]
Sent:	Thursday, April 28, 2016 9:06 AM
To:	'Kesler, Karen'
Cc:	'Crocker, Philip'; James Malcolm
Subject:	RE: quick questions on the SWEPCO temperature regressions

Hi Karen.

Thanks for looking at this stuff! I hope you had a good vacay – we did the Hawaii cruise several years ago and loved it.

I forwarded your email to Phil who was our lead on that part of the work and he will reply very quickly. I asked him to also volunteer to call/discuss any details of this when he sends it if that is something you might find helpful or that would facilitate your review.

Again, thanks very much for your review and the contact!

Jim

ftn Associates Ltd.

Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220
Little Rock, AR 72211

(501) 225-7779 *work*
(501) 412-8185 *mobile*
www.ftn-assoc.com *webpage*

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Thursday, April 28, 2016 8:29 AM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: quick questions on the SWEPCO temperature regressions

Hi Jim,

I am currently reviewing the additional material on the SWEPCO/Domtar submissions and I had a few quick follow up questions. I was wondering if you could send me the p values and the results of the normality tests on the residuals for the regressions that were used for determining the temperature criteria. Also, were any data transformations performed?

Thanks,

Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Thursday, April 28, 2016 9:11 AM
To: Jim Malcolm
Subject: RE: quick questions on the SWEPCO temperature regressions

Thanks Jim,

I appreciate the quick response. Yes, the vacation was great, now back to reality. I don't think a follow up discussion is necessary at this time, but if something else comes up, I'll be sure to reach out.

- Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Thursday, April 28, 2016 9:06 AM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Cc: Crocker, Philip <crocker.philip@epa.gov>; James Malcolm <jtm@ftn-assoc.com>
Subject: RE: quick questions on the SWEPCO temperature regressions

Hi Karen.

Thanks for looking at this stuff! I hope you had a good vacay – we did the Hawaii cruise several years ago and loved it.

I forwarded your email to Phil who was our lead on that part of the work and he will reply very quickly. I asked him to also volunteer to call/discuss any details of this when he sends it if that is something you might find helpful or that would facilitate your review.

Again, thanks very much for your review and the contact!

Jim

Jim Malcolm
jtm@ftn-assoc.com

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3 Innwood Circle, Suite 220
Little Rock, AR 72211
----
(501) 225-7779 *work*
(501) 412-8185 *mobile*
www.ftn-assoc.com *webpage*

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Thursday, April 28, 2016 8:29 AM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: quick questions on the SWEPCO temperature regressions

Hi Jim,

I am currently reviewing the additional material on the SWEPCO/Domtar submissions and I had a few quick follow up questions. I was wondering if you could send me the p values and the results of the normality tests on the residuals for the regressions that were used for determining the temperature criteria. Also, were any data transformations performed?

Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Philip Massirer [phm@ftn-assoc.com]
Sent: Friday, April 29, 2016 10:06 AM
To: 'Karen Kesler'
Cc: 'Phil Crocker'; 'Jim Malcolm'; 'Pat Downey'
Subject: RE: quick questions on the SWEPCO temperature regressions

Karen,

Thanks so much for reviewing our latest submittal for SWEPCO and for sending us questions right away. The information you requested is provided below.

As a quick reminder, the regression analysis was only one of the four lines of evidence used to develop the proposed temperature criterion:

- observed water temperatures in the Little River upstream of SWEPCO's discharge,
- the basis for the existing criterion (30°C) for the Little River (the ecoregion criterion was developed using data from small shaded streams),
- existing criteria for upstream and downstream waterbodies (large unshaded waterbodies), and
- the temperature regression analysis.

The p values that Excel calculated for the first regression (the one shown at the top of page 4-2 in the September 2014 report) were:

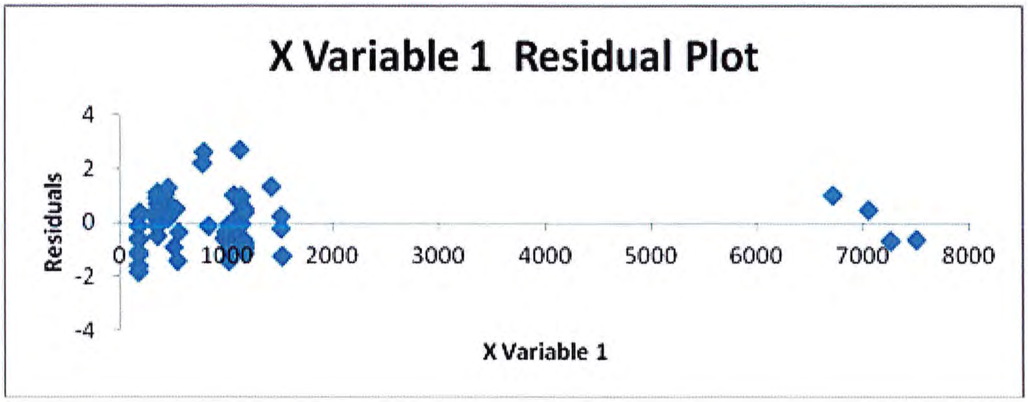
	P value
Intercept	0.00018
Coeff. for Q (X variable 1)	0.00026
Coefficient for $T_{A,0}$ (X variable 2)	0.00322
Coefficient for $T_{A,1}$ (X variable 3)	0.87515
Coefficient for $T_{A,2}$ (X variable 4)	0.03134

The p values that Systat calculated for the second regression (the one shown on pages 4-3 and 4-4 in the September 2014 report) were:

	P value
Intercept	<0.0005*
Coeff. for T_{SW} (X variable 1)	<0.0005*
Coefficient for $T_{AR,0}$ (X variable 2)	<0.0005*
Coefficient for $T_{AR,1}$ (X variable 3)	0.068
Coefficient for $T_{AR,2}$ (X variable 4)	<0.0005*

*Systat only reported the p values to three decimal places; these were reported as "0.000".

We did not test the residuals for normality but we reviewed the four residual plots that Excel generated for the first regression (shown below). No data transformations were performed because that is not typically what we do for temperature analyses.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-4
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1000
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3000
4000
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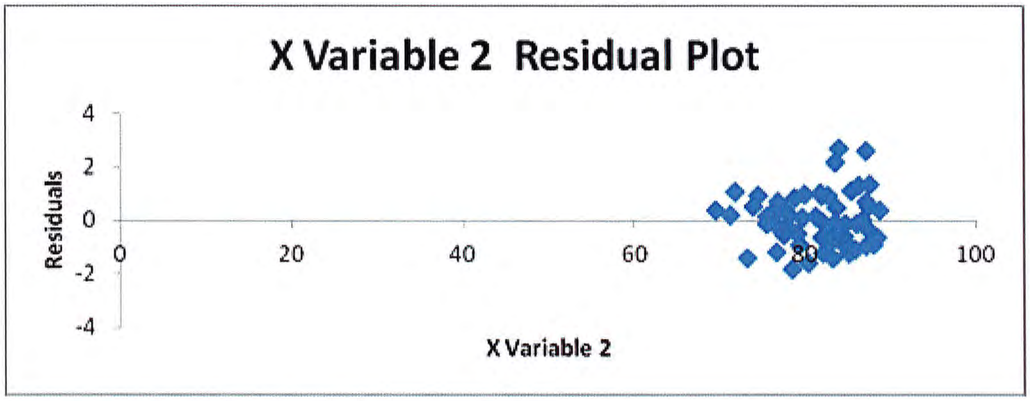
6000
7000
8000
X Variable 1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Residuals
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20
40
60
80
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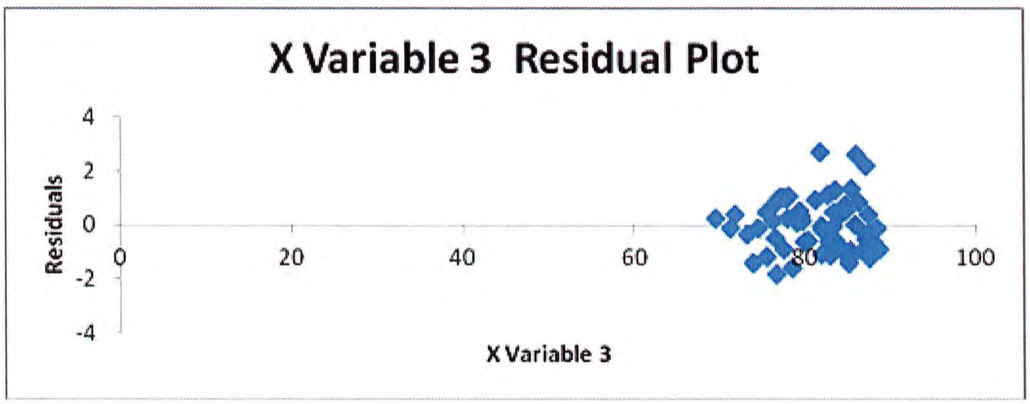
X Variable 2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20
40
60
80
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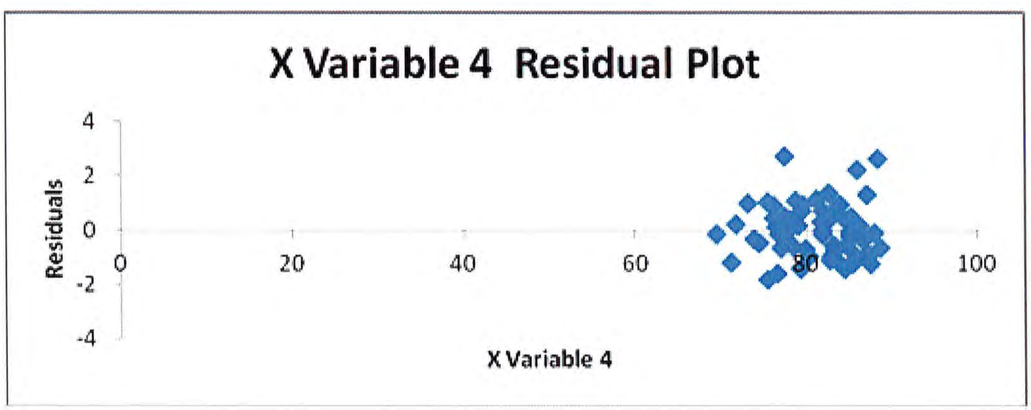
X Variable 3


X Variable 4 Residual Plot
Residuals
4
2
0
-2
-4
0
20
40
60
80
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X Variable 4

The weight of evidence approach that we used for the temperature criterion is similar to what we have done in other projects. A critically important requirement of the regressions is they need to accurately predict high water temperatures. As noted in Attachment 4 of our March 7 submittal to ADEQ, both regressions under-predicted high water temperatures. In fact, when observed water temperatures were 32.0°C or above, the two regressions under-predicted the temperature 83% and 100% of the time, respectively; therefore, these regressions are conservative. These under-predictions, when combined with the other lines of evidence mentioned above, provide a weight-of-evidence approach that supports the proposed 32.0°C criterion.

If you have any concerns about the temperature regressions, please let me know and we can discuss it over the phone. Thanks!

Philip Massirer
501-225-7779

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Thursday, April 28, 2016 8:29 AM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: quick questions on the SWEPCO temperature regressions

Hi Jim,

I am currently reviewing the additional material on the SWEPCO/Domtar submissions and I had a few quick follow up questions. I was wondering if you could send me the p values and the results of the normality tests on the residuals for the regressions that were used for determining the temperature criteria. Also, were any data transformations performed?

Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Philip Massirer [phm@ftn-assoc.com]
Sent: Friday, April 29, 2016 11:19 AM
To: 'Jim Malcolm'
Cc: 'Pat Downey'
Subject: FW: quick questions on the SWEPCO temperature regressions

Jim – see Karen's response below.

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Friday, April 29, 2016 10:12 AM
To: Philip Massirer
Subject: RE: quick questions on the SWEPCO temperature regressions

Hi Phil,

Thank you so much for getting back to me quickly. This is helpful in considering the accuracy of the regression. I am considering them, just as you pointed out, as one piece of the justification for the temperature criteria. I'll let you know if I have any additional questions.

Thanks,
Karen

From: Philip Massirer [mailto:phm@ftn-assoc.com]
Sent: Friday, April 29, 2016 10:06 AM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Cc: Crocker, Philip <crocker.philip@epa.gov>; 'Jim Malcolm' <jtm@ftn-assoc.com>; 'Pat Downey' <pjd@ftn-assoc.com>
Subject: RE: quick questions on the SWEPCO temperature regressions

Karen,

Thanks so much for reviewing our latest submittal for SWEPCO and for sending us questions right away. The information you requested is provided below.

As a quick reminder, the regression analysis was only one of the four lines of evidence used to develop the proposed temperature criterion:

- observed water temperatures in the Little River upstream of SWEPCO's discharge,
- the basis for the existing criterion (30°C) for the Little River (the ecoregion criterion was developed using data from small shaded streams),
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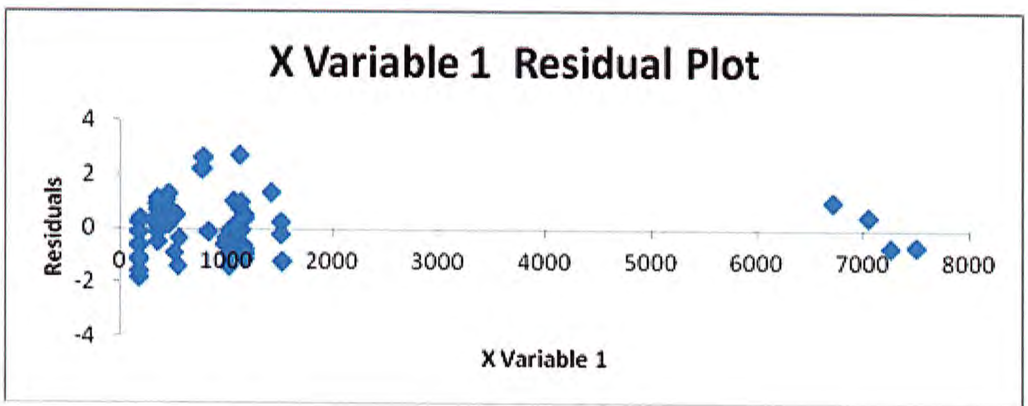

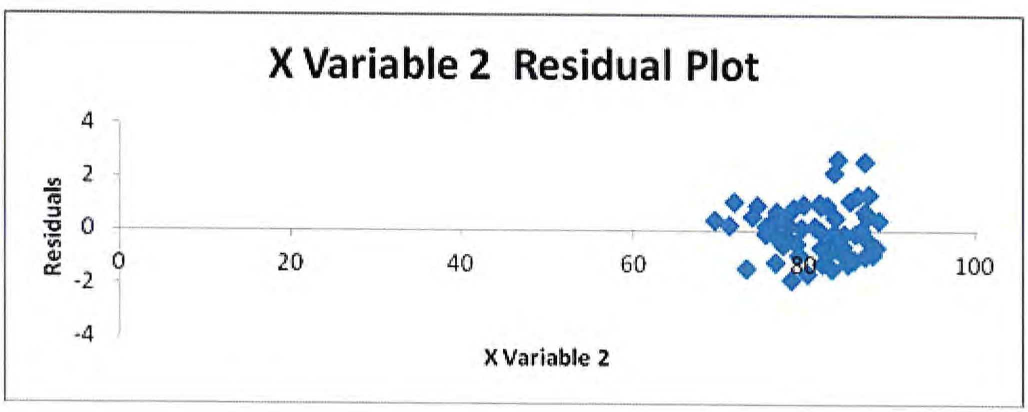

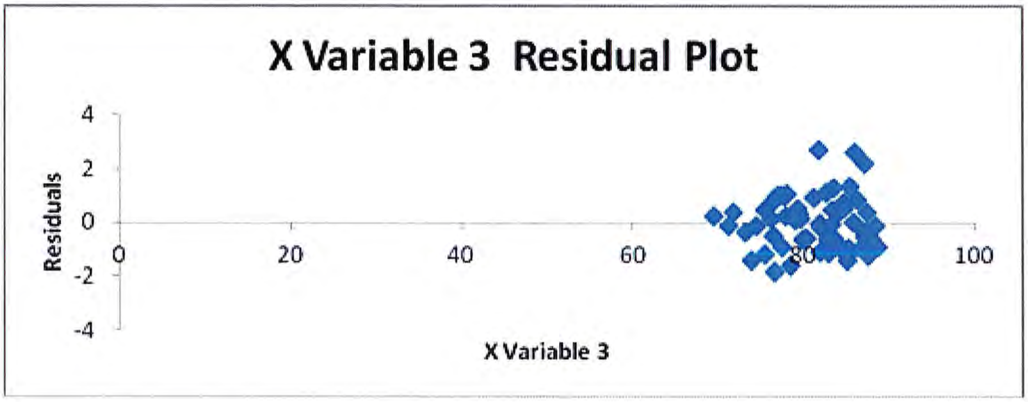

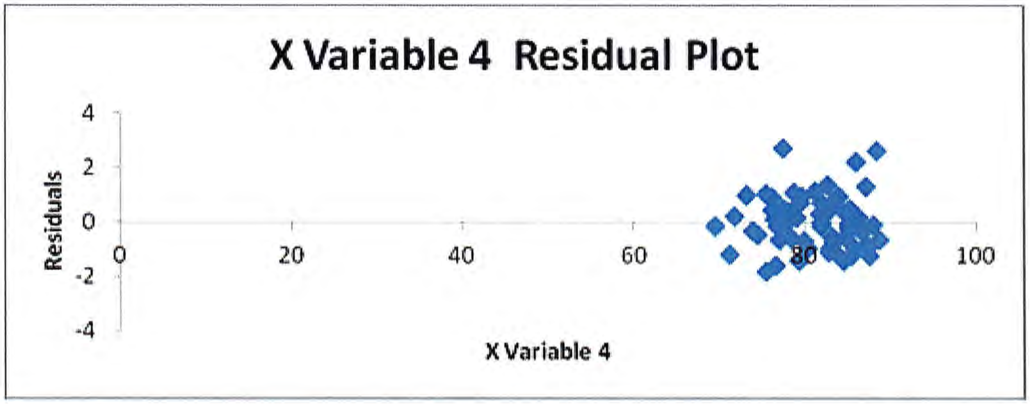

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If you have any concerns about the temperature regressions, please let me know and we can discuss it over the phone. Thanks!

Philip Massirer
501-225-7779

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Sent: Thursday, April 28, 2016 8:29 AM
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Subject: quick questions on the SWEPCO temperature regressions

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Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From:	Leann Kret [lkret@mwlaw.com] on behalf of Allan Gates [AGates@mwlaw.com]
Sent:	Tuesday, May 24, 2016 11:28 AM
To:	Brian Bond; Elizabeth Gunter; TimothyGross; Frank Mills; pjd@ftn-assoc.com; Jim Malcolm
Cc:	Allan Gates; Marcy Taylor
Subject:	SWEPCO Letter and TSD
Attachments:	SWEPCO TSD.pdf; SWEPCO Letter.pdf

All:

Allan is out of the office but asked that I forward the attached to you as quickly as possible for your review.

If there are any questions, please do not hesitate to let us know.

Thank you,

Leann Kret

MITCHELL | WILLIAMS

Leann Kret | Assistant to Allan Gates, Chris Barrier, and Marcella Taylor
T 501.370.4216 | F 501.918.7216
lkret@mwlaw.com | MitchellWilliamsLaw.com
425 W. Capitol Ave. | Ste. 1800 | Little Rock, AR 72201
Mitchell, Williams, Selig, Gates & Woodyard, P.L.L.C.

From: Osborne, Caleb [mailto:osbornec@adeq.state.ar.us]
Sent: Tuesday, May 24, 2016 8:58 AM
To: Allan Gates
Cc: Blanz, Bob; Carpenter, Ellen; Clem, Sarah
Subject: SWEPCO Letter and TSD

Allan,
We have received EPA's decision on the SWEPCO Third Party Rulemaking. Attached is an electronic version of EPA's decision letter and TSD. Let me know if you have any questions. I know there is interest in moving ahead on the permitting front. Once you have had a chance to review, let me know how you all wish to proceed.

Thanks
Caleb

system without copying it, and notify the sender by reply e-mail or by calling (501) 688-8800 Little Rock, AR (479) 464-5650 Rogers, AR (512) 480-5100 Austin, TX (267) 757-8780 Newtown, PA or (870) 336-9292 Jonesboro, AR so that our address record can be corrected.

A2AML8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

May 16, 2016

Mr. Caleb Osborne
Associate Director – Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Final submittal of Regulation No. 2, as amended, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas

Dear Mr. Osborne:

The Environmental Protection Agency (EPA) has completed its review of the amendments to *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* that were made in relation to the Third Party Rulemaking process initiated by Southwestern Electric Power Company (SWEPCO). The amended Regulation No. 2 was adopted by the Arkansas Pollution Control and Ecology Commission (APC&EC) on October 23, 2015 and became effective on November 5, 2015. It was submitted to the EPA for approval on December 21, 2015 by the Arkansas Department of Environmental Quality (ADEQ).

At this time EPA is approving the majority of the new and revised provisions to Regulation 2.511 and Appendix A of Regulation No. 2, including the site specific criteria changes for temperature and TDS in the Little River and the removal of the domestic water supply use in the Red River. These revisions are approved pursuant to the Clean Water Act (CWA) § 303(c) and its implementing regulations at 40 CFR Part 131. However, EPA is taking no action on the TDS criterion revision in the Red River. EPA has continuing concerns about appropriate demonstration of aquatic life use protection and protection of downstream uses in Louisiana. Consideration of these issues require further review by EPA management at this time. Once these issues have been sufficiently reviewed, EPA will issue an action on this portion of the SWEPCO submission. Please note that under 40 CFR § 313.21(c), new and revised standards do not go into effect for CWA purposes until approved by EPA. Therefore, previously approved language associated with the TDS criteria in the January 24, 2008 version of the Arkansas water quality standards (WQS) remains in effect for CWA purposes.

The approval of the new and revised water quality standards are subject to the results of consultation under section 7(a)(2) of the Endangered Species Act (ESA). Section 7(a)(2) requires that federal agencies consult with the U.S. Fish and Wildlife Service, as appropriate, to ensure that actions they take, fund, or authorize are not likely to jeopardize the continued existence of listed species or result in the adverse modification or destruction of habitat. As of today, this consultation has not been completed. By approving the WQS revisions "subject to the results of consultation under section 7(a)(2) of the Endangered Species Act," EPA retains the full range of options under CWA § 303(c) for ensuring that WQS are environmentally protective. EPA retains the discretion to revise its approval decision of these new and revised WQS if the consultation identifies deficiencies in the WQS that require remedial action.

I appreciate the APC&EC's and the ADEQ's effort in the review of these revised provisions of the State's standards and also appreciate ADEQ's assistance with coordinating meetings and correspondence with the third party. If you have any questions or concerns, please contact me at 214-665-3187, or contact Karen Kesler at 214-665-3185.

Sincerely,

William K. Honker, P.E.
Director
Water Division

Enclosure

cc: Sarah Clem, Branch Manager
Water Division ADEQ

TECHNICAL SUPPORT DOCUMENT: EPA REVIEW OF SITE-SPECIFIC CRITERIA AND USE REVISIONS TO *REGULATION 2: REGULATION ESTABLISHING WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF ARKANSAS* FOR THE LITTLE RIVER AND RED RIVER, ARKANSAS

Revisions Adopted by the Arkansas Pollution Control and Ecology Commission via Minute Order No. 15-21 for Southwestern Electric Power Company

U.S. EPA REGION 6
WATER DIVISION
May 2016

Table of Contents

I. Introduction

Background

As described in §303(c) of the Clean Water Act (CWA) and in the standards regulation within the Code of Federal Regulations (CFR) at 40 CFR §131.20, states and authorized tribes have primary responsibility to develop and adopt water quality standards to protect their waters. State and tribal water quality standards consist of three primary components: beneficial uses, criteria to support those uses, and an antidegradation policy. In addition, CWA §303(c)(1) and 40 CFR §131.20 require states to hold public hearings at least once every three years to review and, as appropriate, modify and adopt standards.

Under 40 CFR §131.21, EPA reviews new and revised surface water quality standards that have been adopted by states and authorized tribes. Authority to approve or disapprove new and/or revised standards submitted to EPA for review has been delegated to the Water Division Director in Region 6. Tribal or state water quality standards are not considered effective under the CWA until approved by EPA.

The purpose of this Technical Support Document (TSD) is to provide the basis for the Environmental Protection Agency's (EPA) actions on water quality standards revisions to Regulation No. 2: *Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* adopted by the Arkansas Pollution Control and Ecology Commission (APC&EC) in Minute Order 15-21 and further described in the subsection below titled "Summary of Revised Provisions."

Chronology of Events

September 11, 2014	A third party, Southwestern Electric Power Company (SWEPCO), filed a petition with the APC&EC to amend Regulation No. 2
September 26, 2014	The APC&EC initiated the rulemaking proceedings via a Minute Order No. 14-33
October 1, 2014	Public notice of the proposed rule-making was published
November 17, 2014	Public hearing on the proposed rule-making was held in Hope, Arkansas
December 3, 2014	Public comment period ended on the proposed changes to Regulation No. 2
October 23, 2015	Becky Keogh, Director, Arkansas Department of Environmental Quality (ADEQ), signed Minute Order No. 15-21 adopting changes to Regulation No. 2

December 21, 2015	William K. Honker, Director, Water Division, EPA Region 6, received letter from, Ellen Carpenter Water Division Chief, ADEQ requesting EPA approval of the adopted revisions and transmitting the water quality standards submission package
February 9, 2016	EPA Region 6 issues a letter to ADEQ stating that no action would be taken on the submission package to allow the third party time to respond to EPA's comments
March 30, 2016	ADEQ submits additional information prepared by the third party to EPA

Summary of Revised Provisions

By letter dated December 21, 2015, ADEQ submitted several water quality standards revisions adopted by the APC&EC via Minute Order No. 15-21 to EPA for review and approval. These revisions are located in Regulation 2.511 and Appendix A of Regulation No. 2. They include revisions of temperature (30°C to 32°C) and total dissolved solids (TDS) (100 mg/L to 138 mg/L) criteria for the Little River from Millwood Lake to its confluence with the Red River. They also include the removal of the domestic water supply use and the increase of the TDS criterion from 500 mg/L to 860 mg/L for the Red River from the mouth of the Little River to the Arkansas (AR)/Louisiana (LA) state line.

II. Revised Provisions EPA is Approving

In accordance with the requirements found in Regulation No. 2.306 of the Arkansas Water Quality Standards, SWEPCO contracted with FTN Associates, Ltd., to complete a use attainability analysis (UAA) of the receiving waterbodies and a technical justification for the site specific criteria. The purpose of the UAA and technical justification were to provide scientific justification to support revised site-specific water quality criteria for temperature and TDS, as well as a domestic water supply use removal, for these waterbodies.

Site-specific Water Quality Criterion for TDS in the Little River

Table 1. Site-specific water quality criterion revision for TDS in the Little River submitted by ADEQ to EPA for review and approval.

Reach Description	Current Criterion	Proposed Criterion
Little River from Millwood Lake to the Red River	100 mg/L	138 mg/L

Criterion Derivation

The TDS criterion for the Little River was developed by determining a value that would not be considered a "significant modification" from the ecoregion (ER) value by ADEQ, as defined in Regulation No.2. This value was the sum of 1/3 ER chloride criterion, 1/3 ER sulfate criterion, and the ER TDS criterion which totaled 138 mg/L. In addition, a mass balance model was developed that both incorporated the ambient TDS concentrations in the Little River as well as the effluent TDS concentration from the SWEPCO plant. With these two input factors, the mass balance determined a site-specific criterion of 136.1 mg/L would be necessary for the plant to operate without causing impairments. Given that the mass balance value and the calculated value were very similar, the value of 138 mg/L was selected as the criterion that was proposed in this third party rulemaking.

Use Support Justification

The following designated uses apply for the Little River from Millwood Lake to its confluence with the Red River: primary contact recreation, secondary contact recreation, domestic water supply, industrial water supply, agricultural water supply, and aquatic life. Of these uses, the Gulf Coastal Plain ecoregion aquatic life use is the most sensitive, and as such will be the focus of the following discussion of use support. According to the Arkansas Regulation No. 2, the aquatic life use "provides for the protection and propagation of fish, shellfish and other forms of aquatic biota."

A weight-of-evidence approach was taken to provide the justification for the support of the aquatic life use in the Little River, including field studies, a toxicity study, and a literature review of mineral impacts on aquatic life. Two groups of organisms, fish and benthic macroinvertebrates, were considered for the evaluation of protection of aquatic life use.

The benthic macroinvertebrate population of the Little River appeared to already be an impacted community. This impact is likely due to the presence of the dam that created Millwood Lake, upstream of this section of the Little River. When organisms were classified down to genus, only 11 unique taxa were found, with the predominant proportion consisting of Chironomidae (83%). Only 11.5 % of the community was made up of Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa. As most of this community is dominated by Chironomidae, a family that is generally pollution tolerant, it is not anticipated that these organisms will be very sensitive to changes in TDS concentration. Along with the assessment of the community in the field, a toxicity study was also completed with *Ceriodaphnia dubia*. These results found a no effect concentration of 1,260 for TDS (hardness in the range of 150-215 mg/L, chloride 171 mg/L, sulfate 432 mg/L) and an IC25 of 1,744 mg/L (hardness ~150-215 mg/L, chloride 232 mg/L, sulfate 600mg/L). While this indicates that a TDS of 138 mg/L will be supportive of the use, toxicity results need to be viewed only as a piece of the rationale, rather than the entire story. Toxicity studies are limited by their assessment of only one species and by the fact that they can't match the exact conditions of the field. *C. dubia,* while the typical species used for toxicity tests, is one of the less sensitive species when it comes to minerals toxicity. In addition, minerals toxicity is affected by a number of variables including the ionic ratio and the hardness of the water, making the determination of the toxicity of minerals challenging.

Given these limitations of laboratory studies, the protectiveness of a TDS of 138 mg/L for benthic macroinvertebrates for the Little River was also evaluated by utilizing the results from a field based study conducted by the EPA (2011). This study used conductivity as a measure to assess minerals and determined a benchmark conductivity value where 95 % of the genera in the community would be protected from extermination. This study was conducted in high gradient streams in the Appalachian Region that were dominated by Ca^{2+}, Mg^{2+}, SO_4^{2-}, HCO_3^- salts. These salts also dominate the Little River, but the Little River is located in a non-comparable ecoregion. The streams in the 2011 EPA study also had a greater number of EPT taxa than the Little River. Even though these streams varied geographically from each other, the results from the 2011 EPA study can still be used as a point of reference on toxicity. The 2011 EPA study found a benchmark value of 300 µS. When 138 mg/L TDS was converted to a conductivity value for the Little River, it was estimated to be 218 µS. This value falls below the 300 µS benchmark found in the 2011 EPA study, adding support to the protectiveness of this criteria.

The fish community in the Little River was also considered when determining if the revised TDS criterion supported the aquatic life use. Field studies conducted in 2013 collected a total of 40 fish species in the Little River. Twenty-seven of those fish species could be assigned a tolerance classification according to Meador and Carlisle 2007 and 23 were classified as "tolerant" or "moderately tolerant." These classifications indicate that they are less likely to be sensitive to changes in TDS. Also, of the 40 fish species that were collected in the Little River, 37 of them were also found in the Red River in a study by Buchanan et al. 2003, which surveyed the fish population in the Arkansas portion of the Red River from 1996 to 2001. The 50th percentile of monitoring data collected at Garland, AR, was 464 mg/L during this study period, demonstrating that most of these fish species were living in a habitat with a much higher TDS than the criterion proposed for the Little River. This supports the rationale that the TDS criterion of 138 mg/L is protective of the aquatic life use.

Action

Based upon the information provided above that demonstrate that the TDS criterion revision will have minimal impact on aquatic life, EPA approves the revision of the TDS criterion from 100 mg/L to 138 mg/L for the reach of the Little River from Millwood Lake to the confluence with the Red River.

Site-specific Water Quality Criterion for Temperature in the Little River

Table 2. Site-specific water quality criterion revision for temperature in the Little River submitted by ADEQ to EPA for review and approval.

Reach Description	Current Criterion	Proposed Criterion
Little River from Millwood Lake to the Red River	30 ° C	32 ° C

Criterion Derivation

The Little River below Millwood Lake experiences temperatures near or higher than 32°C during summer months predominantly due to the geomorphic qualities of the lake and the river. Millwood Lake is a relatively shallow reservoir with an average depth of 1.5 m which leads to the entire water column of this lake increasing in temperature relatively quickly in summer months. The maximum depth measured near the old thalweg was 7 m. Therefore the water that is released from this lake, even if it is from lower depths, is warm in summer months and can increase the temperature downstream in the Little River. In addition, the Little River is a wide river, with little overhead tree cover for the central section of the river. Its typical width is between 61 m and 122 m, resulting in minimal overhead cover for the center of the river. This exposure to direct sunlight leads to greater temperatures in the river. The ecoregion temperature value that is currently assigned to the river was based on background values of least disturbed streams in the ecoregion that had an average width of 7 m and average canopy cover of 84%. Given the difference in the geomorphology of the Little River from these reference streams and the impacts from the dam's presence, a higher temperature criterion value appears to be appropriate for this river. This is evidenced by daily maximum temperatures measured in the river from April to October 2012. The 95th percentile of temperature values upstream and downstream of SWEPCO were 32.11°C (89.8°F) and 32.5°C (90.5°F), respectively. In 2013 (Feb to Oct) the 95th percentile of the data ranged from 30.1°C (86.2°F) to 31°C (87.8°F) upstream of the SWEPCO effluent discharge. Both of these measurement periods demonstrate exceedances of the current criterion of 30°C. Twenty-six percent of both the data upstream and downstream of SWEPCO were found to exceed the current 30°C criteria from April to October 2012 and February to October 2013. A multiple linear regression was developed by FTN that used daily stream flow rates and daily average air temperatures in order to predict daily maximum water temperatures. Several variations of the parameters were tested to determine the best regression model and the model that had the lowest standard error of the estimate was selected. The regression was utilized to create a 5 year data set (April 2008 to March 2013) of daily maximum water temperatures. The 95th percentile of this data set was then determined to be 32.0°C and is the criteria value that is being proposed.

Use Support Justification

Primary contact recreation, secondary contact recreation, domestic water supply, industrial water supply, agricultural water supply, and aquatic life uses apply to the Little River from Millwood Lake to its confluence with the Red River. The Gulf Coastal Plain ecoregion aquatic life use is the most sensitive, and as such will be the focus of the following discussion of use support. According to the Arkansas Regulation No. 2, the aquatic life use "provides for the protection and propagation of fish, shellfish and other forms of aquatic biota."

Assessment of benthic macroinvertebrates in the Little River showed a community that was likely already impacted by habitat factors. This river is wide with little overhead cover, where the predominant habitat for macroinvertebrates is woody debris. The river substrate is predominantly sand, with very few patches of gravel or cobble. In addition, the dam at the head of this reach of the Little River is also likely impacting flow and habitat qualities of this river which will in turn impact the benthic macroinvertebrates. The macroinvertebrate population appeared to already be an impacted community as when organisms were classified down to genus, only 11 unique taxa were found, with the predominant proportion consisting of Chironomidae (83%). Only 11.5 % of the community was made up of EPT taxa. As this community is dominated by Chironomidae, it is not anticipated that these organisms will be very sensitive to 2°C temperature change.

The fish community in the Little River was also assessed to determine whether it would be impacted by the increase in temperature criteria. Forty fish species were found in the Little River either by surveys conducted by FTN in 2013 or by the United States Geological Survey in 2009. Of the 40 fish species found, 28 of them had their temperature tolerance classified in Meador and Carlisle 2007. Of the 28 species, 2 were found to be intolerant, while the other 26 were "moderately tolerant" or "tolerant." In addition, 37 of the 40 fish found in the Little River were also found in the Red River, which has a temperature criterion of 32°C. The maximum mean temperatures exceeded 32°C in the Red River 11 % of the time from October 2003 to June 2011. The presence of these fish species in the Red River adds further support to the demonstration that these fish species can tolerate this higher temperature criteria with little impact.

Action

Based upon the information provided above, that demonstrates that the temperature criterion revision will have minimal impact on aquatic life and match background temperature conditions, EPA approves the revision of temperature criterion from 30°C to 32°C for the reach of the Little River from Millwood Lake to the confluence with the Red River.

Removal of Domestic Water Supply Use in the Red River

This third party rulemaking is proposing the removal of the domestic water supply use from the Red River from its confluence with the Little River down to the Arkansas-Louisiana state line.

Use Removal Justification

In accordance with the requirements found in Regulation No. 2.306 of the Arkansas water quality standards, SWEPCO contracted with FTN Associates, Ltd. to complete a Use Attainability Analysis (UAA) for the Red River from the confluence of the Little River down to the Arkansas-Louisiana State Line. One of the things evaluated by the UAA was whether the domestic water supply designated use was an existing and/or attainable use for the Red River from the confluence with the Little River down to the Arkansas-Louisiana state line. The UAA study concluded that the domestic water supply designated use was neither an existing, nor an attainable, designated use and recommended its removal.

A letter dated December 8, 2013 from the Arkansas Natural Resources Commission provided along with the UAA study states that there are "no existing or planned public water supply uses documented for this reach of the Red River" and that "removal of the domestic water supply use designation does not conflict with the Arkansas Water Plan at this time." In addition, a letter dated November 4, 2013 from the Arkansas Department of Health which was included with the UAA stated that "[t]he stream segment in question has not been approved, nor is it under consideration, for use as a public water system source. Therefore, the Engineering Section has no objection to this stream segment being removed from the *Domestic Water Supply Use* designation."

The letters from the Arkansas Natural Resources Commission and the Arkansas Department of Health affirm that the domestic water supply designated use is not an existing use on this reach of the Red River and the reach is not currently being considered for a domestic water supply source. In addition, the high mineral content of this water body, partially due to natural salt seeps upstream, further justifies that the domestic water supply use is an unattainable use. The minerals criteria for water bodies with a domestic water supply use in Arkansas is 500 mg/L TDS, 250 mg/L sulfate, and 250 mg/L chloride. Water quality monitoring data from the Red River at Fulton, just downstream of the Little River, show frequent exceedances of the 500 mg/L TDS criterion starting from the time that monitoring began in 1997. In addition the 75th percentiles of ADEQ monitoring data at Garland (about the midpoint of this reach) were 660.5 mg/L from April 1996 to December 2001 and 624.0 mg/L from January 2002 to October 2013. Monitoring data from the ADEQ monitoring site at Doddridge also showed that the 90th and 95th percentiles for TDS at this location were 657 mg/L and 770 mg/L, respectively, for a period of record of September 1990 to October 2013. These data demonstrate that the minerals levels in this reach of the Red River are often above 500 mg/L.

Action

Based upon the current and historic data presented in the UAA for the TDS in this reach of the Red River, along with the letters from the Arkansas Natural Resources Commission and the Arkansas Department of Health, EPA determines that the domestic water supply use is neither an existing, nor an attainable use in the Red River from its confluence with the Little River down to the Arkansas-Louisiana state line. Therefore, EPA approves the removal of the domestic water supply use from the reach of the Red River from its confluence with the Little River down to the Arkansas- Louisiana state line.

III. Revised Provision upon which EPA is Taking No Action

Site-specific Water Quality Criterion for TDS in the Red River

Table 3. Site-specific water quality criterion revision for TDS in the Red River submitted by ADEQ to EPA for review and approval.

Reach Description	Current Criterion	Proposed Criterion
Red River from the confluence with the Little River to the AR-LA state line	500 mg/L	860 mg/L

No Action Rationale

EPA is currently taking no action on the site-specific TDS criteria change for the Red River from its confluence with the Little River down to the Arkansas-Louisiana state line. EPA has continuing concerns about demonstration of appropriate aquatic life use protection and protection of downstream uses in Louisiana. Consideration of these issues require further review by EPA at this time. Once these issues have been sufficiently reviewed, EPA will issue an action on this revised provision.

As specified in 40 CFR § 131.21(c), these revised standards do not go into effect for CWA purposes until approved by EPA. Therefore, the previously approved criteria of 500 mg/L remains in effect for CWA purposes.

IV. References

Buchanan, T.M., D. Wilson, L.G. Claybrook, and W.G. Layher. 2003. Fishes of the Red River in Arkansas. *J. Ark. Acad. Sci.* 57:18-26.

Meador, M.R., and D.M. Carlisle. 2007. Quantifying tolerance indicator values for common fish species of the United States. *Ecological Indicators* 7:329-338.

U.S. EPA (Environmental Protection Agency). 2011. A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams. Office of Research and Development, National Center for Environmental Assessment, Washington, DC. EPA/600/R-10/023F.

Heather Ferguson

From: Jim Malcolm [jtm@ftn-assoc.com]
Sent: Wednesday, June 01, 2016 8:58 AM
To: 'Kesler, Karen'; 'Clem, Sarah'
Cc: Patrick J. Downey; 'Philip Massirer'; James Malcolm
Subject: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hi Karen, Sarah;

Karen, thanks again for the May 2016 TSD and transmittal letter from Bill (May 16, 2016) discussing the referenced proposed site specific criteria (SSC) from SWEPCO. We sincerely appreciate the thorough review and discussions on the proposed SSC as well as the meeting with technical staff from both ADEQ and EPA that greatly facilitated the agency review and our understanding of agency needs!

In the TSD (Section III), EPA noted that it was taking no action on approval of the SWEPCO TDS proposed SSC for the lower Red River. The TSD referenced a focus on aquatic life protection in Louisiana as the reason for the 'no action' decision. On behalf of SWEPCO (and Domtar which also has a TDS proposed SSC at EPA for review for upper Red River in AR upstream of the Little River inflow), we request a conference call to better understand EPA's concern regarding the proposed TDS SSCs.

If this request is agreeable to you guys, please provide some possible days/times for a conference call in the next week or two and we will circulate a day/time for confirmation and set up a call in number.

Many thanks, Jim

ftn Associates Ltd.

Jim Malcolm
jtm@ftn-assoc.com

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Little Rock, AR 72211

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(501) 412-8185 *mobile*
www.ftn-assoc.com *webpage*

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Thursday, June 02, 2016 8:22 AM
To: Jim Malcolm; 'Clem, Sarah'; Crocker, Philip
Cc: Patrick J. Downey; 'Philip Massirer'
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hi Jim,

The remaining action on the SWEPCO rulemaking and the actions on the Domtar rulemaking are currently under review by EPA management. Once those actions have taken place and you have had a chance to review the associated TSDs we would be happy to talk with you and ADEQ.

Thanks,
Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
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To: Kesler, Karen <Kesler.Karen@epa.gov>; 'Clem, Sarah' <CLEM@adeq.state.ar.us>
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Heather Ferguson

From: Jim Malcolm [jtm@ftn-assoc.com]
Sent: Thursday, June 02, 2016 10:54 AM
To: 'Kesler, Karen'; 'Clem, Sarah'; 'Crocker, Philip'
Cc: 'Patrick J. Downey'; 'Philip Massirer'; James Malcolm
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hey Karen, thanks, do you have any schedule estimate on those TSDs? Ballpark?

Many thanks, Jim

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To: Jim Malcolm; 'Clem, Sarah'; Crocker, Philip
Cc: Patrick J. Downey; 'Philip Massirer'
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Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Thursday, June 02, 2016 11:15 AM
To: Jim Malcolm; 'Clem, Sarah'; Crocker, Philip
Cc: 'Patrick J. Downey'; 'Philip Massirer'
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hi Jim,

We are hoping to get them out in the next week or two, but part of that is dependent on management schedule.

- Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Thursday, June 02, 2016 10:54 AM
To: Kesler, Karen <Kesler.Karen@epa.gov>; 'Clem, Sarah' <CLEM@adeq.state.ar.us>; Crocker, Philip <crocker.philip@epa.gov>
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In the TSD (Section III), EPA noted that it was taking no action on approval of the SWEPCO TDS proposed SSC for the lower Red River. The TSD referenced a focus on aquatic life protection in Louisiana as the reason for the 'no action' decision. On behalf of SWEPCO (and Domtar which also has a TDS proposed SSC at EPA for review for upper Red River in AR upstream of the Little River inflow), we request a conference call to better understand EPA's concern regarding the proposed TDS SSCs.

If this request is agreeable to you guys, please provide some possible days/times for a conference call in the next week or two and we will circulate a day/time for confirmation and set up a call in number.

Many thanks, Jim

ftn
Associates Ltd.

Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220
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Heather Ferguson

From: Jim Malcolm [jtm@ftn-assoc.com]
Sent: Thursday, June 02, 2016 3:47 PM
To: 'Kesler, Karen'; 'Clem, Sarah'; 'Crocker, Philip'
Cc: 'Patrick J. Downey'; 'Philip Massirer'; James Malcolm
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Great, thanks again Karen.

Rgds, Jim

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Thursday, June 02, 2016 11:15 AM
To: Jim Malcolm; 'Clem, Sarah'; Crocker, Philip
Cc: 'Patrick J. Downey'; 'Philip Massirer'
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hi Jim,

We are hoping to get them out in the next week or two, but part of that is dependent on management schedule.

- Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Thursday, June 02, 2016 10:54 AM
To: Kesler, Karen <Kesler.Karen@epa.gov>; 'Clem, Sarah' <CLEM@adeq.state.ar.us>; Crocker, Philip <crocker.philip@epa.gov>
Cc: 'Patrick J. Downey' <pjd@ftn-assoc.com>; 'Philip Massirer' <phm@ftn-assoc.com>; James Malcolm <jtm@ftn-assoc.com>
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hey Karen, thanks, do you have any schedule estimate on those TSDs? Ballpark?

Many thanks, Jim

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Thursday, June 02, 2016 8:22 AM
To: Jim Malcolm; 'Clem, Sarah'; Crocker, Philip
Cc: Patrick J. Downey; 'Philip Massirer'
Subject: RE: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hi Jim,

The remaining action on the SWEPCO rulemaking and the actions on the Domtar rulemaking are currently under review by EPA management. Once those actions have taken place and you have had a chance to review the associated TSDs we would be happy to talk with you and ADEQ.

Thanks,
Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Wednesday, June 01, 2016 8:58 AM
To: Kesler, Karen <Kesler.Karen@epa.gov>; 'Clem, Sarah' <CLEM@adeq.state.ar.us>
Cc: Patrick J. Downey <pjd@ftn-assoc.com>; 'Philip Massirer' <phm@ftn-assoc.com>; James Malcolm <jtm@ftn-assoc.com>
Subject: AR Rulemaking for proposed Red River TDS criteria (SWEPCO and Domtar proposals)

Hi Karen, Sarah;

Karen, thanks again for the May 2016 TSD and transmittal letter from Bill (May 16, 2016) discussing the referenced proposed site specific criteria (SSC) from SWEPCO. We sincerely appreciate the thorough review and discussions on the proposed SSC as well as the meeting with technical staff from both ADEQ and EPA that greatly facilitated the agency review and our understanding of agency needs!

In the TSD (Section III), EPA noted that it was taking no action on approval of the SWEPCO TDS proposed SSC for the lower Red River. The TSD referenced a focus on aquatic life protection in Louisiana as the reason for the 'no action' decision. On behalf of SWEPCO (and Domtar which also has a TDS proposed SSC at EPA for review for upper Red River in AR upstream of the Little River inflow), we request a conference call to better understand EPA's concern regarding the proposed TDS SSCs.

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Many thanks, Jim

Jim Malcolm
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Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Wednesday, June 22, 2016 3:05 PM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: SWEPCO TDS supplemental information

Hi Jim,

I wanted to touch base and see when we should be expecting the additional information for the SWEPCO rulemaking in light of our meeting on June 10th. As this rulemaking has already been largely extended beyond the normal time frame, we would like to move forward with the final piece of rulemaking as soon as possible. Phil is pushing to get this action completed quickly, so we would prefer to receive the additional information by next Friday, July 1st.

Please let us know when you expect to send it along to ADEQ. I will be out of the office until June 30th, so please cc Phil with your response so he knows where things stand.

Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Jim Malcolm [jtm@ftn-assoc.com]
Sent: Wednesday, June 29, 2016 3:40 PM
To: 'Kesler, Karen'
Cc: 'Crocker, Philip'; James Malcolm
Subject: RE: SWEPCO TDS supplemental information
Attachments: TV summary from AQUIRE query.xlsx; tolerance values.docx; TM-K Kessler 2016-06-29.pdf

Karen, Phil,
Attached per your request are the following:

1. A technical memo describing macroinvertebrate data collected from the Red River upstream and downstream of the mouth of the Little River during October 2014;
2. A Word doc describing the results of a preliminary effort to develop numerical tolerance values for minerals based on laboratory toxicity data;
3. The spreadsheet referenced in the Word doc.

The development of the numerical tolerance values is preliminary. If you all think the information looks to be useful, we can refine the approach and provide more documentation of the methodology.

I am out of the office today, but I will be in tomorrow and Friday. Feel free to call me if you have any questions.

Thanks,
Jim

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Wednesday, June 22, 2016 3:05 PM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: SWEPCO TDS supplemental information

Hi Jim,

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Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

FTN Associates Ltd.
water resources / environmental consultants
3 Innwood Circle, Suite 220 • Little Rock, AR 72211-2449 • (501) 225-7779 • Fax (501) 225-6738

TECHNICAL MEMORANDUM

DATE: June 29, 2016

TO: **Ms. Karen Kessler**
Water Division
US Environmental Protection Agency

FROM: **Jim Malcolm** JTM
FTN Associates, Ltd.

SUBJECT:
FTN No. R06510-0010-002

1.0 INTRODUCTION

Field observations in the reaches of the Red River upstream and downstream of the mouth of the Little River indicated that most of the available instream substrate suitable for invertebrate colonization was in the form of silt/sand and woody debris (WD). Accordingly, FTN Associates, Ltd. (FTN) and the Arkansas Department of Environmental Quality (ADEQ) planning division staff discussed and developed a protocol to sample WD habitat. All benthic macroinvertebrate sampling was conducted on areas of WD upstream and downstream of the mouth of the Little River to characterize the WD macroinvertebrate community.

2.0 METHODS

WD was sampled in the upstream and downstream reaches (Figure 1) on October 17, 2014. A total of 20 submerged sticks with dimensions of 30 cm by 2.3 cm (approximately 0.49 square meter) were collected in each reach by cutting out sections of the WD below the water surface using limb loppers. The 20 WD pieces were placed into a single plastic bag and were immediately preserved with 70% ethanol.

Each WD sample was cleaned in the laboratory by emptying the plastic bag of its liquid contents into a sorting tray and gently rinsing each sample over the sorting tray using a rinsing bottle. Any loose bark was removed and rinsed over the sorting tray along with the uncovered area of the WD. Once all WD pieces were rinsed into the sorting tray, the plastic bag was rinsed into the sorting tray until all debris was removed. After all WD pieces and the plastic bag were thoroughly rinsed, the samples were returned to the plastic bag and preserved with 70% ethanol.

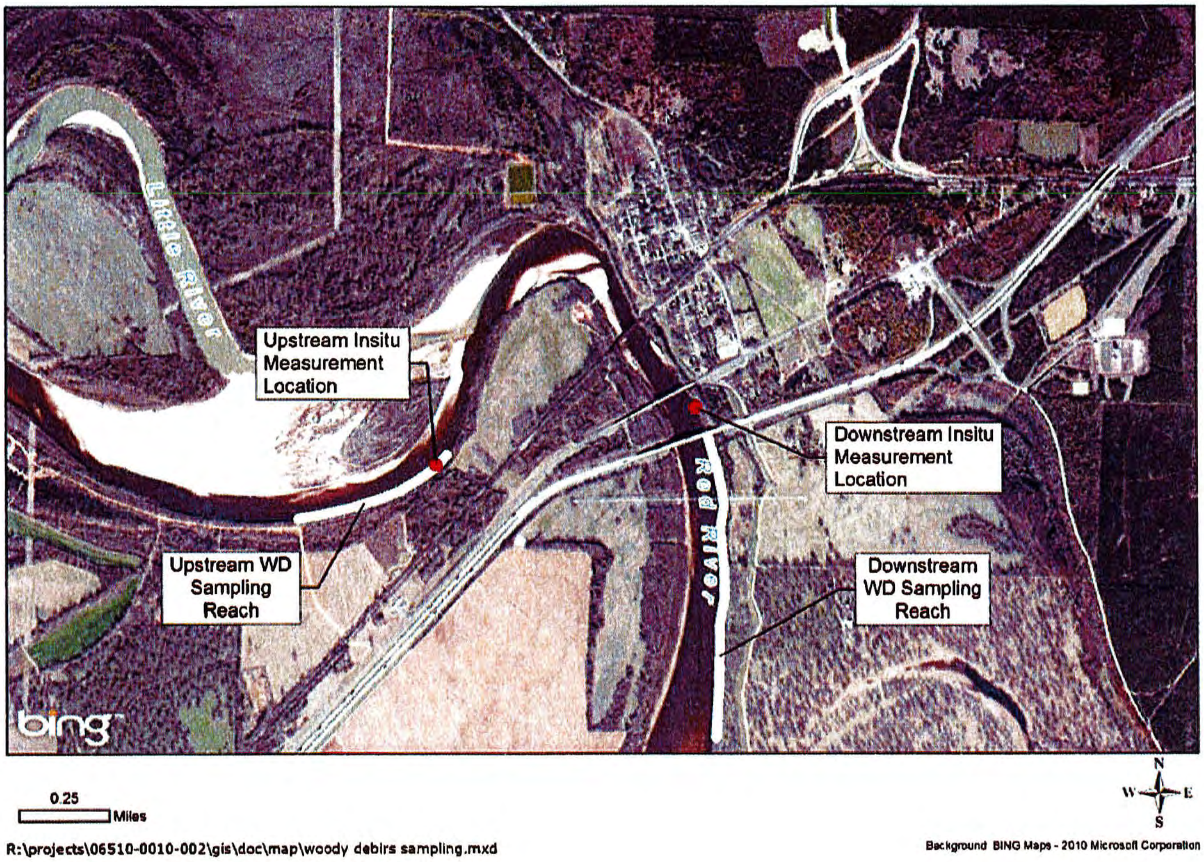

Figure 1. Woody debris and in situ sampling locations on the Red River, 2013.

WDs were sorted in the laboratory by rinsing the pooled sample in a 500-micron sieve and dispensing the entire sample onto a Caton grid. All organisms were sorted from randomly selected grids until a minimum of 270 organisms were collected. If the whole sample was sorted and the number of organisms fell short of 270, then the whole sample was used. Sorted organisms were transferred to 70% ethanol in glass vials. To assure thorough removal of specimens from the sample, the sorted residue was retained and examined by a second biological technician. If the second sorting produced fewer than 10% of the number of organisms found in the initial sorting, the sorting of that sample was considered complete. If the second sorting produced more than 10% of the number of organisms found in the initial sorting, the sample was resorted until the 10% goal was reached.

Taxonomic identifications were carried out to the lowest practical taxon according to Merritt and Cummins (1996), Thorp and Covich (2001), and Houston (1980). In general, macroinvertebrates were identified to genus except for bivalve mollusks, gastropods, dipteran larvae, and decapod shrimp, which were identified to family. A voucher collection of invertebrate taxa collected at the sites was retained for further reference. Taxonomic identifications in the voucher collection were verified by a second taxonomist and identification discrepancies were resolved.

Six in situ measurements of temperature (°C), specific conductance (µS/cm), pH (standard units) and dissolved oxygen (DO, mg/L) were taken between July 19 and October 17 at the locations indicated in Figure 1.

3.0 RESULTS AND DISCUSSION

Results of in situ measurements at the upstream and downstream locations are provided in Table 1. Values for temperature, pH and DO were within seasonal expectations. Specific conductance showed a general increase from mid-summer to early fall. This pattern is typical of conservative parameters under decreasing flow conditions. Downstream conductivity ranged from 4 to 27% (average = 16.8%) less than the upstream conductivity due to dilution from the Little River. The measured upstream and downstream conductivity values of 1192 and 1005 µS, respectively, correspond to respective upstream and downstream total dissolved solids (TDS) concentrations of approximately 715 and 603 mg/L.

Taxa and raw counts from the WD samples are provided in Table 2. Selected benthic metrics are provided in Table 3. Both upstream and downstream WD communities showed low levels of total taxa and ephemeroptera, plecoptera, and trichoptera (EPT) richness; high proportions of chironomidae; and taxa that Carlisle et al. 2007 classify as moderately tolerant or tolerant to specific conductance.

There is no readily available data set to be used to develop a list of expected macroinvertebrate taxa for these types of substrates for the Red River. Accordingly, the benthic data presented herein characterize the fisheries use attained under the observed mineral conditions (i.e., TDS values up to 600 - 700 µS). This attained use can be described as a generally tolerant to moderately tolerant macro invertebrate community with low overall taxa richness dominated by chironomidae and certain trichoptera. This attained use likely represents the attainable use for these reaches of the Red River.

Table 1. In situ water quality measurements taken at the Red River location upstream and downstream of the mouth of the Little River during 2013.

Date	Parameter	Upstream	Downstream
7/19/2013	Temperature (°C)	30.3	29.6
8/12/2013		34.3	34.1
8/15/2013		29.6	29.3
8/29/2013		32.2	31.5
9/13/2013		27.7	27.5
10/17/2013		21.4	21.6
7/19/2013	pH (S.U.)	7.8	7.5
8/12/2013		8.5	8.4
8/15/2013		8.6	8.5
8/29/2013		7.8	7.7
9/13/2013		8.3	8.2
10/17/2013		7.7	7.7
7/19/2013	Specific Conductance (µS/cm)	809	787
8/12/2013		833	621
8/15/2013		1091	848
8/29/2013		1607	1485
9/13/2013		1660	1590
10/17/2013		1192	1005
7/19/2013	DO (mg/L)	9.1	8.3
8/12/2013		9.2	8.4
8/15/2013		13.4	9.3
8/29/2013		8.8	7.8
9/13/2013		7.1	6.6
10/17/2013		8.2	7.8

Table 2. Taxa and organism counts from woody debris samples collected from the Red River on October 17, 2013.

Class	Order	Family	Genus	TIV*	Upstream	Downstream
Amphipoda			*Hyalella*	7/Moderate		4
Insecta	Diptera				8	
Insecta	Diptera	Chironomidae		5/Moderate	481	372
Insecta	Diptera	Simulidae	*Simulium*	6/Moderate		1
Insecta	Trichoptera					51
Insecta	Trichoptera	Hydropsychidae	*Hydropshyche*	8/Tolerant	103	30
Insecta	Trichoptera	Polycentropodidae		5/Moderate	31	

* Tolerance indicator classification for specific conductance obtained from Carlisle et al. 2007.

Table 3. Selected community metrics from woody debris samples collected from the Red River on October 17, 2013.

Metric	Upstream	Downstream
Total organisms	623	458
Total unique taxa	3	4
Ratio of EPT to Chironomid Abundances	0.21	0.22
% Contribution of dominant taxa	77	81
Number of EPT Taxa	2	1
Proportion EPT	0.22	0.18
Proportion chiromonidae	0.77	0.81
Average tolerance value of non chironomidae	7.3	6.1

If you should have any questions or comments regarding this technical memorandum, please feel free to call me or Pat Downey at (501) 225-7779.

4.0 LITERATURE CITED

Carlisle, D.M., M.R. Meador, S.R. Moulton, II, and P.M. Ruhl. 2007. Estimation and application of indicator values for common macroinvertebrate genera and families of the United States. *Ecological Indicators* 7:22-23.

Houston, J. 1980. Checklist of the Damselflies (Odonata: Zygoptera) of Arkansas. Arkansas Academy of Science, Arkansas Biota Survey Checklist No. 25. 1 p.

Merritt, R.W., and K.W. Cummins. 1996. *An Introduction to the Aquatic Insects of North America*. Dubuque, IA: Kendall/Hunt Publishing Company.

Thorpe, J.H., and A.P. Covich (eds). 2001. *Ecology and Classification of North American Freshwater Invertebrates, second edition*. Burlington, MA: Academic Press. 1,056 pp.

PJD/tas

Preliminary Development of Tolerance Values for Freshwater Species

Preliminary tolerance values (TVs) for chloride and sulfate were developed from aquatic toxicity test data available through EPA's ECOTOX database. Test metrics (LCx, ECx, NOEC, LOEC and MATC) for Chloride and sulfate must be used as surrogates for TDS TVs because toxicity test results are seldom reported as TDS. The ECOTOX data base provides laboratory test results from a wide range of test conditions. Results of this compilation are provided in the "Fish summary", "Insects etc", and "Crustaceans" tabs in the attached accompanying spreadsheet. The tables for each species and chemical provide average, minimum and maximum values of all metrics at all test durations. Visual examination of these results indicated that maximum and minimum metric values are generally large in magnitude (almost all value well in excess of 1000mg/L) and vary with a factor of 2 or 3. Therefore average values for all test metrics (i.e. LCx, ECx, NOEC, LOEC and MATC) as mg/L chloride or sulfate for lethalityints were averaged across all test durations to provide a first approximation of TVs. These TVs are provided, as available from ECOTOX (Period of record 1954 through 2016), in Tables 1, and 3.

Table 1. Tolerance values for fish

		Tolerance Value (mg/L)	
Scientific name	Common name	Chloride	Sulfate
Pimephales promelas	Fathead minnow	4990	3461
Lepomis macrochirus	Bluegill sunfish	10378	
Gambusia affinis	Eastern mosquito fish	13400	
Anguilla rostrata	American eel	19665	
Cyprinella leedsi	Bannerfin shiner	6120	
Gambusia holbrooki	Western Mosquito fish	5820	
Carassius auratus	Goldfish	2734	
Morone saxatilis	Stripped Bass	3604	

Table 2. Tolerance values for insects and other invertebrates.

Scientific name	Common name	Tolerance Value (mg/L)	
		Chloride	Sulfate
Culiseta incidens	Mosquito	7850	
Elliptio complanata	Eastern Elliptio	2450	
Epioblasma torulosa	Northern Riffleshell	244	
Erpobdella punctata	Red Leech	8125	
Gyraulus circumstriatus	FW mollusc	6020	
Gyraulus parvus	FW mussel	3043	
Hydroptila angusta	Caddisfly	6621	
Isonychia bicolor	Mayfly	2861	
Lampsilis cardium	Plain Pocketbook mussel	817	
Lampsilis fasciola	Wavy-Rayed Lampmussel	1133	
Lampsilis siliquoidea	Lamp-Mussel	1806	2882
Ligumia recta	Black Sandshell mussel	3130	
Limnodrilus hoffmeisteri	Oligochaete	6381	
Lumbriculus variegatus	Oligochaete, Worm	4626	
Maccaffertium sp.	Mayfly	380	
Musculium transversum	Long Fingernail Clam	1655	
Nais variabilis	Oligochaete	2569	
Nephelopsis obscura	Leech	4284	
Physa heterostropha	Pond Snail,	5067	
Planorbella campanulata	Snail, Bellmouth Rams-Horn	7190	
Pycnopsyche guttifera	Caddisfly	3526	
Pycnopsyche lepida	Northern Caddisfly	3526	
Sphaerium simile	Grooved Fingernail Clam	920	2290
Sphaerium sp.	Orb Cockle, Fingernail Clam	1612	
Stenonema modestum	Mayfly	4.7	
Tipula abdominalis	Crane Fly	1000	
Tubifex tubifex	Tubificid Worm	5311	
Villosa constricta	Notched Rainbow	3504	
Chironomus tentans	Midge		12908
Tricorythus sp.	Mayfly		660

Table 3. Tolerance values for insects and other invertebrates.

Scientific name	Common name	Tolerance Value (mg/L)	
		Chloride	Sulfate
Daphnia ambigua	Water flea	1097	
Daphnia hyalina	Water flea	3000	
Daphnia magna	Water flea	3813	
Daphnia pulex	Water flea		2573
Gammarus pseudolimnaeus	Aquatic Sowbug		10320
Hyalella azteca			1740
Lirceus fontinalis	Aquatic Sowbug	2970	
Pacifastacus leniusculus	Signal Crayfish	1000	

Chemical	Species		Endpoint Value	Test duration
			Growth	
			Endpoint Value	**Test duration**
CaCl	Pimephales promelas	Average	1410000	7
		Minimum	1410000	
		Maximum	1410000	
		N	1	
Na2SO4	Pimephales promelas	Average	1245972	11.2
		Minimum	101370	7
		Maximum	3650000	21
		N	10	
			Survival	
			Endpoint Value	**Test duration**
CaCl	Lepomis macrochirus	Average	10375000	4.166666667
		Minimum	9500000	4
		Maximum	11300000	5
		N	11300000	
CaCl	Pimephales promelas	Average	4990000	2.75
		Minimum	4630000	1
		Maximum	6560000	4
		N	13400000	
CaCl	Gambusia affinis	Average	13400000	2.3
		Minimum	13400000	1
		Maximum	13400000	4
		N	3	
NaCl	Anguilla rostrata	Average	19665000	4
	American eel	Minimum	17880000	4
		Maximum	21450000	4
		N	2	
NaCl	Cyprinella leedsi	Average	6120115	4
	bannerfin shiner	Minimum	6069550	4
		Maximum	6069550	4
		N	4	
	Lepomis macrochirus	Average	8256650	4
	bluegill sunfish	Minimum	1294600	4
		Maximum	12946000	4
		N	4	
	Gambusia holbrooki	Average	5820000	4.5
	Mosquito fish	Minimum	100000	4
		Maximum	11540000	5
		N	2	
	Carassius auratus	Average	2734309.63	2.527272727
	Goldfish	Minimum	4324000	1
		Maximum	11050000	10
		N	165	
	Morone saxatilis	Average	3604166.667	2.5
	Striped bass	Minimum	1000000	1
		Maximum	7000000	4
		N	24	
	Gambusia affinis	Average	17916666.67	2.333333333
	Mosquito fish	Minimum	17916666.67	2.333333333
		Maximum	17916666.67	2.333333333
		N	1	
	Lepomis macrochirus	Average	10381428.57	4
	Bluegill sunfish	Minimum	3040000	4
		Maximum	13500000	4
		N	7	
Na2SO4	Pimephales promelas	Average	3461232.759	6.896551724
	Fathead minnow	Minimum	101370	1
		Maximum	15200000	21
		N	29	

	Species		Sublethal (Growth Reprod endpoint Value	Duration
	Brachionus calyciflorus	Average	1608200	2
Chemical	Rotifer	Minimum	1120000	2
NaCl		Maximum	2230000	2
		N	5	
	Chironomus dilutus	Average	2809200	20
		Minimum	2133000	20
		Maximum	3960000	20
		N	5	
	Lumbriculus variegatus	Average	730750	28
		Minimum	366000	28
		Maximum	1366000	28
		N	4	
	Polycelis felina	Average	108000	7
	Tubellaria	Minimum	108000	7
		Maximum	108000	7
		N	1	
	Stenonema modestum	Average	5650	14
		Minimum	2700	14
		Maximum	7000	14
		N	8	
	Tubifex tubifex	Average	660600	28
	Tubificid Worm	Minimum	462000	28
		Maximum	964000	28
		N	5	
	Amerianna cumingi	Average	338000	4
	snail	Minimum	338000	4
		Maximum	338000	4
		N	1	
	Corbicula manilensis	Average	1500000	28
		Minimum	1500000	28
		Maximum	1500000	28
		N	4	

	Species		Lethal endpoint Value	Duration
NaCl	Acroneuria abnormis	Average	10000000	4
	Stonefly	Minimum	10000000	4
		Maximum	10000000	4
		N	1	
	Agnetina capitata	Average	10000000	4
	Stonefly	Minimum	10000000	4
		Maximum	10000000	4
		N	1	
	Argia sp.	Average	27375000	2.375
	Damdel fly	Minimum	23000000	1
		Maximum	32000000	4
		N	8	
	Brachionus calyciflorus	Average	1645000	1
	Rotifer	Minimum	1645000	1
		Maximum	1645000	1
		N	1	
	Caenorhabditis elegans	Average	18126250	2.5
	Nematode	Minimum	15460000	1
		Maximum	21000000	4
		N	8	
	Chironomus dilutus	Average	6234856.667	2.111111111
	midge	Minimum	4162650	2
		Maximum	8740140	4
		N	6234856.667	2.111111111
	Culiseta incidens	Average	7850000	11
	Mosquito	Minimum	4700000	11
		Maximum	11000000	11
		N	2	
	Elliptio complanata	Average	2450000	1.5
		Minimum	2230000	1
		Maximum	2670000	2
		N	2	
	Northern Riffleshell	Average	244000	1
		Minimum	244000	1
		Maximum	244000	1
		N	1	
	Erpobdella punctata	Average	8125000	2.75
	Red Leech	Minimum	7500000	1
		Maximum	10000000	5
		N	4	
	Gyraulus circumstriatus	Average	6020000	3
	FW mollusc	Minimum	3200000	1
		Maximum	10000000	5
		N	5	

Species		Lethal endpoint Value	Duration
Gyraulus parvus	Average	3043500	4
FW mussel	Minimum	3009000	4
	Maximum	3078000	4
	N	2	
Hydroptila angusta	Average	6621000	2
Caddisfly	Minimum	6621000	2
	Maximum	6621000	2
	N	1	
Isonychia bicolor	Average	2861111.111	14
Mayfly	Minimum	500000	14
	Maximum	8000000	14
	N	18	
Lampsilis cardium	Average	817000	1
Plain Pocketbook	Minimum	817000	1
	Maximum	817000	1
	N	1	
Lampsilis fasciola	Average	1133461.538	1.307692308
Wavy-Rayed Lampmussel	Minimum	113000	1
	Maximum	3980000	4
	N	13	
Lampsilis siliquoidea	Average	1806300	1.8
Lamp-Mussel	Minimum	168000	1
	Maximum	4560000	4
	N	10	
Ligumia recta	Average	3130000	3
Black Sandshell	Minimum	2510000	2
	Maximum	3750000	4
Limnodrilus hoffmeisteri	N	2	
Tubificid Worm, Oligochaete	Average	6381250	4.859375
	Minimum	5800000	1
	Maximum	7500000	10.875
	N	8	
Lumbriculus variegatus	Average	4626592.5	4
Oligochaete, Worm	Minimum	3100000	4
	Maximum	5588680	4
	N	8	
Maccaffertium sp.	Average	3809953.478	5.239130435
Mayfly	Minimum	2700	1
	Maximum	14134000	14
	N	92	
Musculium transversum	Average	1655000	4
Long Fingernail Clam	Minimum	1655000	4
	Maximum	1655000	4
	N	1	

Species		Lethal endpoint Value	Duration
Nais variabilis	Average	2569000	2
Oligochaete	Minimum	2569000	2
	Maximum	2569000	2
	N	1	
Nephelopsis obscura	Average	4284417.143	4
Leech	Minimum	3320000	4
	Maximum	5340000	4
	N	7	
Physa gyrina	Average	2540000	4
Pouch Snail	Minimum	2540000	4
	Maximum	2540000	4
	N	1	
Physa heterostropha	Average	5067647.059	2.647058824
Pond Snail, Pneumonate Snail	Minimum	3500000	1
	Maximum	7500000	5
	N	17	
Planorbella campanulata	Average	7190000	3
Snail, Bellmouth Rams-Horn	Minimum	6150000	1
	Maximum	10000000	5
	N	5	
Pycnopsyche guttifera	Average	3526000	4
Caddisfly	Minimum	3526000	4
	Maximum	3526000	4
	N	1	
Pycnopsyche lepida	Average	3526000	4
Northern Caddisfly	Minimum	3526000	4
	Maximum	3526000	4
	N	1	
Sphaerium simile	Average	920000	4
Grooved Fingernail Clam	Minimum	740000	4
	Maximum	1100000	4
	N	2	
Sphaerium sp.	Average	1612500	2.5
Orb Cockle, Fingernail Clam	Minimum	1100000	1
	Maximum	2400000	4
	N	8	
Stenonema modestum	Average	4700	14
Mayfly	Minimum	2700	14
	Maximum	7000	14
	N	4	
Tipula abdominalis	Average	1000000	4
Crane Fly	Minimum	1000000	4
	Maximum	1000000	4
	N	1	

	Species		Lethal endpoint Value	Duration
	Tubifex tubifex	Average	5311333.333	4
	Tubificid Worm	Minimum	4278000	4
		Maximum	6008000	4
		N	3	
	Villosa constricta	Average	3504000	2
	Notched Rainbow	Minimum	2590000	1
		Maximum	5230000	4
		N	5	
Na2SO4	Chironomus tentans	Average	12908000	2
	Midge	Minimum	11682000	2
		Maximum	14134000	2
		N	2	
	Lampsilis siliquoidea	Average	2882300	3
	Lamp-Mussel	Minimum	1702000	2
		Maximum	3729000	4
		N	10	10
	Sulfuric acid sodium salt (1:2)	Average	2290250	
	Grooved Fingernail Clam	Minimum	1502000	
		Maximum	2926000	
		N	8	
	Tricorythus sp.	Average	660000	4
	Mayfly	Minimum	660000	4
		Maximum	660000	4
		N	1	

	Species		Sublethal (Growth Reprod endpoint Value	Duration
NaCl	Daphnia ambigua	Average	646666.6667	10
		Minimum	440000	10
		Maximum	850000	10
		N	3	
	Daphnia magna	Average	1041130.435	10.73913043
		Minimum	220000	2
		Maximum	2160000	21
		N	23	
Na2SO4	Daphnia pulex	Average	465083.3333	21
		Minimum	314000	21
		Maximum	1200000	21
		N	12	
	Eulimnogammarus toletanus	Average	108000	7
	Sand Shrimp	Minimum	108000	
		Maximum	108000	
		N	1	
	Hyalella azteca	Average	1876800	21
		Minimum	380000	14
		Maximum	4237000	28
		N	10	

	Species		Lethal (survival) endpoint Value	Duration
CaCl2	Hyalella azteca	Average	2207555.556	3.925925926
		Minimum	512000	2
		Maximum	4345000	4
		N	27	
	Lirceus fontinalis	Average	2970000	4
	Aquatic Sowbug	Minimum	2970000	4
		Maximum	2970000	4
		N	1	
	Pacifastacus leniusculus	Average	1000000	71
	Signal Crayfish	Minimum	1000000	71
		Maximum	1000000	71
		N	1	
NaCl	Asellus communis	Average	7095454.545	3.454545455
	Aquatic Sowbug	Minimum	5100000	1
		Maximum	10000000	7
		N	11	
	Daphnia ambigua	Average	1096666.667	7.333333333
		Minimum	440000	2
		Maximum	2000000	10
		N	3	
	Daphnia hyalina	Average	3000000	2
		Minimum	3000000	2
		Maximum	3000000	2
		N	1	

	Species		Lethal (survival) endpoint Value	Duration
	Daphnia magna	Average	3813532	2.725
		Minimum	467000	1
		Maximum	8600000	21
		N	40	
Na2SO4	Daphnia pulex	Average	2573043.478	6.043478261
		Minimum	400000	1
		Maximum	5090000	21
		N	23	
	Gammarus pseudolimnaeus	Average	10320000	3.142857143
		Minimum	7700000	3
		Maximum	12600000	4
		N	7	
	Hyalella azteca	Average	1740373.942	
		Minimum	2185	
		Maximum	5259000	
		N	52	

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Wednesday, June 29, 2016 3:41 PM
To: Jim Malcolm
Subject: Automatic reply: SWEPCO TDS supplemental information

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Thanks,
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Heather Ferguson

From: Crocker, Philip [crocker.philip@epa.gov]
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To: Jim Malcolm
Cc: Kesler, Karen
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Hi Jim, thanks. I am getting ready to leave for several days. Karen should be back tomorrow so should be reviewing the info.

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To:	'Jim Malcolm'; 'Crocker, Philip'
Cc:	'Kesler, Karen'; James Malcolm; James Malcolm
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Subject: RE: SWEPCO TDS supplemental information

Thanks Karen. Just an fyi, I've sent my two recent emails to you and Phil also to Sarah to keep her/ADEQ in all the loops.

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To: Kesler, Karen <Kesler.Karen@epa.gov>; Crocker, Philip <crocker.philip@epa.gov>
Cc: James Malcolm <jtm@ftn-assoc.com>
Subject: RE: SWEPCO TDS supplemental information

Thanks Karen. Just an fyi, I've sent my two recent emails to you and Phil also to Sarah to keep her/ADEQ in all the loops.

Regards, Jim

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Wednesday, July 06, 2016 8:08 AM
To: Jim Malcolm; Crocker, Philip
Subject: RE: SWEPCO TDS supplemental information

Hi Jim,

Yes, we have received both the TLVs and the benthic data/memo. Thank you for sending both of those along so quickly. I have had a chance to go through them once. Once I have a chance to talk with everyone else about it, I will send you our thoughts.

Thanks,
Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Wednesday, July 06, 2016 8:02 AM
To: 'Jim Malcolm' <jtm@ftn-assoc.com>; Crocker, Philip <crocker.philip@epa.gov>
Cc: Kesler, Karen <Kesler.Karen@epa.gov>; James Malcolm <jtm@ftn-assoc.com>; James Malcolm <jtm@ftn-assoc.com>
Subject: RE: SWEPCO TDS supplemental information

Hi Karen/Phil,

Circling back on this mainly to just make sure you guys got it and the previous email with the TLVs we dug up and the benthics data/memo. You have not had the information long but please let me know your thoughts when you guys have time to digest this? Thanks.

Regards, Jim

Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220
Little Rock, AR 72211
----
(501) 225-7779 *work*
(501) 412-8185 *mobile*
www.**ftn-assoc**.com *webpage*

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Wednesday, June 29, 2016 5:38 PM
To: 'Crocker, Philip'
Cc: 'Kesler, Karen'; James Malcolm
Subject: RE: SWEPCO TDS supplemental information

Hi Phil,

Thanks for the reply. Just so you and Karen know, from SWEPCO's perspective, the 780 mg/L TDS value is acceptable and they would be prepared to alter the Arkansas rulemaking to support the change if EPA is in agreement with this value on the Arkansas side of the AR-LA state line. The 780 mg/L value is the 90th percentile value for TDS in the lower Red River from our earlier analysis and therefore, FTN's concern was that the 780 mg/L might at some point end up triggering for impairment. However, this concern is mitigated somewhat because the Red River minerals levels appear a bit lower more recently and it is possible that EPA and ADEQ can still reach agreement on retaining 25% trigger for 303(d) assessment.

In looking back at the field work from the UAA, we had collected some benthics data from logs/woody debris in the lower Red River below the Little River as part of the SWEPCO work. We have compiled the data and they are attached in a technical memorandum along with other related information. We request that EPA review these data in the context of it completing the weight of evidence information needed by EPA relating to addressing AL characterization/use protection based on the revised 780 mg/L TDS criteria.

Please do not hesitate to contact me if there are any questions or if you wish to discuss this submittal.

Many thanks, Jim

Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220
Little Rock, AR 72211
----
(501) 225-7779 *work*
(501) 412-8185 *mobile*
www.**ftn-assoc**.com *webpage*

From: Crocker, Philip [mailto:crocker.philip@epa.gov]
Sent: Wednesday, June 29, 2016 4:28 PM
To: Jim Malcolm
Cc: Kesler, Karen
Subject: RE: SWEPCO TDS supplemental information

Hi Jim, thanks. I am getting ready to leave for several days. Karen should be back tomorrow so should be reviewing the info.

Phil

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Wednesday, June 29, 2016 3:40 PM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Cc: Crocker, Philip <crocker.philip@epa.gov>; James Malcolm <jtm@ftn-assoc.com>
Subject: RE: SWEPCO TDS supplemental information

Karen, Phil,
Attached per your request are the following:

1. A technical memo describing macroinvertebrate data collected from the Red River upstream and downstream of the mouth of the Little River during October 2014;
2. A Word doc describing the results of a preliminary effort to develop numerical tolerance values for minerals based on laboratory toxicity data;
3. The spreadsheet referenced in the Word doc.

The development of the numerical tolerance values is preliminary. If you all think the information looks to be useful, we can refine the approach and provide more documentation of the methodology.

I am out of the office today, but I will be in tomorrow and Friday. Feel free to call me if you have any questions.

Thanks,
Jim

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Wednesday, June 22, 2016 3:05 PM
To: Jim Malcolm
Cc: Crocker, Philip
Subject: SWEPCO TDS supplemental information

Hi Jim,

I wanted to touch base and see when we should be expecting the additional information for the SWEPCO rulemaking in light of our meeting on June 10th. As this rulemaking has already been largely extended beyond the normal time frame, we would like to move forward with the final piece of rulemaking as soon as possible. Phil is pushing to get this action completed quickly, so we would prefer to receive the additional information by next Friday, July 1st.

Please let us know when you expect to send it along to ADEQ. I will be out of the office until June 30th, so please cc Phil with your response so he knows where things stand.

Thanks,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From:	Clem, Sarah [CLEM@adeq.state.ar.us]
Sent:	Friday, July 22, 2016 1:35 PM
To:	jim (jtm@ftn-ASSOC.COM)
Subject:	FW: SWEPCO Red River TDS site specific criterion
Attachments:	Final EPA Disapproval of TDS provision 7_20_16.pdf

Jim,

Received this morning. Caleb will be sending the attachment to Allan as well.

Sarah

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Friday, July 22, 2016 10:43 AM
To: Clem, Sarah
Cc: Crocker, Philip; Wentz, Tate; Barnett, Mary
Subject: SWEPCO Red River TDS site specific criterion

Hi Sarah,

Attached is the signed disapproval of the TDS site specific criterion for the lower Red River for the SWEPCO rulemaking. We know that FTN is working on collecting additional information about tolerance values, have provided additional benthic data for the Red River, and have stated that SWEPCO is ok with a 780 mg/L criterion. EPA believes these are all good steps forward towards determining an appropriate criterion that is both protective of downstream uses and demonstrates protection of Arkansas's uses. The attached letter and TSD reflects our issues with the initial submission and the 860 mg/L criterion that was proposed with this rulemaking. On Monday, I will follow up with an email to Jim Malcolm explaining how a preliminary assessment of the additional information submitted (since the last conference call) seems to indicate that this approach will add sufficient documentation to their weight of evidence demonstration of protection of aquatic life use and that the 780 mg/L value will address issues of downstream protection. If they decide to pursue another rulemaking with the 780 mg/L criteria value, we believe this approach will be useful for demonstrating protection of aquatic life use. Thank you for all your help with review of this rulemaking and coordination of communication between us and FTN.

Please let me know if you have any questions,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

July 20, 2016

Mr. Caleb Osborne
Associate Director – Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Final submittal of *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas*, as amended by third party rulemaking initiated by the Southwestern Electric Power Company

Dear Mr. Osborne:

The Environmental Protection Agency (EPA) has completed its review of the revisions to *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* that were made in relation to the Third Party Rulemaking process initiated by Southwestern Electric Power Company. The revisions to Regulation No. 2 were adopted by the Arkansas Pollution Control and Ecology Commission (APC&EC) on October 23, 2015 and became effective on November 5, 2015. They were submitted to the EPA for approval on December 21, 2015 by the Arkansas Department of Environmental Quality (ADEQ).

In a letter, dated May 16, 2016, EPA approved the majority of the revised provisions to Regulation 2.511 and Appendix A of Regulation No. 2, including the site-specific criteria changes for temperature and total dissolved solids (TDS) in the Little River and the removal of the domestic water supply use in the Red River. These revisions were approved pursuant to the Clean Water Act (CWA) § 303(c) and its implementing regulations at 40 CFR Part 131. However, EPA did not take action on the site-specific TDS criterion revision in the Red River at that time. After further review, EPA is now disapproving this site-specific TDS criterion revision for the Red River from its confluence with the Little River to the Arkansas-Louisiana state line. Inadequate information was submitted to demonstrate protection of the aquatic life use and this criterion is not protective of the downstream use in Louisiana. Please note that under 40 CFR § 313.21(c), new and revised standards do not go into effect for CWA purposes until approved by EPA. Therefore, previously approved language associated with the TDS criterion in the January 24, 2008 version of the Arkansas water quality standards remains in effect for CWA purposes.

I appreciate the APC&EC's and the ADEQ's effort in the review of these revised provisions of the State's standards and also appreciate ADEQ's assistance with coordinating meetings and correspondence with the third party. If you have any questions or concerns, please contact me at 214-665-7101, or contact Karen Kesler at 214-665-3185.

Sincerely,

WK Honker

William K. Honker, P.E.
Director
Water Division

Enclosure

cc: Sarah Clem, Branch Manager
Water Division ADEQ

TECHNICAL SUPPORT DOCUMENT:
EPA REVIEW OF SITE-SPECIFIC CRITERION REVISION TO *REGULATION 2: REGULATION ESTABLISHING WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF ARKANSAS* FOR THE RED RIVER, ARKANSAS

Revision Adopted by the Arkansas Pollution Control and Ecology Commission via Minute Order No. 15-21 for Southwestern Electric Power Company

U.S. EPA REGION 6
WATER DIVISION
July 2016

I. Introduction

Background

As described in § 303(c) of the Clean Water Act (CWA) and in the standards regulation within the Code of Federal Regulations (CFR) at 40 CFR § 131.20, states and authorized tribes have primary responsibility to develop and adopt water quality standards to protect their waters. State and tribal water quality standards consist of three primary components: beneficial uses, criteria to support those uses, and an antidegradation policy. In addition, CWA § 303(c)(1) and 40 CFR § 131.20 require states to hold public hearings at least once every three years to review and, as appropriate, modify and adopt standards.

Under 40 CFR § 131.21, the Environmental Protection Agency (EPA) reviews new and revised surface water quality standards that have been adopted by states and authorized tribes. Authority to approve or disapprove new and/or revised standards submitted to EPA for review has been delegated to the Water Division Director in Region 6. Tribal or state water quality standards are not considered effective under the CWA until approved by EPA.

The purpose of this Technical Support Document (TSD) is to provide the basis for the Environmental Protection Agency's disapproval of the site-specific total dissolved solids (TDS) water quality criterion revision for the Red River to Regulation No. 2: *Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* adopted by the Arkansas Pollution Control and Ecology Commission (APC&EC) in Minute Order 15-21. This revision is further described in the subsection below titled "Summary of Revised Provisions."

Chronology of Events

September 11, 2014	A third party, Southwestern Electric Power Company (SWEPCO), filed a petition with the APC&EC to amend Regulation No. 2
September 26, 2014	The APC&EC initiated the rulemaking proceedings via Minute Order No. 14-33
October 1, 2014	Public notice of the proposed rule-making was published
November 17, 2014	Public hearing on the proposed rule-making was held in Hope, Arkansas
December 3, 2014	Public comment period ended on the proposed changes to Regulation No. 2
October 23, 2015	Becky Keogh, Director, Arkansas Department of Environmental Quality (ADEQ), signed Minute Order No. 15-21 adopting changes to Regulation No. 2

attainability analysis (UAA) of the receiving waterbodies affected by the revised site-specific criteria. The portions of the UAA that provided scientific justification for the appropriateness and protectiveness of the revised site-specific water quality criterion for TDS in the Red River from its confluence with the Little River to the AR/LA state line were considered for this action.

Site-Specific Water Quality Criterion for TDS in the Red River

Table 1. Site-specific water quality criterion revision for TDS in the Red River submitted by ADEQ to EPA for review and approval.

Reach Description	Current Criterion	Proposed Criterion
Red River from its confluence with the Little River to the AR/LA state line	500 mg/L	860 mg/L

Disapproval Justification

In its review of the SWEPCO UAA and additional submitted material, EPA determined that the documents did not sufficiently demonstrate protection of aquatic life use which is required by 40 CFR § 131.6 and also did not demonstrate protection of downstream use which is required by 40 CFR § 131.10(b).

The predominant source of evidence that was submitted to show that the aquatic life use was protected was a study completed by Buchanan et al. in 2003. This study surveyed fish that were present in the Arkansas portion of the Red River from 1995 to 2001. While the Buchanan study provides a historic reference, it only provides us with an understanding of the fish community in the Red River in 2001, not the current fish community. In addition, the Buchanan et al. 2003 study assessed presence and determined broad classifications of abundance (rare, uncommon, common, abundant). This gives us information about acute tolerances, but does not give us information about chronic tolerances. The presence of the fishes does not indicate that they are growing and reproducing at unimpaired rates. In addition, there was no discussion of the protection of the macroinvertebrate community in the Red River. Without additional information about the fish and macroinvertebrate community currently present in the Red River, EPA could not determine whether those communities are protected with the new criterion. Based on these concerns, EPA requested that additional information be submitted that demonstrated numeric tolerances of species that are found in the Red River. However, no additional data or information, only a representation of the Buchanan et al. 2003 study, was provided with which to assess the proposed criterion. Without additional supporting documentation, EPA was unable to assess whether the aquatic life use was being protected.

Downstream protection was also not demonstrated for this revised criterion. The proposed criterion is 860 mg/L and the downstream criterion in Louisiana is 780 mg/L. In the UAA submitted, the contractor reported the results of a mass-balance they performed using a 7Q-10 flow rate. These results showed predicted TDS concentrations at various spots in the Red River, including at the AR/LA state line. Also included in the UAA were the results of a second mass-balance performed by the contractor that used the same input values and model, but used a harmonic mean flow in place of a 7Q-10 flow rate. This second mass-balance was performed to justify that the proposed criterion is protective of LA uses. But the use of the harmonic mean

Heather Ferguson

From:	Clem, Sarah [CLEM@adeq.state.ar.us]
Sent:	Monday, July 25, 2016 9:57 AM
To:	jim (jtm@ftn-ASSOC.COM)
Subject:	FW: SWEPCO Red River TDS site specific criterion
Attachments:	Disapproval Letter_SWEPCO TDS_ 7_20_16.pdf

Here is the rest of the pdf.

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Monday, July 25, 2016 8:21 AM
To: Clem, Sarah
Subject: RE: SWEPCO Red River TDS site specific criterion

Hi Sarah,

I'm sorry about that. The attached scan should be the whole thing.

- Karen

From: Clem, Sarah [mailto:CLEM@adeq.state.ar.us]
Sent: Friday, July 22, 2016 3:48 PM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Subject: RE: SWEPCO Red River TDS site specific criterion

Karen,

Looks like we only have up to page 3 of the SWEPCO TSD. Could you send the rest? Thanks.

Sarah

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Friday, July 22, 2016 10:43 AM
To: Clem, Sarah
Cc: Crocker, Philip; Wentz, Tate; Barnett, Mary
Subject: SWEPCO Red River TDS site specific criterion

Hi Sarah,

Attached is the signed disapproval of the TDS site specific criterion for the lower Red River for the SWEPCO rulemaking. We know that FTN is working on collecting additional information about tolerance values, have provided additional benthic data for the Red River, and have stated that SWEPCO is ok with a 780 mg/L criterion. EPA believes these are all good steps forward towards determining an appropriate criterion that is both protective of downstream uses and demonstrates protection of Arkansas's uses. The attached letter and TSD reflects our issues with the initial submission and the 860 mg/L criterion that was proposed with this rulemaking. On Monday, I will follow up with an email to Jim Malcolm explaining how a preliminary assessment of the additional information submitted (since the last conference call) seems to indicate that this approach will add sufficient documentation to their weight of evidence demonstration of protection of aquatic life use and that the 780 mg/L value will address issues of downstream protection. If they decide to pursue another rulemaking with the 780 mg/L criteria value, we believe this approach will be useful for demonstrating protection of aquatic life use. Thank you for all your help with review of this rulemaking and coordination of communication between us and FTN.

Please let me know if you have any questions,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

July 20, 2016

Mr. Caleb Osborne
Associate Director – Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317

Re: Final submittal of *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas*, as amended by third party rulemaking initiated by the Southwestern Electric Power Company

Dear Mr. Osborne:

The Environmental Protection Agency (EPA) has completed its review of the revisions to *Regulation No. 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* that were made in relation to the Third Party Rulemaking process initiated by Southwestern Electric Power Company. The revisions to Regulation No. 2 were adopted by the Arkansas Pollution Control and Ecology Commission (APC&EC) on October 23, 2015 and became effective on November 5, 2015. They were submitted to the EPA for approval on December 21, 2015 by the Arkansas Department of Environmental Quality (ADEQ).

In a letter, dated May 16, 2016, EPA approved the majority of the revised provisions to Regulation 2.511 and Appendix A of Regulation No. 2, including the site-specific criteria changes for temperature and total dissolved solids (TDS) in the Little River and the removal of the domestic water supply use in the Red River. These revisions were approved pursuant to the Clean Water Act (CWA) § 303(c) and its implementing regulations at 40 CFR Part 131. However, EPA did not take action on the site-specific TDS criterion revision in the Red River at that time. After further review, EPA is now disapproving this site-specific TDS criterion revision for the Red River from its confluence with the Little River to the Arkansas-Louisiana state line. Inadequate information was submitted to demonstrate protection of the aquatic life use and this criterion is not protective of the downstream use in Louisiana. Please note that under 40 CFR § 313.21(c), new and revised standards do not go into effect for CWA purposes until approved by EPA. Therefore, previously approved language associated with the TDS criterion in the January 24, 2008 version of the Arkansas water quality standards remains in effect for CWA purposes.

I appreciate the APC&EC's and the ADEQ's effort in the review of these revised provisions of the State's standards and also appreciate ADEQ's assistance with coordinating meetings and correspondence with the third party. If you have any questions or concerns, please contact me at 214-665-7101, or contact Karen Kesler at 214-665-3185.

Sincerely,

William K. Honker, P.E.
Director
Water Division

Enclosure

cc: Sarah Clem, Branch Manager
Water Division ADEQ

TECHNICAL SUPPORT DOCUMENT:
EPA REVIEW OF SITE-SPECIFIC CRITERION REVISION TO *REGULATION 2: REGULATION ESTABLISHING WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF ARKANSAS* FOR THE RED RIVER, ARKANSAS

Revision Adopted by the Arkansas Pollution Control and Ecology Commission via Minute Order No. 15-21 for Southwestern Electric Power Company

U.S. EPA REGION 6
WATER DIVISION
July 2016

Table of Contents

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Background

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Under 40 CFR § 131.21, the Environmental Protection Agency (EPA) reviews new and revised surface water quality standards that have been adopted by states and authorized tribes. Authority to approve or disapprove new and/or revised standards submitted to EPA for review has been delegated to the Water Division Director in Region 6. Tribal or state water quality standards are not considered effective under the CWA until approved by EPA.

The purpose of this Technical Support Document (TSD) is to provide the basis for the Environmental Protection Agency's disapproval of the site-specific total dissolved solids (TDS) water quality criterion revision for the Red River to Regulation No. 2: *Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas* adopted by the Arkansas Pollution Control and Ecology Commission (APC&EC) in Minute Order 15-21. This revision is further described in the subsection below titled "Summary of Revised Provisions."

Chronology of Events

September 11, 2014	A third party, Southwestern Electric Power Company (SWEPCO), filed a petition with the APC&EC to amend Regulation No. 2
September 26, 2014	The APC&EC initiated the rulemaking proceedings via Minute Order No. 14-33
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November 17, 2014	Public hearing on the proposed rule-making was held in Hope, Arkansas
December 3, 2014	Public comment period ended on the proposed changes to Regulation No. 2
October 23, 2015	Becky Keogh, Director, Arkansas Department of Environmental Quality (ADEQ), signed Minute Order No. 15-21 adopting changes to Regulation No. 2

December 21, 2015	William K. Honker, Director, Water Division, EPA Region 6, received letter from, Ellen Carpenter, Water Division Chief, ADEQ, requesting EPA approval of the adopted revisions and transmitting the water quality standards submission package
February 9, 2016	EPA Region 6 issued a letter to ADEQ stating that no action would be taken on the submission package to allow the third party time to respond to EPA's comments
March 30, 2016	ADEQ submitted additional information prepared by the third party to EPA
May 16, 2016	EPA Region 6 approved site-specific criteria (SSC) revisions for temperature and TDS for the Little River and approved the removal of the domestic water supply use from the Red River

Summary of Revised Provisions

By letter dated December 21, 2015, ADEQ submitted several water quality standards revisions adopted by the APC&EC via Minute Order No. 15-21 to EPA for review and approval. These revisions are located in Regulation 2.511 and Appendix A. They include revisions of temperature (30°C to 32°C) and TDS (100 mg/L to 138 mg/L) criteria for the Little River from Millwood Lake to its confluence with the Red River. They also include the removal of the domestic water supply use and the increase of the TDS criterion from 500 mg/L to 860 mg/L for the Red River from its confluence with the Little River to the Arkansas (AR)/Louisiana (LA) state line.

II. Revised Provisions EPA Previously Approved

By letter dated May 16, 2016, EPA acted on three of the four revised provisions that are described in the above paragraph. EPA approved the revision of temperature and TDS criteria for the Little River from Millwood Lake to its confluence with the Red River and approved the removal of the domestic water supply use for the Red River from its confluence with the Little River to the AR/LA state line. Details of that approval can be found in the May 16, 2016 letter and its enclosed TSD. This same letter stated that EPA was taking no action on the TDS provision for the Red River, as further consideration of protection of the aquatic life use and downstream uses were necessary. EPA has now completed its review of this final provision and this technical support document will detail the rationale of EPA's disapproval of this provision.

III. Revised Provisions EPA is Disapproving

In accordance with the requirements found in Regulation No. 2.306 of the Arkansas Water Quality Standards, SWEPCO contracted with FTN Associates, Ltd., to complete a use attainability analysis (UAA) of the receiving waterbodies affected by the revised site-specific criteria. The portions of the UAA that provided scientific justification for the appropriateness and protectiveness of the revised site-specific water quality criterion for TDS in the Red River from its confluence with the Little River to the AR/LA state line were considered for this action.

Site-Specific Water Quality Criterion for TDS in the Red River

Table 1. Site-specific water quality criterion revision for TDS in the Red River submitted by ADEQ to EPA for review and approval.

Reach Description	Current Criterion	Proposed Criterion
Red River from its confluence with the Little River to the AR/LA state line	500 mg/L	860 mg/L

Disapproval Justification

In its review of the SWEPCO UAA and additional submitted material, EPA determined that the documents did not sufficiently demonstrate protection of aquatic life use which is required by 40 CFR § 131.6 and also did not demonstrate protection of downstream use which is required by 40 CFR § 131.10(b).

The predominant source of evidence that was submitted to show that the aquatic life use was protected was a study completed by Buchanan et al. in 2003. This study surveyed fish that were present in the Arkansas portion of the Red River from 1995 to 2001. While the Buchanan study provides a historic reference, it only provides us with an understanding of the fish community in the Red River in 2001, not the current fish community. In addition, the Buchanan et al. 2003 study assessed presence and determined broad classifications of abundance (rare, uncommon, common, abundant). This gives us information about acute tolerances, but does not give us information about chronic tolerances. The presence of the fishes does not indicate that they are growing and reproducing at unimpaired rates. In addition, there was no discussion of the protection of the macroinvertebrate community in the Red River. Without additional information about the fish and macroinvertebrate community currently present in the Red River, EPA could not determine whether those communities are protected with the new criterion. Based on these concerns, EPA requested that additional information be submitted that demonstrated numeric tolerances of species that are found in the Red River. However, no additional data or information, only a representation of the Buchanan et al. 2003 study, was provided with which to assess the proposed criterion. Without additional supporting documentation, EPA was unable to assess whether the aquatic life use was being protected.

Downstream protection was also not demonstrated for this revised criterion. The proposed criterion is 860 mg/L and the downstream criterion in Louisiana is 780 mg/L. In the UAA submitted, the contractor reported the results of a mass-balance they performed using a 7Q-10 flow rate. These results showed predicted TDS concentrations at various spots in the Red River, including at the AR/LA state line. Also included in the UAA were the results of a second mass-balance performed by the contractor that used the same input values and model, but used a harmonic mean flow in place of a 7Q-10 flow rate. This second mass-balance was performed to justify that the proposed criterion is protective of LA uses. But the use of the harmonic mean flow is not appropriate. Louisiana does not use flow when they are assessing their minerals criteria. Rather, when the State samples for minerals it determines whether the concentration is above the criteria in more than 30% of the samples collected. Given that this is how they perform their assessment, a criterion above the 780 mg/L could cause an impairment in LA waters and is not protective of downstream uses.

Action

EPA is disapproving the site-specific TDS criterion change for the Red River from its confluence with the Little River to the AR/LA state line. Protection of aquatic life use was not demonstrated and downstream uses were not protected with this criterion.

As specified in 40 CFR § 131.21(c), this revised standard does not go into effect for CWA purposes until approved by EPA. Therefore, the previously approved criterion of 500 mg/L remains in effect for CWA purposes.

IV. References

Buchanan, T.M., D. Wilson, L.G. Claybrook, and W.G. Layher. 2003. Fishes of the Red River in Arkansas. *J. Ark. Acad. Sci.* 57:18-26.

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Tuesday, July 26, 2016 10:46 AM
To: Jim Malcolm
Cc: Clem, Sarah; Crocker, Philip
Subject: Additional SWEPCO information

Hi Jim,

Thank you for the additional information that you have sent over about the SWEPCO rulemaking. EPA understands from your previous email that SWEPCO is willing to move forward with a 780 mg/L criteria for the lower Red River. The EPA believes this number will address issues of downstream protection. Unfortunately, since the previous 860 mg/L was adopted into Regulation No.2, a new rulemaking is going to have to occur for the 780 mg/L value to be considered. In order to allow this to happen, EPA is disapproving the previous 860 mg/L and the issues that we discussed during the previous conference call with downstream protection and protection of aquatic life use will be referenced in that technical support document. However with this email we wanted to recognize that we appreciate the additional information that you have put together for us and wanted to provide some feedback for the next rulemaking action.

After looking through the preliminary information that you have gathered and the follow up email indicating that SWEPCO would be willing to move forward with a TDS criteria of 780 mg/L, I believe this information resolves the downstream protection concern and sufficiently adds to your weight-of-evidence demonstrating aquatic life protection. While this is only a preliminary assessment, I believe this information helps address our two concerns with the rulemaking. We appreciate you putting together the additional information on the benthic species and the tolerance values. The tolerance values are along the lines of evidence that we were hoping for, but I wanted to offer some suggestions that might make the information more useful for our evaluation. I would recommend not averaging all the test metrics together, as they measure different outcomes for the organisms, some lethal and some sublethal. As each of the metrics measures slightly different outcomes, I would recommend only averaging alike metrics together. You could possibly add on an additional assessment that is an average of all the lethal and then all the sublethal metrics if you would like. The other piece of information that I think would be useful for the assessment of tolerance values would be the hardness values of the experiments, if they are available. Also, if there are hardness values of the Red River with which to compare this to that would also be useful information as the hardness can impact the toxicity of the minerals. Also, I recognize that the information sent over was preliminary, but if a final excel file with tolerance values is included in the new submission, please include units for each of the columns.

Please let me know if you have any questions.

Thank you,
Karen

Karen Kesler, Ph. D.
Water Quality Standards Coordinator
Water Division
EPA Region 6
(214)665-3185

Heather Ferguson

From: Jim Malcolm [jtm@ftn-assoc.com]
Sent: Tuesday, July 26, 2016 11:13 AM
To: 'Kesler, Karen'
Cc: 'Clem, Sarah'; 'Crocker, Philip'; 'Philip Massirer'; Patrick J. Downey; James Malcolm
Subject: RE: Additional SWEPCO information

Hi Karen, this is really helpful and provides SWEPCO with the clear message from EPA that the revised proposed TDS criterion will address/resolve the downstream protection concern so that they can proceed with formalizing the revised criterion to the 780 mg/L value through the AR procedures in order to get it formally back in front of EPA for review/approval. As a further note, we will modify the tolerance value analysis as you have suggested below (i.e. only averaging alike metrics together) and circle back to that data to also search for hardness values to be included where we can find them. This revised information will be provided to EPA as soon as we prepare it and it will be part of the supplemental technical support/weight of evidence information that is submitted with the revised criterion also.

Thanks again, don't hesitate to let me or Sarah know if you, Phil, Russell or others have further questions or comments.

Sincerely, Jim

Jim Malcolm
jtm@ftn-assoc.com

FTN Associates
3 Innwood Circle, Suite 220
Little Rock, AR 72211
----
(501) 225-7779 *work*
(501) 412-8185 *mobile*
www.ftn-assoc.com *webpage*

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Tuesday, July 26, 2016 10:46 AM
To: Jim Malcolm
Cc: Clem, Sarah; Crocker, Philip
Subject: Additional SWEPCO information

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Please let me know if you have any questions.

Thank you,
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Water Quality Standards Coordinator
Water Division
EPA Region 6
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Heather Ferguson

From: Allan Gates [AGates@mwlaw.com]
Sent: Thursday, August 11, 2016 11:32 AM
To: Honker, William (honker.william@epa.gov)
Cc: osbornec@adeq.state.ar.us; Kesler.karen@Epa.gov
Subject: SWEPCO 3rd Party Rulemaking -- TDS Site Specific Criterion in Lower Reach of the Red River in Arkansas

Dear Bill,

I am writing to follow up on the conversation we had last Friday when you were in Little Rock.

As you know, your staff and FTN, the consultants working with SWEPCO in the above-styled rulemaking, have discussed the possibility of asking the Arkansas Pollution Control & Ecology Commission to reopen the SWEPCO rulemaking in order to reduce the new site specific TDS criterion in the lower reach of the Red River from 860 mg/L to 780 mg/L.

SWEPCO is willing to present such a request to the APC&E Commission, but only if it has confidence that such a change will ultimately be approved by EPA. The company does not want to ask the Commission to revisit this subject only to find out later that EPA will not approve the change.

For your convenience, I have reproduced below a recent e-mail exchange between Karen Kesler and Jim Malcolm. It is my understanding from our conversation that you are aware of this exchange and agree with the assessment it reflects.

To avoid any misunderstanding I would appreciate it if you would confirm whether my understanding on this subject is correct. I would also appreciate it if you would let me know if you are aware of any reason why you or your staff might have any problem approving a new TDS site specific criterion of 780 mg/L in the lower reach of the Red River in Arkansas using the data already generated and submitted.

Thank you in advance for your attention to this inquiry.

Needless to say, if you have any questions please do not hesitate to call or send me an e-mail.

Best regards,

Allan

MITCHELL | WILLIAMS

Allan Gates
T 501.688.8816 | F 501.918.7816
agates@mwlaw.com | MitchellWilliamsLaw.com
425 W. Capitol Ave. | Ste. 1800 | Little Rock, AR 72201
Mitchell, Williams, Selig, Gates & Woodyard, P.L.L.C.

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MITCHELL | WILLIAMS

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Mitchell, Williams, Selig, Gates & Woodyard, P.L.L.C.

Heather Ferguson

From: Allan Gates [AGates@mwlaw.com]
Sent: Monday, August 22, 2016 12:55 PM
To: 'jtm@ftn-assoc.com'
Subject: FW: SWEPCO 3rd Party Rulemaking -- TDS Site Specific Criterion inLower Reach of the Red River in Arkansas [WARNING: SPF validation failed]

From: Honker, William [mailto:honker.william@epa.gov]
Sent: Friday, August 12, 2016 1:27 PM
To: Allan Gates
Cc: osbornec@adeq.state.ar.us; Kesler, Karen; Watson, Jane; Crocker, Philip
Subject: RE: SWEPCO 3rd Party Rulemaking -- TDS Site Specific Criterion in Lower Reach of the Red River in Arkansas [WARNING: SPF validation failed]

Allan,

Thanks for your email concerning the SWEPCO rulemaking. I am aware of the email exchange below and concur with Karen Kesler's assessment of the situation. To clarify a couple of points regarding your inquiry:

- As you know, we disapproved the portion of the SWEPCO rulemaking that dealt with a TDS change for the lower Red River. It is our understanding that a new rulemaking would have to be undertaken if SWEPCO would like to propose a 780 mg/L criteria for TDS for the lower Red River.
- Regarding the Buchanan study, it can be used as supporting evidence, but it needs to be submitted in conjunction with tolerance values for species found in the Red River (or as closely related as they can find) and the benthic data that the applicant has for the Red River. All the pieces are needed for the justification, not solely the Buchanan study. Dr. Kesler's email below outlines recommendations for such data.

As we discussed last week, ADEQ will be the applicant's primary point of contact for any future proposal. However, I also encourage the applicant to solicit and incorporate input from my staff early in any subsequent rulemaking process, in order to promote early resolution of any issues. Of course, we cannot guarantee a specific outcome for a future rulemaking request. Our final decision on such a request must be based on the final submission and the quality of the information contained therein.

Bill

William K. Honker, P.E.
Director, Water Division (6WQ)
EPA Region 6
Dallas, TX
214-665-3187
http://www.epa.gov/region6/water/index.htm

From: Allan Gates [mailto:AGates@mwlaw.com]
Sent: Thursday, August 11, 2016 11:32 AM
To: Honker, William <honker.william@epa.gov>
Cc: osbornec@adeq.state.ar.us; Kesler, Karen <Kesler.Karen@epa.gov>
Subject: SWEPCO 3rd Party Rulemaking -- TDS Site Specific Criterion in Lower Reach of the Red River in Arkansas [WARNING: SPF validation failed]

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Thank you in advance for your attention to this inquiry.

Needless to say, if you have any questions please do not hesitate to call or send me an e-mail.

Best regards,

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Heather Ferguson

From:	Heather Ferguson [hlf@ftn-assoc.com]
Sent:	Tuesday, September 27, 2016 2:19 PM
To:	'Kesler.Karen@epa.gov'; Philip Crocker; Russell Nelson
Cc:	'Allan Gates'; 'Frank Mills'; Patrick Downey; James Malcolm; 'Sarah Clem'
Subject:	Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas
Attachments:	Dissolved minerals lethal and sublethal endpoints and hardness 2016-09-27.xlsx; 2016-09-27 M-K Kesler.pdf

Tracking:

Recipient	Read
'Kesler.Karen@epa.gov'	
Philip Crocker	
Russell Nelson	
'Allan Gates'	
'Frank Mills'	
Patrick Downey	
James Malcolm	
'Sarah Clem'	
PJD	Read: 9/27/2016 4:00 PM

Good afternoon Karen,

On behalf of Southwestern Electric Power Company, please find attached the requested supplemental information for dissolved minerals tolerance values.

The attached information includes a memorandum that briefly describes our approach to obtaining the information you requested and a spreadsheet summarizing lethal and sublethal toxicity endpoints and associated hardness values. We believe this information satisfies your request and demonstrates through a weight-of-evidence approach the protection of aquatic life in the downstream reach of the Red River.

If you have any questions or comments regarding the attached information, please do not hesitate to call Jim Malcolm, Pat Downey, or me at (501) 225-7779.

Respectfully submitted,

Heather Ferguson
FTN Associates, Ltd.
3 Innwood Circle, Suite 220 • Little Rock, AR 72211 (501) 225-7779 • fax (501) 225-6738
hlf@ftn-assoc.com http://www.ftn-assoc.com

Associates Ltd.
water resources / environmental consultants
3 Innwood Circle, Suite 220 • Little Rock, AR 72211 • (501) 225-7779 • Fax (501) 225-6738

MEMORANDUM

DATE: September 27, 2016

TO: **Karen Kesler, PhD**
United States Environmental Protection Agency, Region VI

FROM: **Pat Downey, Jim Malcolm**
FTN Associates, Ltd.

SUBJECT: Lethal and Sublethal Tolerance Values for Dissolved Minerals
FTN No. R06510-0010-002

On behalf of Southwestern Electric Power Company (SWEPCO), FTN Associates, Ltd. (FTN) appreciates the opportunity to offer supplemental information regarding lethal and sublethal tolerance values for dissolved minerals.

Per your request in an email to Jim Malcolm dated July 26, 2016, we reorganized the data set of tolerance values to summarize the values by lethal and sublethal endpoints. The attached spreadsheets summarize the lethal and sublethal endpoints. The spreadsheet tab titled "filter criteria" provides the list of steps taken to filter through the records and eliminate records that would not be useful in this comparison (such as studies that contained confounding factors or studies performed on species not found in North America).

You also requested hardness values associated with the toxicity values, which we were able to obtain for some studies in EPA's ECOTOX database or from the publication from which the tolerance values were derived. The tolerance values reported herein are from laboratory tests in which laboratory water was spiked with a particular salt of interest. When the experiment involves calcium- or magnesium-based salts of chloride or sulfate, the addition of chloride or sulfate automatically includes the addition of hardness. For example, a calcium chloride endpoint value (e.g., an LC50) of 1,000 mg/L automatically corresponds to a hardness of 1,330 mg/L. Therefore, all of the endpoints based on calcium or magnesium salts will be confounded with high levels of hardness. Endpoints based on sodium salts do not have this property. The attached spreadsheet includes two tabs that provide pairings of lethal and sublethal endpoints with hardness values. These would be the most appropriate data to use to evaluate hardness and toxicity.

If you have any questions or comments regarding this information, please do not hesitate to call Jim Malcolm, Pat Downey, or Heather Ferguson at (501) 225-7779.

CC: Philip Crocker, EPA Region 6 (with attachments)
Russell Nelson, EPA Region 6 (with attachments)
Sarah Clem, Arkansas Department of Environmental Quality (with attachments)
Frank Mills, American Electric Power (with attachments)
Allan Gates, Mitchell Williams Law (with attachments)

R:\WP_FILES\06510-0010-002\CORRESPONDENCE\2016-09-27 M-K KESLER -- SUPPLEMENTAL TOLERANCE VALUES AND HARDNESS DATA TO EPA\2016-09-27 M-K KESLER.DOCX

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Lethal endpoints for calcium-, magnesium-, and sodium-based salts of chloride and sulfate.

Chemical	Species	Statistic	ENDPOINT (mg/L) LC00 (NR-ZERO)	LC50/ EC50	LC100 (NR-LETH)	LOEL/LOEC	NOEL/NOEC
Calcium chloride	*Biomphalaria pfeifferi*	Minimum	1,000				
		Mean	1,000				
		Maximum	1,000				
		N	1				
	Ceriodaphnia dubia	Minimum	401	1,250	1,599		
		Mean	721	1,898	1,599		
		Maximum	800	2,260	1,599		
		N	5	4	3		
	Cyprinodon variegatus	Minimum		4,970			
		Mean		4,970			
		Maximum		4,970			
		N		1			
	Daphnia hyalina	Minimum		3,000			
		Mean		3,000			
		Maximum		3,000			
		N		1			
	Daphnia magna	Minimum	172	590	3,196		
		Mean	833	1,826	3,724		
		Maximum	1,196	3,526	4,780		
		N	5	13	3		
	Dreissena polymorpha	Minimum			10,000		
		Mean			10,000		
		Maximum			10,000		
		N			8		
	Gambusia affinis	Minimum		13,400			
		Mean		13,400			
		Maximum		13,400			
		N		3			
	Ictalurus punctatus	Minimum			10,000		
		Mean			10,000		
		Maximum			10,000		
		N			2		
	Lepomis macrochirus	Minimum	10,000	8,350			
		Mean	10,000	10,086			
		Maximum	10,000	11,300			
		N	3	7			
	Lymnaea sp.	Minimum		2,573			
		Mean		3,365			
		Maximum		4,485			
		N		4			
	Micropterus dolomieu	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	2				
	Morone saxatilis ssp. x chrysops	Minimum	43				
		Mean	43				
		Maximum	43				
		N	1				

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Lethal endpoints for calcium-, magnesium-, and sodium-based salts of chloride and sulfate.

Chemical	Species	Statistic	ENDPOINT (mg/L) LC00 (NR-ZERO)	LC50/ EC50	LC100 (NR-LETH)	LOEL/LOEC	NOEL/NOEC
Calcium chloride (cont.)	*Oryzias latipes*	Minimum		> 1,000			
		Mean		> 1,000			
		Maximum		> 1,000			
		N		6			
	Pimephales promelas	Minimum		2,110	2,640		
		Mean		4,990	8,072		
		Maximum		> 6,660	20,000		
		N		4	10		
	Sander vitreus	Minimum	10,000		20,000		
		Mean	10,000		20,000		
		Maximum	10,000		20,000		
		N	3		1		
Magnesium chloride	*Austropotamobius pallipes ssp. pallipes*	Minimum		270			
		Mean		370			
		Maximum		480			
		N		3			
	Ceriodaphnia dubia	Minimum	467	880	933		
		Mean	467	1,075	933		
		Maximum	467	1,270	933		
		N	2	2	2		
	Daphnia magna	Minimum	467	1,330	1,491		
		Mean	548	2,693	1,861		
		Maximum	747	3,699	2,044		
		N	4	5	5		
	Gambusia affinis	Minimum		16,500			
		Mean		17,667			
		Maximum		18,750			
		N		3			
	Orconectes limosus	Minimum		440			
		Mean		590			
		Maximum		760			
		N		3			
	Pimephales promelas	Minimum		2,120			
		Mean		2,827			
		Maximum		3,520			
		N		3			
Sodium chloride	*Acipenser sinensis*	Minimum	616				
		Mean	616				
		Maximum	616				
		N	1				
	Acroneuria abnormis	Minimum	10,000	> 10,000			
		Mean	10,000	> 10,000			
		Maximum	10,000	> 10,000			
		N	1	1			
	Agnetina capitata	Minimum	10,000	> 10,000			
		Mean	10,000	> 10,000			
		Maximum	10,000	> 10,000			
		N	2	1			

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Chemical	Species	Statistic	ENDPOINT (mg/L) LC00 (NR-ZERO)	LC50/ EC50	LC100 (NR-LETH)	LOEL/LOEC	NOEL/NOEC
Sodium chloride (cont.)	*Anguilla rostrata*	Minimum		17,880			
		Mean		19,665			
		Maximum		21,450			
		N		2			
	Argia sp.	Minimum		23,000			
		Mean		27,375			
		Maximum		32,000			
		N		8			
	Asellus communis	Minimum		5,100			
		Mean		7,095			
		Maximum		> 10,000			
		N		11			
	Biomphalaria alexandrina	Minimum			3,700		
		Mean			4,120		
		Maximum			4,600		
		N			5		
	Brachionus calyciflorus	Minimum		1,645			
		Mean		1,645			
		Maximum		1,645			
		N		1			
	Brachycentrus numerosus	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	1				
	Bulinus truncatus	Minimum			2,600		
		Mean			2,600		
		Maximum			2,600		
		N			1		
	Caenorhabditis elegans	Minimum		22,457		20,550	20,500
		Mean		24,524		20,775	20,725
		Maximum		25,786		21,000	20,950
		N		6		2	2
	Carassius auratus	Minimum		6,800			
		Mean		8,154			
		Maximum		10,100			
		N		9			
	Carassius carassius	Minimum		13,750			
		Mean		13,750			
		Maximum		13,750			
		N		1			
	Ceriodaphnia dubia	Minimum	467	132	1,701	300	< 300
		Mean	881	1,453	2,442	2,306	1,182
		Maximum	1,250	3,380	4,500	5,000	2,500
		N	9	44	7	32	32
	Ceriodaphnia reticulata	Minimum		1,250			
		Mean		1,250			
		Maximum		1,250			
		N		1			

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Chemical	Species	Statistic	ENDPOINT (mg/L) LC00 (NR-ZERO)	LC50/ EC50	LC100 (NR-LETH)	LOEL/LOEC	NOEL/NOEC
Sodium chloride (cont.)	*Channa punctata*	Minimum	1,200	12,000			
		Mean	1,200	12,000			
		Maximum	1,200	12,000			
		N	1	1			
	Chironomus dilutus	Minimum	4,940	5,793	7,810	7,810	4,940
		Mean	6,375	5,993	9,073	7,810	4,940
		Maximum	7,810	6,280	11,600	7,810	4,940
		N	2	4	3	1	1
	Chironomus tentans	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	1				
	Clarias batrachus	Minimum		14,040			
		Mean		14,040			
		Maximum		14,040			
		N		1			
	Clarias gariepinus	Minimum		610			
		Mean		655			
		Maximum		700			
		N		2			
	Corbicula manilensis	Minimum	4,850		10,800		
		Mean	4,850		10,800		
		Maximum	4,850		10,800		
		N	1		1		
	Cricotopus trifasciatus	Minimum		6,221			
		Mean		6,221			
		Maximum		6,221			
		N		1			
	Culex sp.	Minimum		10,200			
		Mean		10,350			
		Maximum		10,500			
		N		2			
	Culiseta incidens	Minimum		4,700	13,000		
		Mean		4,700	13,000		
		Maximum		4,700	13,000		
		N		1	1		
	Cyprinella leedsi	Minimum	3,100	6,070	7,810		
		Mean	4,020	6,120	7,810		
		Maximum	4,940	6,137	7,810		
		N	2	4	2		
	Daphnia ambigua	Minimum		2,000		850	440
		Mean		2,000		850	440
		Maximum		2,000		850	440
		N		1		1	1
	Daphnia magna	Minimum	280	> 467	4,321		
		Mean	1,902	4,643	5,065		
		Maximum	3,466	7,500	8,000		
		N	21	24	12		

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Sodium chloride (cont.)	*Daphnia pulex*	Minimum	441	1,250			
		Mean	441	1,883			
		Maximum	441	3,050			
		N	1	4			
	Dreissena polymorpha	Minimum			10,000		
		Mean			15,000		
		Maximum			20,000		
		N			2		
	Elliptio complanata	Minimum		2,230			
		Mean		2,450			
		Maximum		2,670			
		N		2			
	Epioblasma torulosa ssp. rangiana	Minimum		244			
		Mean		244			
		Maximum		244			
		N		1			
	Erpobdella punctata	Minimum		7,500			
		Mean		8,000			
		Maximum		> 10,000			
		N		5			
	Fundulus seminolis	Minimum	16,000		24,000		
		Mean	16,000		24,000		
		Maximum	16,000		24,000		
		N	1		1		
	Gambusia affinis	Minimum		17,550			
		Mean		17,917			
		Maximum		18,100			
		N		3			
	Gambusia holbrooki	Minimum		11,540			
		Mean		11,540			
		Maximum		11,540			
		N		1			
	Gammarus pseudolimnaeus	Minimum	10,000	7,700			
		Mean	10,000	7,700			
		Maximum	10,000	7,700			
		N	1	1			
	Gammarus roeseli	Minimum		8,530			
		Mean		10,757			
		Maximum		12,600			
		N		6			
	Gyraulus circumstriatus	Minimum		3,200			
		Mean		6,020			
		Maximum		> 10,000			
		N		5			
	Gyraulus parvus	Minimum		3,009			
		Mean		3,044			
		Maximum		3,078			
		N		2			

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Chemical	Species	Statistic	ENDPOINT (mg/L)				
			LC00 (NR-ZERO)	LC50/ EC50	LC100 (NR-LETH)	LOEL/LOEC	NOEL/NOEC
Sodium chloride (cont.)	*Hyalella azteca*	Minimum		1,200			
		Mean		1,322			
		Maximum		1,510			
		N		5			
	Hydroptila angusta	Minimum		6,621			
		Mean		6,621			
		Maximum		6,621			
		N		1			
	Ictalurus punctatus	Minimum	10,000		20,000		
		Mean	10,000		20,000		
		Maximum	10,000		20,000		
		N	2		1		
	Isonychia bicolor	Minimum				1,000	500
		Mean				2,875	2,850
		Maximum				4,000	8,000
		N				8	10
	Lampsilis cardium	Minimum		817			
		Mean		817			
		Maximum		817			
		N		1			
	Lampsilis fasciola	Minimum		113			
		Mean		1,498			
		Maximum		3,980			
		N		9			
	Lampsilis siliquoidea	Minimum		168			
		Mean		1,806			
		Maximum		4,560			
		N		10			
	Lepomis macrochirus	Minimum	5,220	1,295	9,103		
		Mean	8,407	9,430	9,103		
		Maximum	10,000	14,125	9,103		
		N	3	5	1		
	Ligumia recta	Minimum		2,510			
		Mean		3,130			
		Maximum		3,750			
		N		2			
	Limnodrilus hoffmeisteri	Minimum		5,800			
		Mean		6,381			
		Maximum		> 7,500			
		N		8			
	Lirceus fontinalis	Minimum		2,970	4,580		
		Mean		2,970	4,580		
		Maximum		2,970	4,580		
		N		1	1		
	Lumbriculus variegatus	Minimum	3,100	3,100	7,810	4,940	3,100
		Mean	4,480	5,012	7,810	4,940	3,100
		Maximum	4,940	5,589	7,810	4,940	3,100
		N	4	5	4	1	1

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Sodium chloride (cont.)	*Lymnaea sp.*	Minimum		3,388	2,600		
		Mean		3,400	2,600		
		Maximum		3,412	2,600		
		N		2	1		
	Maccaffertium mexicanum ssp. integrum	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	1				
	Maccaffertium sp.	Minimum				1,000	500
		Mean				4,714	2,786
		Maximum				10,000	8,000
		N				7	7
	Morone saxatilis	Minimum	< 1,000	1,000	2,000		
		Mean	2,875	3,563	4,375		
		Maximum	7,000	> 7,000	> 7,000		
		N	8	8	8		
	Musculium transversum	Minimum		1,930			
		Mean		1,930			
		Maximum		1,930			
		N		1			
	Nais variabilis	Minimum		2,569			
		Mean		2,569			
		Maximum		2,569			
		N		1			
	Nephelopsis obscura	Minimum	5,340	4,270	5,340	5,340	3,320
		Mean	5,340	4,280	6,133	5,340	3,320
		Maximum	5,340	4,310	7,720	5,340	3,320
		N	3	4	3	1	1
	Perca flavescens	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	2				
	Physa gyrina	Minimum		2,540	5,060		
		Mean		2,540	5,060		
		Maximum		2,540	5,060		
		N		1	1		
	Physa heterostropha	Minimum		3,500			
		Mean		5,068			
		Maximum		7,500			
		N		17			
	Pimephales promelas	Minimum	3,035	4,079	6,069	201	252
		Mean	5,226	7,685	11,126	3,910	2,109
		Maximum	10,000	11,400	20,000	8,000	4,000
		N	13	57	3	35	33
	Planorbella campanulata	Minimum		6,150			
		Mean		7,190			
		Maximum		> 10,000			
		N		5			

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Sodium chloride (cont.)	*Poecilia latipinna*	Minimum		16,595			
		Mean		17,665			
		Maximum		18,735			
		N		2			
	Poecilia reticulata	Minimum	7,720	> 11,700			
		Mean	9,710	> 11,700			
		Maximum	11,700	> 11,700			
		N	2	1			
	Pycnopsyche guttifera	Minimum	10,000	3,526			
		Mean	10,000	3,526			
		Maximum	10,000	3,526			
		N	2	1			
	Pycnopsyche lepida	Minimum	10,000	3,526			
		Mean	10,000	3,526			
		Maximum	10,000	3,526			
		N	2	1			
	Rocio octofasciata	Minimum	4,000				
		Mean	4,000				
		Maximum	4,000				
		N	1				
	Sander vitreus	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	2				
	Sphaerium simile	Minimum		740			
		Mean		920			
		Maximum		1,100			
		N		2			
	Sphaerium sp.	Minimum		1,100			
		Mean		1,613			
		Maximum		2,400			
		N		8			
	Stenacron interpunctatum	Minimum	10,000				
		Mean	10,000				
		Maximum	10,000				
		N	1				
	Tipula abdominalis	Minimum	10,000	> 10,000			
		Mean	10,000	> 10,000			
		Maximum	10,000	> 10,000			
		N	2	1			
	Tubifex tubifex	Minimum		4,278			
		Mean		5,311			
		Maximum		6,008			
		N		3			
	Villosa constricta	Minimum		2,590			
		Mean		2,675			
		Maximum		2,760			
		N		2			

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Sodium chloride (cont.)	*Villosa delumbis*	Minimum		3,310			
		Mean		4,057			
		Maximum		5,230			
		N		3			
Calcium sulfate	*Ceriodaphnia dubia*	Minimum	765	> 1,910			
		Mean	1,126	1,940			
		Maximum	1,470	> 1,970			
		N	6	3			
	Daphnia magna	Minimum	360	> 1,970			1,600
		Mean	998	> 1,970			1,600
		Maximum	1,470	> 1,970			1,600
		N	6	1			1
	Gambusia affinis	Minimum		> 56,000			
		Mean		> 56,000			
		Maximum		> 56,000			
		N		3			
	Lepomis macrochirus	Minimum		2,980			
		Mean		2,980			
		Maximum		2,980			
		N		2			
	Pimephales promelas	Minimum	1,470	> 1,970			
		Mean	1,470	> 1,970			
		Maximum	1,470	> 1,970			
		N	2	3			
Magnesium sulfate	*Biomphalaria alexandrina*	Minimum	1,000				
		Mean	1,000				
		Maximum	1,000				
		N	1				
	Bulinus truncatus	Minimum			4,000		
		Mean			4,000		
		Maximum			4,000		
		N			1		
	Ceriodaphnia dubia	Minimum	580	1,770	2,076		
		Mean	1,047	1,770	2,076		
		Maximum	1,394	1,770	2,076		
		N	7	2	6		
	Daphnia magna	Minimum	360	788	4,071		
		Mean	692	1,978	4,071		
		Maximum	1,079	4,300	4,071		
		N	5	8	2		
	Gambusia affinis	Minimum		15,500			
		Mean		15,500			
		Maximum		15,500			
		N		3			
	Heterorhabditis bacteriophora	Minimum					450
		Mean					450
		Maximum					450
		N					1

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Magnesium sulfate (cont.)	*Lepomis macrochirus*	Minimum		19,000			
		Mean		19,000			
		Maximum		19,000			
		N		1			
	Lymnaea sp.	Minimum		6,250			
		Mean		7,401			
		Maximum		10,530			
		N		4			
	Oryzias latipes	Minimum		> 1,000			
		Mean		> 1,000			
		Maximum		> 1,000			
		N		6			
	Pimephales promelas	Minimum	2,076	2,820			
		Mean	2,076	4,715			
		Maximum	2,076	7,900			
		N	1	4			
Sodium sulfate	*Amphipoda*	Minimum		880			
		Mean		1,313			
		Maximum		2,380			
		N		4			
	Biomphalaria alexandrina	Minimum			4,800		
		Mean			4,800		
		Maximum			4,800		
		N			1		
	Bulinus truncatus	Minimum			900		
		Mean			900		
		Maximum			900		
		N			1		
	Ceriodaphnia dubia	Minimum	1,772	914	2,989	1,300	610
		Mean	1,907	2,474	3,305	2,527	1,486
		Maximum	2,178	3,716	3,463	3,650	2,264
		N	6	69	6	9	11
	Chironomus tentans	Minimum		14,134			
		Mean		14,134			
		Maximum		14,134			
		N		1			
	Culex sp.	Minimum		11,430			
		Mean		12,390			
		Maximum		13,350			
		N		2			
	Daphnia magna	Minimum	927	630	5,492	7,460	3,650
		Mean	1,180	3,949	6,574	7,460	3,650
		Maximum	1,434	8,600	6,844	7,460	3,650
		N	2	23	5	1	1
	Gambusia affinis	Minimum		10,000			
		Mean		17,000			
		Maximum		24,000			
		N		4			

Toxicity Endpoint Definitions:

LC00 (NR-ZERO): the concentration at which no lethality was observed (100% survival)
LC50/EC50: the concentration at which 50% lethality was observed
LC100 (NR-LETH): the concentration at which 100% lethality was observed (0% survival)
LOEL/LOEC: the lowest-observed-effect level/concentration; the lowest concentration at which a statistically significant effect was observed (compared to the control group)
NOEL/NOEC: the no-observed-effect level/concentration; the highest concentration at which *no* statistically significant effect was observed (compared to the control group)

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Lethal endpoints for calcium-, magnesium-, and sodium-based salts of chloride and sulfate.

Chemical	Species	Statistic	ENDPOINT (mg/L) LC00 (NR-ZERO)	LC50/ EC50	LC100 (NR-LETH)	LOEL/LOEC	NOEL/NOEC
Sodium sulfate (cont.)	*Hyalella azteca*	Minimum	138	512	1,460	1,460	1,060
		Mean	390	2,230	1,460	1,853	1,404
		Maximum	642	5,259	1,460	3,650	1,637
		N	2	48	1	8	4
	Lampsilis siliquoidea	Minimum		1,702			
		Mean		2,882			
		Maximum		3,729			
		N		10			
	Lepomis macrochirus	Minimum		3,040			
		Mean		11,271			
		Maximum		17,500			
		N		8			
	Lymnaea sp.	Minimum		4	1,000		
		Mean		2,702	1,000		
		Maximum		5,401	1,000		
		N		4	1		
	Morone saxatilis	Minimum	100	56	1,000		
		Mean	1,350	600	3,125		
		Maximum	2,500	1,100	4,500		
		N	8	16	8		
	Pimephales promelas	Minimum	24	1,649		1,250	595
		Mean	300	6,699		3,713	1,721
		Maximum	906	15,200		5,500	2,900
		N	6	8		4	6
	Poecilia latipinna	Minimum		15,996			
		Mean		18,018			
		Maximum		20,040			
		N		2			
	Sphaerium simile	Minimum	1,502	2,078			
		Mean	1,502	2,403			
		Maximum	1,502	2,926			
		N	1	7			
	Culex sp. *(Sodium sulfate 1:1)*	Minimum		300			
		Mean		300			
		Maximum		300			
		N		2			

Toxicity Endpoint Definitions:
LC00 (NR-ZERO): the concentration at which no lethality was observed (100% survival)
LC50/EC50: the concentration at which 50% lethality was observed
LC100 (NR-LETH): the concentration at which 100% lethality was observed (0% survival)
LOEL/LOEC: the lowest-observed-effect level/concentration; the lowest concentration at which a statistically significant effect was observed (compared to the control group)
NOEL/NOEC: the no-observed-effect level/concentration; the highest concentration at which *no* statistically significant effect was observed (compared to the control group)

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Sublethal endpoints for calcium-, magnesium-, and sodium-based salts of chloride and sulfate.

Chemical	Species	Effect Measurement	Statistic	ENDPOINT (mg/L) EC50	IC50	LOEL/LOEC	NOEL/NOEC
Calcium chloride	*Ceriodaphnia dubia*	Reproduction	Minimum	750		1,106	638
			Mean	750		1,106	638
			Maximum	750		1,106	638
			N	1		1	1
	Ceriodaphnia sp.	Reproduction	Minimum			305	< 305
			Mean			305	< 305
			Maximum			305	< 305
			N			1	1
	Daphnia magna	Reproduction	Minimum	1,750		1,198	668
			Mean	1,750		1,198	668
			Maximum	1,750		1,198	668
			N	1		1	1
	Pimephales promelas	Growth	Minimum			> 1,410	1,410
			Mean			> 1,410	1,410
			Maximum			> 1,410	1,410
			N			1	1
Sodium chloride	*Brachionus calyciflorus*	Reproduction	Minimum		1,945	2,230	1,120
			Mean		1,945	2,230	1,120
			Maximum		1,945	2,230	1,120
			N		1	1	1
	Ceriodaphnia dubia	Reproduction	Minimum	> 467	161	250	130
			Mean	1,579	859	1,193	653
			Maximum	2,750	1,900	2,500	1,500
			N	4	39	46	59
	Ceriodaphnia sp.	Reproduction	Minimum			1,650	1,155
			Mean			1,650	1,155
			Maximum			1,650	1,155
			N			1	1
	Chironomus dilutus	Growth	Minimum		3,047	3,960	2,133
			Mean		3,047	3,960	2,133
			Maximum		3,047	3,960	2,133
			N		1	1	1
	Daphnia ambigua	Reproduction	Minimum	650		850	440
			Mean	650		850	440
			Maximum	650		850	440
			N	1		1	1
	Daphnia magna	Reproduction	Minimum	> 467	1,037	506	467
			Mean	2,359	1,037	1,583	808
			Maximum	4,250	1,037	2,160	1,296
			N	2	1	8	9
	Daphnia pulex	Growth	Minimum			441	314
			Mean			441	314
			Maximum			441	314
			N			1	1
		Reproduction	Minimum			441	314
			Mean			441	314
			Maximum			441	314
			N			2	2
	Hyalella azteca	Growth	Minimum		2,298	4,237	2,210
			Mean		2,298	4,237	2,210
			Maximum		2,298	4,237	2,210
			N		1	1	1

Toxicity Endpoint Definitions:

EC50/IC50: the concentration at which a 50% inhibition or reduction of the associated effect measurement (e.g., growth, reproduction) is observed (compared to the control group)

LOEL/LOEC: the lowest-observed-effect level/concentration; the lowest concentration at which a statistically significant effect was observed (compared to the control group)

NOEL/NOEC: the no-observed-effect level/concentration; the highest concentration at which *no* statistically significant effect was observed (compared to the control group)

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Sublethal endpoints for calcium-, magnesium-, and sodium-based salts of chloride and sulfate.

Chemical	Species	Effect Measurement	Statistic	ENDPOINT (mg/L) EC50	IC50	LOEL/LOEC	NOEL/NOEC
Sodium chloride (cont.)	*Lumbriculus variegatus*	Reproduction	Minimum		1,366	366	< 366
			Mean		1,366	366	< 366
			Maximum		1,366	366	< 366
			N		1	1	1
	Pimephales promelas	Growth	Minimum		958	1,000	210
			Mean		958	3,041	1,673
			Maximum		958	10,000	5,000
			N		1	28	47
	Tubifex tubifex	Reproduction	Minimum		752	964	462
			Mean		752	964	462
			Maximum		752	964	462
			N		1	1	1
Calcium sulfate	*Daphnia magna*	Reproduction	Minimum				360
			Mean				980
			Maximum				1,600
			N				4
Magnesium sulfate	*Daphnia magna*	Reproduction	Minimum				360
			Mean				360
			Maximum				360
			N				2
Sodium sulfate	*Ceriodaphnia dubia*	Reproduction	Minimum	465	715	150	< 150
			Mean	1,050	1,199	1,150	710
			Maximum	1,458	2,061	3,650	1,301
			N	6	4	14	10
	Ceriodaphnia sp.	Reproduction	Minimum			2,220	< 2,220
			Mean			2,220	< 2,220
			Maximum			2,220	< 2,220
			N			1	1
	Corbicula manilensis	Growth	Minimum			1,500	1,500
			Mean			1,500	1,500
			Maximum			1,500	1,500
			N			2	2
	Hyalella azteca	Reproduction	Minimum	> 2,412		2,412	1,637
			Mean	> 2,412		2,412	1,637
			Maximum	> 2,412		2,412	1,637
			N	1		1	1
	Pimephales promelas	Growth	Minimum			220	< 220
			Mean			220	760
			Maximum			220	1,301
			N			1	2

Toxicity Endpoint Definitions:

EC50/IC50: the concentration at which a 50% inhibition or reduction of the associated effect measurement (e.g., growth, reproduction) is observed (compared to the control group)

LOEL/LOEC: the lowest-observed-effect level/concentration; the lowest concentration at which a statistically significant effect was observed (compared to the control group)

NOEL/NOEC: the no-observed-effect level/concentration; the highest concentration at which *no* statistically significant effect was observed (compared to the control group)

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
160619	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	LC50	2,260	80		100	mg/L CaCO3
160620	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	LC50	1,830	80		100	mg/L CaCO3
768180	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-LETH	1,599	*80*		*100*	mg/L CaCO3
768284	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-LETH	1,599	*80*		*100*	mg/L CaCO3
768182	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-LETH	1,599	*80*		*100*	mg/L CaCO3
767342	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-ZERO	800	*80*		*100*	mg/L CaCO3
768283	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-ZERO	800	*80*		*100*	mg/L CaCO3
768183	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-ZERO	800	*80*		*100*	mg/L CaCO3
768181	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-ZERO	800	*80*		*100*	mg/L CaCO3
768286	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	NR-ZERO	401	*80*		*100*	mg/L CaCO3
160622	Calcium chloride (CaCl2)	*Daphnia magna*	LC50	2,770	80		100	mg/L CaCO3
160621	Calcium chloride (CaCl2)	*Daphnia magna*	LC50	3,250	80		100	mg/L CaCO3
768399	Calcium chloride (CaCl2)	*Daphnia magna*	NR-LETH	3,196	*80*		*100*	mg/L CaCO3
768396	Calcium chloride (CaCl2)	*Daphnia magna*	NR-LETH	3,196	*80*		*100*	mg/L CaCO3
768457	Calcium chloride (CaCl2)	*Daphnia magna*	NR-LETH	4,780	*80*		*100*	mg/L CaCO3
768462	Calcium chloride (CaCl2)	*Daphnia magna*	NR-ZERO	1,196	*80*		*100*	mg/L CaCO3
768402	Calcium chloride (CaCl2)	*Daphnia magna*	NR-ZERO	800	*80*		*100*	mg/L CaCO3
768460	Calcium chloride (CaCl2)	*Daphnia magna*	NR-ZERO	1,196	*80*		*100*	mg/L CaCO3
768398	Calcium chloride (CaCl2)	*Daphnia magna*	NR-ZERO	800	*80*		*100*	mg/L CaCO3
2153763	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
2153676	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
740759	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
740760	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
740732	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
2153700	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
2153697	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
740761	Calcium chloride (CaCl2)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
740765	Calcium chloride (CaCl2)	*Ictalurus punctatus*	NR-LETH	10,000		140		mg/L CaCO3
740777	Calcium chloride (CaCl2)	*Ictalurus punctatus*	NR-LETH	10,000		140		mg/L CaCO3
196145	Calcium chloride (CaCl2)	*Lepomis macrochirus*	LC50	10,650		10		mg/L CaCO3
40507	Calcium chloride (CaCl2)	*Lepomis macrochirus*	LC50	10,650	6,314		11,900	mg/L CaCO3
740778	Calcium chloride (CaCl2)	*Lepomis macrochirus*	NR-ZERO	10,000		140		mg/L CaCO3
741717	Calcium chloride (CaCl2)	*Lepomis macrochirus*	NR-ZERO	10,000		140		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
2153801	Calcium chloride (CaCl2)	*Lepomis macrochirus*	NR-ZERO	10,000		140		mg/L CaCO3
2153798	Calcium chloride (CaCl2)	*Micropterus dolomieu*	NR-ZERO	10,000		140		mg/L CaCO3
740767	Calcium chloride (CaCl2)	*Micropterus dolomieu*	NR-ZERO	10,000		140		mg/L CaCO3
160623	Calcium chloride (CaCl2)	*Pimephales promelas*	LC50	> 6,660	80		100	mg/L CaCO3
160624	Calcium chloride (CaCl2)	*Pimephales promelas*	LC50	> 6,560	80		100	mg/L CaCO3
160625	Calcium chloride (CaCl2)	*Pimephales promelas*	LC50	4,630	80		100	mg/L CaCO3
768541	Calcium chloride (CaCl2)	*Pimephales promelas*	NR-LETH	4,780	*80*		*100*	mg/L CaCO3
768539	Calcium chloride (CaCl2)	*Pimephales promelas*	NR-LETH	4,780	*80*		*100*	mg/L CaCO3
741718	Calcium chloride (CaCl2)	*Pimephales promelas*	NR-LETH	10,000		140		mg/L CaCO3
2153836	Calcium chloride (CaCl2)	*Pimephales promelas*	NR-LETH	20,000		140		mg/L CaCO3
2153835	Calcium chloride (CaCl2)	*Pimephales promelas*	NR-LETH	20,000		140		mg/L CaCO3
740738	Calcium chloride (CaCl2)	*Pimephales promelas*	NR-LETH	10,000		140		mg/L CaCO3
740779	Calcium chloride (CaCl2)	*Sander vitreus*	NR-LETH	20,000		140		mg/L CaCO3
740744	Calcium chloride (CaCl2)	*Sander vitreus*	NR-ZERO	10,000		140		mg/L CaCO3
2153802	Calcium chloride (CaCl2)	*Sander vitreus*	NR-ZERO	10,000		140		mg/L CaCO3
740734	Calcium chloride (CaCl2)	*Sander vitreus*	NR-ZERO	10,000		140		mg/L CaCO3
160513	Magnesium chloride	*Ceriodaphnia dubia*	LC50	1,270	80		100	mg/L CaCO3
160514	Magnesium chloride	*Ceriodaphnia dubia*	LC50	880	80		100	mg/L CaCO3
768178	Magnesium chloride	*Ceriodaphnia dubia*	NR-LETH	933	*80*		*100*	mg/L CaCO3
768176	Magnesium chloride	*Ceriodaphnia dubia*	NR-LETH	933	*80*		*100*	mg/L CaCO3
768177	Magnesium chloride	*Ceriodaphnia dubia*	NR-ZERO	467	*80*		*100*	mg/L CaCO3
768277	Magnesium chloride	*Ceriodaphnia dubia*	NR-ZERO	467	*80*		*100*	mg/L CaCO3
160516	Magnesium chloride	*Daphnia magna*	LC50	1,330	80		100	mg/L CaCO3
160515	Magnesium chloride	*Daphnia magna*	LC50	1,560	80		100	mg/L CaCO3
768454	Magnesium chloride	*Daphnia magna*	NR-LETH	2,044	*80*		*100*	mg/L CaCO3
768393	Magnesium chloride	*Daphnia magna*	NR-LETH	1,864	*80*		*100*	mg/L CaCO3
768501	Magnesium chloride	*Daphnia magna*	NR-LETH	1,491	*80*		*100*	mg/L CaCO3
768451	Magnesium chloride	*Daphnia magna*	NR-LETH	2,044	*80*		*100*	mg/L CaCO3
768390	Magnesium chloride	*Daphnia magna*	NR-LETH	1,864	*80*		*100*	mg/L CaCO3
768392	Magnesium chloride	*Daphnia magna*	NR-ZERO	467	*80*		*100*	mg/L CaCO3
768395	Magnesium chloride	*Daphnia magna*	NR-ZERO	467	*80*		*100*	mg/L CaCO3
768456	Magnesium chloride	*Daphnia magna*	NR-ZERO	512	*80*		*100*	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Units
768503	Magnesium chloride	*Daphnia magna*	NR-ZERO	747	*80*		*100*	mg/L CaCO3
160517	Magnesium chloride	*Pimephales promelas*	LC50	3,520	80		100	mg/L CaCO3
160518	Magnesium chloride	*Pimephales promelas*	LC50	2,840	80		100	mg/L CaCO3
160519	Magnesium chloride	*Pimephales promelas*	LC50	2,120	80		100	mg/L CaCO3
2055980	Sodium chloride (NaCl)	*Acipenser sinensis*	NR-ZERO	616		22		mg/L CaCO3
12210	Sodium chloride (NaCl)	*Anguilla rostrata*	LC50	21,450	40		48	mg/L CaCO3
2455	Sodium chloride (NaCl)	*Anguilla rostrata*	LC50	17,880	40		48	mg/L CaCO3
231580	Sodium chloride (NaCl)	*Argia sp.*	LC50	26,000		100		ppm
231578	Sodium chloride (NaCl)	*Argia sp.*	LC50	> 32,000		20		ppm
231574	Sodium chloride (NaCl)	*Argia sp.*	LC50	> 32,000		100		ppm
231577	Sodium chloride (NaCl)	*Argia sp.*	LC50	24,000		100		ppm
231575	Sodium chloride (NaCl)	*Argia sp.*	LC50	26,000		100		ppm
231576	Sodium chloride (NaCl)	*Argia sp.*	LC50	24,000		100		ppm
231579	Sodium chloride (NaCl)	*Argia sp.*	LC50	32,000		20		ppm
231581	Sodium chloride (NaCl)	*Argia sp.*	LC50	23,000		100		ppm
231569	Sodium chloride (NaCl)	*Asellus communis*	LC50	6,150		100		ppm
231568	Sodium chloride (NaCl)	*Asellus communis*	LC50	6,800		100		ppm
231571	Sodium chloride (NaCl)	*Asellus communis*	LC50	> 5,600		20		ppm
231567	Sodium chloride (NaCl)	*Asellus communis*	LC50	7,200		100		ppm
231573	Sodium chloride (NaCl)	*Asellus communis*	LC50	5,100		20		ppm
231572	Sodium chloride (NaCl)	*Asellus communis*	LC50	5,100		20		ppm
231563	Sodium chloride (NaCl)	*Asellus communis*	LC50	> 10,000		100		ppm
231566	Sodium chloride (NaCl)	*Asellus communis*	LC50	8,250		100		ppm
231570	Sodium chloride (NaCl)	*Asellus communis*	LC50	> 5,600		20		ppm
231565	Sodium chloride (NaCl)	*Asellus communis*	LC50	8,250		100		ppm
231564	Sodium chloride (NaCl)	*Asellus communis*	LC50	> 10,000		100		ppm
2152847	Sodium chloride (NaCl)	*Brachionus calyciflorus*	LC50	1,645	80		100	mg/L CaCO3
187905	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LC50	23,817	80		90	mg/L CaCO3
187903	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LC50	24,829	80		90	mg/L CaCO3
187902	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LC50	25,064	80		90	mg/L CaCO3
187901	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LC50	25,190	80		90	mg/L CaCO3
187906	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LC50	22,457	80		90	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
187904	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LC50	25,786	80		90	mg/L CaCO3
742006	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LOEL	20,550	*80*		*100*	mg/L CaCO3
742038	Sodium chloride (NaCl)	*Caenorhabditis elegans*	LOEL	21,000	*80*		*100*	mg/L CaCO3
742918	Sodium chloride (NaCl)	*Caenorhabditis elegans*	NOEL	20,500	*80*		*100*	mg/L CaCO3
742919	Sodium chloride (NaCl)	*Caenorhabditis elegans*	NOEL	20,950	*80*		*100*	mg/L CaCO3
167864	Sodium chloride (NaCl)	*Carassius auratus*	LC50	7,341		210		mg/L CaCO3
75451	Sodium chloride (NaCl)	*Carassius auratus*	LC50	4,324		149		mg/L CaCO3
167863	Sodium chloride (NaCl)	*Carassius auratus*	LETC	7,322		210		mg/L CaCO3
160319	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	3,380	80		100	mg/L CaCO3
160320	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,960	80		100	mg/L CaCO3
207716	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	*2,250*	94	102	104	mg/L CaCO3
207717	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	~ 2,000	94	102	104	mg/L CaCO3
741686	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,590	54		72	mg/L CaCO3
741547	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	> 467	100	101	103	mg/L CaCO3
2152724	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	*2,750*		98		mg/L CaCO3
2152723	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	*2,750*		98		mg/L CaCO3
2152825	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,068	80		100	mg/L CaCO3
2153271	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	540		40		mg/L CaCO3
2153268	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	316		20		mg/L CaCO3
2153274	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,134		80		mg/L CaCO3
2152874	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	132		10		mg/L CaCO3
2153277	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,240		160		mg/L CaCO3
2153280	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,303		320		mg/L CaCO3
2075467	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,489	276	278	280	mg/L CaCO3
2075442	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,836	792	796	800	mg/L CaCO3
2075434	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,779	560	565	570	mg/L CaCO3
2075468	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,317	280	282	283	mg/L CaCO3
2075410	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,249	95	96	96	mg/L CaCO3
2075471	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,192	278	279	280	mg/L CaCO3
2075466	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,356	279	280	280	mg/L CaCO3
2075469	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,357	280	281	281	mg/L CaCO3
2075470	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,154	280	285	290	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
2074934	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	977	25	28	30	mg/L CaCO3
2075402	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	861	44	47	49	mg/L CaCO3
2075426	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,589	375	388	400	mg/L CaCO3
2075418	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LC50	1,402	180	187	194	mg/L CaCO3
742567	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,200	54		72	mg/L CaCO3
767903	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
766864	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	5,000	*80*		*100*	mg/L CaCO3
767897	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767961	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767879	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767895	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767872	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767959	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767870	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767967	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
766872	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
766866	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767889	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767856	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767969	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767846	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767953	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767887	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767881	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767975	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767864	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767862	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767848	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
767854	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	2,500	*80*		*100*	mg/L CaCO3
741687	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,700	54		72	mg/L CaCO3
767855	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767904	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
766865	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	2,500	*80*		*100*	mg/L CaCO3
767898	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767962	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767880	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767896	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767873	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767960	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767871	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767968	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
766873	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
766867	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767890	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767857	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767970	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767847	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	620	*80*		*100*	mg/L CaCO3
767954	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767888	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767882	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767976	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767865	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767863	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
767849	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768272	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-LETH	1,701	*80*		*100*	mg/L CaCO3
768340	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-LETH	3,035	*80*		*100*	mg/L CaCO3
768268	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-LETH	1,701	*80*		*100*	mg/L CaCO3
768173	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-LETH	1,701	*80*		*100*	mg/L CaCO3
741695	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-LETH	2,260	54		72	mg/L CaCO3
741699	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-LETH	2,200	54		72	mg/L CaCO3
768266	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	760	*80*		*100*	mg/L CaCO3
768264	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	760	*80*		*100*	mg/L CaCO3
768175	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	872	*80*		*100*	mg/L CaCO3
207718	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	*1,250*	94	102	104	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
207719	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	*1,250*	94	102	104	mg/L CaCO3
207721	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	*1,250*	94	102	104	mg/L CaCO3
741660	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	850	54		72	mg/L CaCO3
742530	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	467	100	101	103	mg/L CaCO3
2152722	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NR-ZERO	467		98		mg/L CaCO3
741435	Sodium chloride (NaCl)	*Ceriodaphnia reticulata*	LC50	*1,250*		84		ppm
2060209	Sodium chloride (NaCl)	*Chironomus dilutus*	EC01	4,163		296		mg/L CaCO3
2060210	Sodium chloride (NaCl)	*Chironomus dilutus*	EC05	4,640		296		mg/L CaCO3
2060211	Sodium chloride (NaCl)	*Chironomus dilutus*	EC10	4,917		296		mg/L CaCO3
2060212	Sodium chloride (NaCl)	*Chironomus dilutus*	EC15	5,113		296		mg/L CaCO3
2060213	Sodium chloride (NaCl)	*Chironomus dilutus*	EC20	5,274		296		mg/L CaCO3
2060214	Sodium chloride (NaCl)	*Chironomus dilutus*	EC25	5,417		296		mg/L CaCO3
2060216	Sodium chloride (NaCl)	*Chironomus dilutus*	EC40	5,793		296		mg/L CaCO3
2060217	Sodium chloride (NaCl)	*Chironomus dilutus*	EC60	6,280		296		mg/L CaCO3
2060218	Sodium chloride (NaCl)	*Chironomus dilutus*	EC75	6,717		296		mg/L CaCO3
2060220	Sodium chloride (NaCl)	*Chironomus dilutus*	EC80	6,898		296		mg/L CaCO3
2060221	Sodium chloride (NaCl)	*Chironomus dilutus*	EC85	7,116		296		mg/L CaCO3
2060222	Sodium chloride (NaCl)	*Chironomus dilutus*	EC90	7,399		296		mg/L CaCO3
2060223	Sodium chloride (NaCl)	*Chironomus dilutus*	EC95	7,840		296		mg/L CaCO3
2060225	Sodium chloride (NaCl)	*Chironomus dilutus*	EC99	8,740		296		mg/L CaCO3
2060201	Sodium chloride (NaCl)	*Chironomus dilutus*	LC50	6,032		296		mg/L CaCO3
2152838	Sodium chloride (NaCl)	*Chironomus dilutus*	LC50	5,867	80		100	mg/L CaCO3
2060236	Sodium chloride (NaCl)	*Chironomus dilutus*	LOEC	7,810		296		mg/L CaCO3
2060237	Sodium chloride (NaCl)	*Chironomus dilutus*	MATC	6,211		296		mg/L CaCO3
2060228	Sodium chloride (NaCl)	*Chironomus dilutus*	NOEC	4,940		296		mg/L CaCO3
2060247	Sodium chloride (NaCl)	*Chironomus dilutus*	NR-LETH	11,600		296		mg/L CaCO3
2060275	Sodium chloride (NaCl)	*Chironomus dilutus*	NR-LETH	7,810		296		mg/L CaCO3
2060254	Sodium chloride (NaCl)	*Chironomus dilutus*	NR-LETH	7,810		296		mg/L CaCO3
2060259	Sodium chloride (NaCl)	*Chironomus dilutus*	NR-ZERO	7,810		296		mg/L CaCO3
2060270	Sodium chloride (NaCl)	*Chironomus dilutus*	NR-ZERO	4,940		296		mg/L CaCO3
2211037	Sodium chloride (NaCl)	*Chironomus tentans*	NR-ZERO	10,000	140		160	ppm
2211025	Sodium chloride (NaCl)	*Corbicula manilensis*	NR-LETH	10,800	140		160	ppm

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
2211024	Sodium chloride (NaCl)	*Corbicula manilensis*	NR-ZERO	4,850	140		160	ppm
16495	Sodium chloride (NaCl)	*Cricotopus trifasciatus*	LC50	6,221		124		mg/L CaCO3
2060148	Sodium chloride (NaCl)	*Cyprinella leedsi*	LC50	6,070		296		mg/L CaCO3
2060157	Sodium chloride (NaCl)	*Cyprinella leedsi*	LC50	6,137		296		mg/L CaCO3
2060168	Sodium chloride (NaCl)	*Cyprinella leedsi*	LC50	6,137		296		mg/L CaCO3
2060161	Sodium chloride (NaCl)	*Cyprinella leedsi*	LC50	6,137		296		mg/L CaCO3
2060198	Sodium chloride (NaCl)	*Cyprinella leedsi*	NR-LETH	7,810		296		mg/L CaCO3
2060191	Sodium chloride (NaCl)	*Cyprinella leedsi*	NR-LETH	7,810		296		mg/L CaCO3
2060190	Sodium chloride (NaCl)	*Cyprinella leedsi*	NR-ZERO	3,100		296		mg/L CaCO3
2060189	Sodium chloride (NaCl)	*Cyprinella leedsi*	NR-ZERO	4,940		296		mg/L CaCO3
742566	Sodium chloride (NaCl)	*Daphnia ambigua*	LC50	2,000	54		72	mg/L CaCO3
741697	Sodium chloride (NaCl)	*Daphnia ambigua*	LOEC	850	54		72	mg/L CaCO3
741698	Sodium chloride (NaCl)	*Daphnia ambigua*	NOEC	440	54		72	mg/L CaCO3
2164727	Sodium chloride (NaCl)	*Daphnia magna*	EC50	4,040		150		ppm
144221	Sodium chloride (NaCl)	*Daphnia magna*	LC50	6,027		240		mg/L CaCO3
144220	Sodium chloride (NaCl)	*Daphnia magna*	LC50	6,027		240		mg/L CaCO3
144218	Sodium chloride (NaCl)	*Daphnia magna*	LC50	5,600		240		mg/L CaCO3
144219	Sodium chloride (NaCl)	*Daphnia magna*	LC50	5,020		240		mg/L CaCO3
144222	Sodium chloride (NaCl)	*Daphnia magna*	LC50	5,600		240		mg/L CaCO3
160322	Sodium chloride (NaCl)	*Daphnia magna*	LC50	4,770	80		100	mg/L CaCO3
160321	Sodium chloride (NaCl)	*Daphnia magna*	LC50	6,380	80		100	mg/L CaCO3
767302	Sodium chloride (NaCl)	*Daphnia magna*	LC50	3,222		106		mg/L CaCO3
772103	Sodium chloride (NaCl)	*Daphnia magna*	LC50	3,136		106		mg/L CaCO3
767308	Sodium chloride (NaCl)	*Daphnia magna*	LC50	3,137		106		mg/L CaCO3
742529	Sodium chloride (NaCl)	*Daphnia magna*	LC50	> 467	166	169	172	mg/L CaCO3
742019	Sodium chloride (NaCl)	*Daphnia magna*	LC50	5,480	160		180	mg/L CaCO3
759179	Sodium chloride (NaCl)	*Daphnia magna*	LC50	6,500	404	563	694	mg/L CaCO3
2152709	Sodium chloride (NaCl)	*Daphnia magna*	LC50	~ 6,000		170		mg/L CaCO3
2152708	Sodium chloride (NaCl)	*Daphnia magna*	LC50	*7,500*		170		mg/L CaCO3
2152826	Sodium chloride (NaCl)	*Daphnia magna*	LC50	3,630	80		100	mg/L CaCO3
768426	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	6,069	*80*		*100*	mg/L CaCO3
768527	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
768489	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	6,069	*80*		*100*	mg/L CaCO3
768475	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768531	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768496	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768445	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768499	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768467	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768521	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	4,321	*80*		*100*	mg/L CaCO3
768486	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	6,069	*80*		*100*	mg/L CaCO3
2164731	Sodium chloride (NaCl)	*Daphnia magna*	NR-LETH	8,000		150		ppm
768428	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	1,519	*80*		*100*	mg/L CaCO3
768533	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	2,766	*80*		*100*	mg/L CaCO3
768500	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	3,457	*80*		*100*	mg/L CaCO3
768431	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	1,519	*80*		*100*	mg/L CaCO3
768498	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	2,766	*80*		*100*	mg/L CaCO3
768450	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	2,766	*80*		*100*	mg/L CaCO3
768523	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	3,466	*80*		*100*	mg/L CaCO3
768530	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	2,766	*80*		*100*	mg/L CaCO3
768520	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	2,766	*80*		*100*	mg/L CaCO3
768488	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	1,519	*80*		*100*	mg/L CaCO3
768526	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	2,213	*80*		*100*	mg/L CaCO3
741531	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	467	166	169	172	mg/L CaCO3
2152707	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	280		170		mg/L CaCO3
2164732	Sodium chloride (NaCl)	*Daphnia magna*	NR-ZERO	500		150		ppm
201545	Sodium chloride (NaCl)	*Daphnia pulex*	LC50	1,470		93		mg/L CaCO3
741434	Sodium chloride (NaCl)	*Daphnia pulex*	LC50	*1,250*	80	84	100	ppm
2055812	Sodium chloride (NaCl)	*Daphnia pulex*	LC50	1,760	28		82	mg/L CaCO3
201558	Sodium chloride (NaCl)	*Daphnia pulex*	NR-ZERO	441		96		mg/L CaCO3
740690	Sodium chloride (NaCl)	*Dreissena polymorpha*	NR-LETH	10,000		180		mg/L CaCO3
740662	Sodium chloride (NaCl)	*Dreissena polymorpha*	NR-LETH	20,000		180		mg/L CaCO3
741563	Sodium chloride (NaCl)	*Elliptio complanata*	EC50	2,230	170		192	mg/L CaCO3
803856	Sodium chloride (NaCl)	*Elliptio complanata*	EC50	2,670	170		192	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Units
2052775	Sodium chloride (NaCl)	*Epioblasma torulosa ssp.*	EC50	244		*100*		mg/L CaCO3
231524	Sodium chloride (NaCl)	*Erpobdella punctata*	LC50	7,500		100		ppm
231523	Sodium chloride (NaCl)	*Erpobdella punctata*	LC50	> 10,000		100		ppm
231527	Sodium chloride (NaCl)	*Erpobdella punctata*	LC50	7,500		100		ppm
231525	Sodium chloride (NaCl)	*Erpobdella punctata*	LC50	7,500		100		ppm
231526	Sodium chloride (NaCl)	*Erpobdella punctata*	LC50	7,500		100		ppm
2062417	Sodium chloride (NaCl)	*Fundulus seminolis*	NR-LETH	24,000	171	194	257	mg/L CaCO3
2062416	Sodium chloride (NaCl)	*Fundulus seminolis*	NR-ZERO	16,000	171	194	257	mg/L CaCO3
231537	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	LC50	3,200		100		ppm
231535	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	LC50	3,700		100		ppm
231533	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	LC50	> 10,000		100		ppm
231536	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	LC50	3,200		100		ppm
231534	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	LC50	> 10,000		100		ppm
2075474	Sodium chloride (NaCl)	*Gyraulus parvus*	LC50	3,078		56		mg/L CaCO3
2075475	Sodium chloride (NaCl)	*Gyraulus parvus*	LC50	3,009		212		mg/L CaCO3
2152842	Sodium chloride (NaCl)	*Hyalella azteca*	LC50	1,382	80		100	mg/L CaCO3
16496	Sodium chloride (NaCl)	*Hydroptila angusta*	LC50	6,621		124		mg/L CaCO3
740725	Sodium chloride (NaCl)	*Ictalurus punctatus*	NR-LETH	20,000		140		mg/L CaCO3
741710	Sodium chloride (NaCl)	*Ictalurus punctatus*	NR-ZERO	10,000		140		mg/L CaCO3
740689	Sodium chloride (NaCl)	*Ictalurus punctatus*	NR-ZERO	10,000		140		mg/L CaCO3
2052772	Sodium chloride (NaCl)	*Lampsilis cardium*	EC50	817		*100*		mg/L CaCO3
2052780	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC20	432		278		mg/L CaCO3
2052782	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC20	403		292		mg/L CaCO3
2052786	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC20	153		306		mg/L CaCO3
2052784	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC20	261		322		mg/L CaCO3
741564	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	1,740	170		192	mg/L CaCO3
741584	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	3,980	170		192	mg/L CaCO3
803857	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	1,840	170		192	mg/L CaCO3
2052781	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	1,559		292		mg/L CaCO3
2052783	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	1,391		322		mg/L CaCO3
2052773	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	113		*100*		mg/L CaCO3
2052774	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	285		*100*		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
2052785	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	1,265		306		mg/L CaCO3
2052779	Sodium chloride (NaCl)	*Lampsilis fasciola*	EC50	1,313		278		mg/L CaCO3
741568	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	550	170		192	mg/L CaCO3
803860	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	560	170		192	mg/L CaCO3
741594	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	4,560	170		192	mg/L CaCO3
2052777	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	1,962		172		mg/L CaCO3
2052778	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	1,870		322		mg/L CaCO3
2052770	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	168		*100*		mg/L CaCO3
2052776	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	763		47		mg/L CaCO3
2052771	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	1,430		99		mg/L CaCO3
2224815	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	2,630	160		180	mg/L CaCO3
2224806	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	EC50	3,570	160		180	mg/L CaCO3
196203	Sodium chloride (NaCl)	*Lepomis macrochirus*	LC50	12,946		10		mg/L CaCO3
40512	Sodium chloride (NaCl)	*Lepomis macrochirus*	LC50	1,295	39		52	mg/L CaCO3
201540	Sodium chloride (NaCl)	*Lepomis macrochirus*	LC50	5,840		102		mg/L CaCO3
220765	Sodium chloride (NaCl)	*Lepomis macrochirus*	NR-LETH	9,103		429		mg/L CaCO3
740684	Sodium chloride (NaCl)	*Lepomis macrochirus*	NR-ZERO	10,000		140		mg/L CaCO3
740724	Sodium chloride (NaCl)	*Lepomis macrochirus*	NR-ZERO	10,000		140		mg/L CaCO3
2210845	Sodium chloride (NaCl)	*Lepomis macrochirus*	NR-ZERO	5,220	140		160	ppm
2224820	Sodium chloride (NaCl)	*Ligumia recta*	EC50	3,750	160		180	mg/L CaCO3
2224821	Sodium chloride (NaCl)	*Ligumia recta*	EC50	2,510	160		180	mg/L CaCO3
231519	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	6,950		100		ppm
231583	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	5,800		100		ppm
231522	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	6,200		100		ppm
231584	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	5,800		100		ppm
231582	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	5,800		100		ppm
231521	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	6,200		100		ppm
231518	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	> 7,500		100		ppm
231520	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	LC50	6,800		100		ppm
203677	Sodium chloride (NaCl)	*Lirceus fontinalis*	LC50	2,970		101		mg/L CaCO3
203678	Sodium chloride (NaCl)	*Lirceus fontinalis*	NR-LETH	4,580		101		mg/L CaCO3
2060288	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LC50	5,458		296		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
2060289	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LC50	5,506		296		mg/L CaCO3
2060290	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LC50	5,589		296		mg/L CaCO3
2060276	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LC50	5,407		296		mg/L CaCO3
2152829	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LC50	3,100	80		100	mg/L CaCO3
2060292	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LOEC	4,940		296		mg/L CaCO3
2060293	Sodium chloride (NaCl)	*Lumbriculus variegatus*	MATC	3,913		296		mg/L CaCO3
2060291	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NOEC	3,100		296		mg/L CaCO3
2060317	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-LETH	7,810		296		mg/L CaCO3
2060318	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-LETH	7,810		296		mg/L CaCO3
2060307	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-LETH	7,810		296		mg/L CaCO3
2060306	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-LETH	7,810		296		mg/L CaCO3
2060315	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-ZERO	3,100		296		mg/L CaCO3
2060319	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-ZERO	4,940		296		mg/L CaCO3
2060302	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-ZERO	4,940		296		mg/L CaCO3
2060309	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NR-ZERO	4,940		296		mg/L CaCO3
2075478	Sodium chloride (NaCl)	*Musculium transversum*	LC50	1,930		48		mg/L CaCO3
16494	Sodium chloride (NaCl)	*Nais variabilis*	LC50	2,569		124		mg/L CaCO3
2060327	Sodium chloride (NaCl)	*Nephelopsis obscura*	LC50	4,270	288	290	292	mg/L CaCO3
2060325	Sodium chloride (NaCl)	*Nephelopsis obscura*	LC50	4,310	288	290	292	mg/L CaCO3
2060326	Sodium chloride (NaCl)	*Nephelopsis obscura*	LC50	4,270	288	290	292	mg/L CaCO3
2060329	Sodium chloride (NaCl)	*Nephelopsis obscura*	LC50	4,270	288	290	292	mg/L CaCO3
2060335	Sodium chloride (NaCl)	*Nephelopsis obscura*	LOEC	5,340	288	290	292	mg/L CaCO3
2060336	Sodium chloride (NaCl)	*Nephelopsis obscura*	MATC	4,211	288	290	292	mg/L CaCO3
2060333	Sodium chloride (NaCl)	*Nephelopsis obscura*	NOEC	3,320	288	290	292	mg/L CaCO3
2060352	Sodium chloride (NaCl)	*Nephelopsis obscura*	NR-LETH	5,340	288	290	292	mg/L CaCO3
2060350	Sodium chloride (NaCl)	*Nephelopsis obscura*	NR-LETH	5,340	288	290	292	mg/L CaCO3
2060361	Sodium chloride (NaCl)	*Nephelopsis obscura*	NR-LETH	7,720	288	290	292	mg/L CaCO3
2060360	Sodium chloride (NaCl)	*Nephelopsis obscura*	NR-ZERO	5,340	288	290	292	mg/L CaCO3
2060342	Sodium chloride (NaCl)	*Nephelopsis obscura*	NR-ZERO	5,340	288	290	292	mg/L CaCO3
2060354	Sodium chloride (NaCl)	*Nephelopsis obscura*	NR-ZERO	5,340	288	290	292	mg/L CaCO3
740693	Sodium chloride (NaCl)	*Perca flavescens*	NR-ZERO	10,000		140		mg/L CaCO3
741709	Sodium chloride (NaCl)	*Perca flavescens*	NR-ZERO	10,000		140		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
201542	Sodium chloride (NaCl)	*Physa gyrina*	LC50	2,540		100		mg/L CaCO3
201543	Sodium chloride (NaCl)	*Physa gyrina*	NR-LETH	5,060		100		mg/L CaCO3
231546	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	5,100		100		ppm
231545	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	5,100		100		ppm
231550	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	6,200		100		ppm
231549	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	6,200		100		ppm
231554	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	4,100		20		ppm
231544	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	> 5,600		100		ppm
231553	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	4,250		20		ppm
231547	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	7,500		100		ppm
231542	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	> 5,600		100		ppm
231551	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	4,800		20		ppm
231548	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	6,950		100		ppm
231540	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	3,500		100		ppm
231543	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	> 5,600		100		ppm
231539	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	3,700		100		ppm
231538	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	4,200		100		ppm
231552	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	4,250		20		ppm
231541	Sodium chloride (NaCl)	*Physa heterostropha*	LC50	3,500		100		ppm
167861	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	7,650		210		mg/L CaCO3
160325	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	6,390	80		100	mg/L CaCO3
160324	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	6,510	80		100	mg/L CaCO3
160323	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	8,280	80		100	mg/L CaCO3
201537	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	6,570		96		mg/L CaCO3
759180	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	11,400	404	563	694	mg/L CaCO3
2055542	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	8,360	52		96	mg/L CaCO3
2152828	Sodium chloride (NaCl)	*Pimephales promelas*	LC50	4,079	80		100	mg/L CaCO3
167862	Sodium chloride (NaCl)	*Pimephales promelas*	LETC	7,650		210		mg/L CaCO3
42866	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	8,000	86		94	mg/L CaCO3
96881	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	8,000	86		94	mg/L CaCO3
42423	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	8,000	86		94	mg/L CaCO3
96906	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	8,000	86		94	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
14389	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	8,000	86		94	mg/L CaCO3
68598	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	8,000	86		94	mg/L CaCO3
201561	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	352		97		mg/L CaCO3
768104	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,250	*80*		*100*	mg/L CaCO3
768072	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768157	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768066	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768058	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768096	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768127	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768143	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768090	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768088	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768123	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768163	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768153	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768098	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768074	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768080	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768113	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768107	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768082	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768137	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768147	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
768064	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768133	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	5,000	*80*		*100*	mg/L CaCO3
768117	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	2,500	*80*		*100*	mg/L CaCO3
741744	Sodium chloride (NaCl)	*Pimephales promelas*	LOEL	1,140	90		110	ppm
742691	Sodium chloride (NaCl)	*Pimephales promelas*	LOEL	210	90		110	ppm
741410	Sodium chloride (NaCl)	*Pimephales promelas*	LOEL	2,200	90		110	ppm
201562	Sodium chloride (NaCl)	*Pimephales promelas*	MATC	298		97		mg/L CaCO3
68599	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	4,000	86		94	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
42865	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	4,000	86		94	mg/L CaCO3
14383	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	4,000	86		94	mg/L CaCO3
96885	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	4,000	86		94	mg/L CaCO3
69057	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	4,000	86		94	mg/L CaCO3
96907	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	4,000	86		94	mg/L CaCO3
201560	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	252		97		mg/L CaCO3
768105	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768073	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768158	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768067	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768059	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768097	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768128	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768144	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768091	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768089	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768124	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768164	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768154	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768099	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768075	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768081	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768114	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768108	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768083	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768138	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768148	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
768065	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768134	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	2,500	*80*		*100*	mg/L CaCO3
768118	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	1,250	*80*		*100*	mg/L CaCO3
741400	Sodium chloride (NaCl)	*Pimephales promelas*	NOEL	2,000	90		110	ppm
742666	Sodium chloride (NaCl)	*Pimephales promelas*	NOEL	860	90		110	ppm

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
768558	Sodium chloride (NaCl)	*Pimephales promelas*	NR-LETH	6,069	*80*		*100*	mg/L CaCO3
201538	Sodium chloride (NaCl)	*Pimephales promelas*	NR-LETH	7,310		96		mg/L CaCO3
740697	Sodium chloride (NaCl)	*Pimephales promelas*	NR-LETH	20,000		140		mg/L CaCO3
768559	Sodium chloride (NaCl)	*Pimephales promelas*	NR-ZERO	3,035	*80*		*100*	mg/L CaCO3
740694	Sodium chloride (NaCl)	*Pimephales promelas*	NR-ZERO	10,000		140		mg/L CaCO3
740696	Sodium chloride (NaCl)	*Pimephales promelas*	NR-ZERO	10,000		140		mg/L CaCO3
231532	Sodium chloride (NaCl)	*Planorbella campanulata*	LC50	6,150		100		ppm
231528	Sodium chloride (NaCl)	*Planorbella campanulata*	LC50	> 10,000		100		ppm
231531	Sodium chloride (NaCl)	*Planorbella campanulata*	LC50	6,150		100		ppm
231530	Sodium chloride (NaCl)	*Planorbella campanulata*	LC50	6,150		100		ppm
231529	Sodium chloride (NaCl)	*Planorbella campanulata*	LC50	7,500		100		ppm
2060321	Sodium chloride (NaCl)	*Poecilia reticulata*	LC50	> 11,700	288	290	292	mg/L CaCO3
2060324	Sodium chloride (NaCl)	*Poecilia reticulata*	NR-ZERO	11,700	288	290	292	mg/L CaCO3
2060323	Sodium chloride (NaCl)	*Poecilia reticulata*	NR-ZERO	7,720	288	290	292	mg/L CaCO3
2170552	Sodium chloride (NaCl)	*Rocio octofasciata*	NR-ZERO	4,000	132		205	ppm
740686	Sodium chloride (NaCl)	*Sander vitreus*	NR-ZERO	10,000		140		mg/L CaCO3
740685	Sodium chloride (NaCl)	*Sander vitreus*	NR-ZERO	10,000		140		mg/L CaCO3
2075473	Sodium chloride (NaCl)	*Sphaerium simile*	LC50	1,100		192		mg/L CaCO3
2075472	Sodium chloride (NaCl)	*Sphaerium simile*	LC50	740		51		mg/L CaCO3
231556	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	1,950		100		ppm
231560	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	1,550		20		ppm
231561	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	1,250		20		ppm
231559	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	2,400		20		ppm
231557	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	1,250		100		ppm
231558	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	1,100		100		ppm
231562	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	1,150		20		ppm
231555	Sodium chloride (NaCl)	*Sphaerium sp.*	LC50	2,250		100		ppm
2152833	Sodium chloride (NaCl)	*Tubifex tubifex*	LC50	5,648	80		100	mg/L CaCO3
2075476	Sodium chloride (NaCl)	*Tubifex tubifex*	LC50	4,278		52		mg/L CaCO3
2075477	Sodium chloride (NaCl)	*Tubifex tubifex*	LC50	6,008		220		mg/L CaCO3
803853	Sodium chloride (NaCl)	*Villosa constricta*	EC50	2,760	170		192	mg/L CaCO3
741562	Sodium chloride (NaCl)	*Villosa constricta*	EC50	2,590	170		192	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
741561	Sodium chloride (NaCl)	*Villosa delumbis*	EC50	3,310	170		192	mg/L CaCO3
741583	Sodium chloride (NaCl)	*Villosa delumbis*	EC50	5,230	170		192	mg/L CaCO3
803850	Sodium chloride (NaCl)	*Villosa delumbis*	EC50	3,630	170		192	mg/L CaCO3
160288	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	LC50	1,770	80		100	mg/L CaCO3
160287	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	LC50	1,770	80		100	mg/L CaCO3
767346	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-LETH	2,076	*80*		*100*	mg/L CaCO3
767362	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-LETH	2,076	*80*		*100*	mg/L CaCO3
767348	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-LETH	2,076	*80*		*100*	mg/L CaCO3
767402	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-LETH	2,076	*80*		*100*	mg/L CaCO3
767365	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-LETH	2,076	*80*		*100*	mg/L CaCO3
767407	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-LETH	2,076	*80*		*100*	mg/L CaCO3
767364	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,079	*80*		*100*	mg/L CaCO3
767366	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,079	*80*		*100*	mg/L CaCO3
767410	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	580	*80*		*100*	mg/L CaCO3
767347	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,079	*80*		*100*	mg/L CaCO3
767405	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,079	*80*		*100*	mg/L CaCO3
767461	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,036	*80*		*100*	mg/L CaCO3
767465	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,394	*80*		*100*	mg/L CaCO3
160289	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	LC50	2,360	80		100	mg/L CaCO3
160290	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	LC50	1,820	80		100	mg/L CaCO3
759182	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	LC50	4,300	404	563	694	mg/L CaCO3
767488	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-LETH	4,071	*80*		*100*	mg/L CaCO3
767485	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-LETH	4,071	*80*		*100*	mg/L CaCO3
767471	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-ZERO	1,079	*80*		*100*	mg/L CaCO3
767487	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-ZERO	1,079	*80*		*100*	mg/L CaCO3
767490	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-ZERO	580	*80*		*100*	mg/L CaCO3
759473	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-ZERO	360		170		mg/L CaCO3
759470	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	NR-ZERO	360		170		mg/L CaCO3
160291	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	LC50	4,630	80		100	mg/L CaCO3
160292	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	LC50	3,510	80		100	mg/L CaCO3
160293	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	LC50	2,820	80		100	mg/L CaCO3
759181	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	LC50	7,900	404	563	694	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
767519	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	NR-ZERO	2,076	*80*		*100*	mg/L CaCO3
2017048	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	EC50	1,551		160		ppm
2017057	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	EC50	1,619		320		ppm
2017040	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	EC50	1,267		80		ppm
2017029	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	EC50	914		40		ppm
766435	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	2,547		578		mg/L CaCO3
766427	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	2,173		194		mg/L CaCO3
766433	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	2,793		484		mg/L CaCO3
766419	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	2,216	*80*	107	*100*	mg/L CaCO3
766431	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	2,744		390		mg/L CaCO3
766429	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	2,389		288		mg/L CaCO3
766216	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC10	1,759		94		mg/L CaCO3
160330	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,590	80		100	mg/L CaCO3
160331	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,080	80		100	mg/L CaCO3
766604	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,853		288		mg/L CaCO3
766576	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,830		98		mg/L CaCO3
766609	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,716		484		mg/L CaCO3
766554	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,526		102		mg/L CaCO3
766567	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,724		96		mg/L CaCO3
766580	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,328		96		mg/L CaCO3
766565	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,494		94		mg/L CaCO3
766607	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,073		390		mg/L CaCO3
766556	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,243		94		mg/L CaCO3
766574	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,757		96		mg/L CaCO3
766577	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,793		102		mg/L CaCO3
766560	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,402		94		mg/L CaCO3
766603	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,361		288		mg/L CaCO3
766575	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,184		104		mg/L CaCO3
766581	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,828		98		mg/L CaCO3
766573	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,404		96		mg/L CaCO3
766578	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,095		102		mg/L CaCO3
766595	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,383		288		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
766586	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,868		94		mg/L CaCO3
766610	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,506		484		mg/L CaCO3
766555	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,223		92		mg/L CaCO3
766566	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,198		100		mg/L CaCO3
766570	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,925		96		mg/L CaCO3
766605	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,297		288		mg/L CaCO3
766591	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,436		107		mg/L CaCO3
766572	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,481		96		mg/L CaCO3
766548	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,526		100		mg/L CaCO3
766606	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,369		390		mg/L CaCO3
766585	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,030		94		mg/L CaCO3
766588	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,538		107		mg/L CaCO3
766608	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,091		390		mg/L CaCO3
766551	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,357		100		mg/L CaCO3
766563	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,295		94		mg/L CaCO3
766592	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,059		194		mg/L CaCO3
766587	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,269		94		mg/L CaCO3
766612	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,338		484		mg/L CaCO3
766561	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,470		94		mg/L CaCO3
766590	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,607		107		mg/L CaCO3
766593	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,706		194		mg/L CaCO3
766594	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,265		194		mg/L CaCO3
766571	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,472		96		mg/L CaCO3
766584	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,116		94		mg/L CaCO3
766228	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,065		92		mg/L CaCO3
766227	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,446		92		mg/L CaCO3
766221	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,049		92		mg/L CaCO3
766226	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,442		92		mg/L CaCO3
766426	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,000		194		mg/L CaCO3
766432	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,516		484		mg/L CaCO3
766430	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,174		390		mg/L CaCO3
766418	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,526	*80*	107	*100*	mg/L CaCO3

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
766428	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,946		288		mg/L CaCO3
766215	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,050		94		mg/L CaCO3
766434	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,288		578		mg/L CaCO3
766720	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,419		100		mg/L CaCO3
766717	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,469		100		mg/L CaCO3
766722	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,272		100		mg/L CaCO3
766718	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,289		100		mg/L CaCO3
766723	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,417		100		mg/L CaCO3
766724	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,914		100		mg/L CaCO3
766726	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	1,496		100		mg/L CaCO3
766745	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	3,250	*80*		*100*	mg/L CaCO3
766748	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LC50	2,250	*80*		*100*	mg/L CaCO3
766224	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	3,000		92		mg/L CaCO3
766222	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	2,216		92		mg/L CaCO3
766739	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	3,000	*80*		*100*	mg/L CaCO3
766730	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	2,273	*80*		*100*	mg/L CaCO3
2017050	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	2,600		160		ppm
2017059	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	2,700		320		ppm
2017042	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	2,000		80		ppm
2017031	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	LOEC	1,300		40		ppm
766225	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	2,250		92		mg/L CaCO3
766223	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	1,750		92		mg/L CaCO3
766854	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	1,301	*80*		*100*	mg/L CaCO3
766740	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	2,264	*80*		*100*	mg/L CaCO3
766731	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	1,727	*80*		*100*	mg/L CaCO3
2017049	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	1,300		160		ppm
2017058	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	1,450		320		ppm
2017041	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	1,250		80		ppm
2017030	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NOEC	610		40		ppm
767457	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-LETH	2,989	*80*		*100*	mg/L CaCO3
767375	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-LETH	3,463	*80*		*100*	mg/L CaCO3
767380	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-LETH	3,463	*80*		*100*	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
767350	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-LETH	3,463	*80*		*100*	mg/L CaCO3
767411	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-LETH	3,463	*80*		*100*	mg/L CaCO3
767454	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-LETH	2,989	*80*		*100*	mg/L CaCO3
767351	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-ZERO	1,772	*80*		*100*	mg/L CaCO3
767459	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-ZERO	2,178	*80*		*100*	mg/L CaCO3
767456	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-ZERO	2,178	*80*		*100*	mg/L CaCO3
767412	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-ZERO	1,772	*80*		*100*	mg/L CaCO3
767353	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-ZERO	1,772	*80*		*100*	mg/L CaCO3
767376	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	NR-ZERO	1,772	*80*		*100*	mg/L CaCO3
766218	Sulfuric acid sodium salt (1:2)	*Chironomus tentans*	LC10	11,682		94		mg/L CaCO3
766217	Sulfuric acid sodium salt (1:2)	*Chironomus tentans*	LC50	14,134		94		mg/L CaCO3
160332	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	6,290	80		100	mg/L CaCO3
160333	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	4,580	80		100	mg/L CaCO3
767294	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	1,194		25		mg/L CaCO3
767307	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	4,395		106		mg/L CaCO3
767306	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	1,985		25		mg/L CaCO3
767296	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	3,342		75		mg/L CaCO3
767303	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	3,808		106		mg/L CaCO3
767295	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	1,551		50		mg/L CaCO3
767298	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	1,194		25		mg/L CaCO3
767297	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	3,203		100		mg/L CaCO3
767305	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	1,563		25		mg/L CaCO3
767299	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	3,203		106		mg/L CaCO3
759175	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	LC50	8,600	404	563	694	mg/L CaCO3
767473	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-LETH	6,844	*80*		*100*	mg/L CaCO3
767496	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-LETH	6,844	*80*		*100*	mg/L CaCO3
767475	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-LETH	6,844	*80*		*100*	mg/L CaCO3
767491	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-LETH	6,844	*80*		*100*	mg/L CaCO3
767505	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-LETH	5,492	*80*		*100*	mg/L CaCO3
767494	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-ZERO	927	*80*		*100*	mg/L CaCO3
767507	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	NR-ZERO	1,434	*80*		*100*	mg/L CaCO3
2017113	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	EC10	2,069		80		ppm

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
2017143	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	EC25	2,246		80		ppm
2017144	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	EC50	2,461		80		ppm
766367	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC10	262		94		mg/L CaCO3
766638	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,840		292		mg/L CaCO3
766642	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	4,145		486		mg/L CaCO3
766639	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,724		392		mg/L CaCO3
766618	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,779		96		mg/L CaCO3
766641	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	4,336		396		mg/L CaCO3
766616	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,767		96		mg/L CaCO3
766625	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,684		100		mg/L CaCO3
766633	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,740		194		mg/L CaCO3
766631	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,621		98		mg/L CaCO3
766640	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	4,046		396		mg/L CaCO3
766644	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	3,796		482		mg/L CaCO3
766627	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,480		100		mg/L CaCO3
766617	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,820		100		mg/L CaCO3
766624	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,616		96		mg/L CaCO3
766619	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,879		98		mg/L CaCO3
766629	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,000		106		mg/L CaCO3
766623	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,679		98		mg/L CaCO3
766643	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	4,345		482		mg/L CaCO3
766630	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,901		100		mg/L CaCO3
766635	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,955		196		mg/L CaCO3
766637	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	3,462		292		mg/L CaCO3
766622	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,002		100		mg/L CaCO3
766628	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,438		100		mg/L CaCO3
766626	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,433		98		mg/L CaCO3
766636	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,121		296		mg/L CaCO3
766632	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,002		102		mg/L CaCO3
766634	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,203		192		mg/L CaCO3
766621	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,830		100		mg/L CaCO3
767290	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,448		50		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
767310	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,725		102		mg/L CaCO3
767293	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	5,259		250		mg/L CaCO3
767291	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,580		75		mg/L CaCO3
767311	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,240		102		mg/L CaCO3
767312	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,101		102		mg/L CaCO3
767289	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	569		25		mg/L CaCO3
767292	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	3,144		123		mg/L CaCO3
766365	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	512		94		mg/L CaCO3
766415	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	2,855	*80*	107	*100*	mg/L CaCO3
766712	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,854		100		mg/L CaCO3
766716	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,470		100		mg/L CaCO3
766713	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,799		100		mg/L CaCO3
766714	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,938		100		mg/L CaCO3
766715	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,691		100		mg/L CaCO3
766710	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,563		100		mg/L CaCO3
766711	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,562		100		mg/L CaCO3
766709	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LC50	1,387		100		mg/L CaCO3
766446	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	1,460		300		mg/L CaCO3
766441	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	1,460		200		mg/L CaCO3
766438	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	1,460		100		mg/L CaCO3
766439	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	1,460		100		mg/L CaCO3
766443	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	1,460		200		mg/L CaCO3
766442	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	1,460		200		mg/L CaCO3
2017146	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	LOEC	2,412		80		ppm
766444	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	NOEC	1,460		300		mg/L CaCO3
766445	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	NOEC	1,460		300		mg/L CaCO3
2017145	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	NOEC	1,637		80		ppm
766440	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	NR-LETH	1,460		100		mg/L CaCO3
764945	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	NR-ZERO	138	132	137	140	mg/L CaCO3
764947	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	NR-ZERO	642	138	141	142	mg/L CaCO3
766659	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	3,525		300		mg/L CaCO3
766663	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	1,702		100		mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Units
766664	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	1,727		100		mg/L CaCO3
766658	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	3,523		300		mg/L CaCO3
766666	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	1,822		100		mg/L CaCO3
766662	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	3,729		500		mg/L CaCO3
766657	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	3,377		100		mg/L CaCO3
766656	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	3,183		100		mg/L CaCO3
766665	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	2,661		100		mg/L CaCO3
766661	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	LC50	3,574		500		mg/L CaCO3
200196	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	LC50	13,500		10		mg/L CaCO3
40509	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	LC50	3,040	35		62	mg/L CaCO3
40508	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	LC50	4,380	35		62	mg/L CaCO3
2017209	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC10	2,451		320		ppm
2017178	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC10	1,555		80		ppm
2017188	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC10	3,231		160		ppm
2017168	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC10	559		40		ppm
2017210	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC25	> 5,250		320		ppm
2017179	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC25	2,183		80		ppm
2017189	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC25	3,801		160		ppm
2017169	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC25	933		40		ppm
2017211	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC50	> 5,250		320		ppm
2017180	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC50	2,938		80		ppm
2017190	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC50	4,553		160		ppm
2017170	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	EC50	1,649		40		ppm
160335	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LC50	> 7,960	80		100	mg/L CaCO3
160334	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LC50	> 8,080	80		100	mg/L CaCO3
160336	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LC50	7,960	80		100	mg/L CaCO3
759176	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LC50	15,200	404	563	694	mg/L CaCO3
2017213	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LOEC	5,250		320		ppm
2017182	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LOEC	2,850		80		ppm
2017172	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LOEC	1,250		40		ppm
2017192	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	LOEC	5,500		160		ppm
766856	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NOEC	1,301	*80*		*100*	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Concentration (mg/L)	Hardness			
					Minimum	Mean	Maximum	Units
2017191	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NOEC	2,850		160		ppm
2017212	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NOEC	2,900		320		ppm
2017181	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NOEC	1,300		80		ppm
2017171	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NOEC	595		40		ppm
764930	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NR-ZERO	214	140	145	148	mg/L CaCO3
764935	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NR-ZERO	906	140	147	152	mg/L CaCO3
764929	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NR-ZERO	160	128	131	132	mg/L CaCO3
764932	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NR-ZERO	24	124	136	144	mg/L CaCO3
764934	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NR-ZERO	474	128	131	132	mg/L CaCO3
764928	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	NR-ZERO	24	128	131	136	mg/L CaCO3
766364	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC10	1,502		94		mg/L CaCO3
766363	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,078		94		mg/L CaCO3
766706	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,590		280		mg/L CaCO3
766705	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,926		269		mg/L CaCO3
766707	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,200		93		mg/L CaCO3
766703	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,186		84		mg/L CaCO3
766704	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,190		193		mg/L CaCO3
766708	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	LC50	2,650		90		mg/L CaCO3
160500	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	LC50	> 1,970	80		100	mg/L CaCO3
160498	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	LC50	> 1,910	80		100	mg/L CaCO3
160497	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	LC50	> 1,940	80		100	mg/L CaCO3
767397	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,470	*80*		*100*	mg/L CaCO3
767360	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,447	*80*		*100*	mg/L CaCO3
767399	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	860	*80*		*100*	mg/L CaCO3
767463	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	765	*80*		*100*	mg/L CaCO3
767462	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	765	*80*		*100*	mg/L CaCO3
767317	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	NR-ZERO	1,447	*80*		*100*	mg/L CaCO3
160499	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	LC50	> 1,970	80		100	mg/L CaCO3
759021	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NOEC	1,600	256		1,468	mg/L CaCO3
767483	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NR-ZERO	1,470	*80*		*100*	mg/L CaCO3
767467	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NR-ZERO	1,470	*80*		*100*	mg/L CaCO3
767469	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NR-ZERO	860	*80*		*100*	mg/L CaCO3

Hardness values associated with lethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint		Concentration (mg/L)	Hardness			
						Minimum	Mean	Maximum	Units
767484	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NR-ZERO		1,470	*80*		*100*	mg/L CaCO3
759462	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NR-ZERO		360		170		mg/L CaCO3
759465	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	NR-ZERO		360		170		mg/L CaCO3
196198	Sulfuric acid, Calcium salt (1:1)	*Lepomis macrochirus*	LC50		2,980		10		mg/L CaCO3
160503	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	LC50	>	1,970	80		100	mg/L CaCO3
160502	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	LC50	>	1,970	80		100	mg/L CaCO3
160501	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	LC50	>	1,970	80		100	mg/L CaCO3
767512	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	NR-ZERO		1,470	*80*		*100*	mg/L CaCO3
767515	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	NR-ZERO		1,470	*80*		*100*	mg/L CaCO3

	Reference Information				
Result Number	Reference Number	Author	Title	Source	Publication Year
160619	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Io	Environ. Toxicol. Chem.16(10): 2009-201	1997
160620	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Io	Environ. Toxicol. Chem.16(10): 2009-201	1997
768180	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768284	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768182	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
767342	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768283	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768183	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768181	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768286	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
160622	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Io	Environ. Toxicol. Chem.16(10): 2009-201	1997
160621	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Io	Environ. Toxicol. Chem.16(10): 2009-201	1997
768399	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768396	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768457	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768462	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768402	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768460	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
768398	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
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2153676	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740759	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740760	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740732	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
2153700	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
2153697	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740761	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740765	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
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160623	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Ior	Environ. Toxicol. Chem.16(10): 2009-201	1997
160624	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Ior	Environ. Toxicol. Chem.16(10): 2009-201	1997
160625	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Ior	Environ. Toxicol. Chem.16(10): 2009-201	1997
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741718	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
2153836	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
2153835	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740738	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740779	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
740744	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
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160514	18272	Mount,D.R., D.D. Gulley,	Statistical Models to Predict the Toxicity of Major Ior	Environ. Toxicol. Chem.16(10): 2009-201	1997
768178	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract Nc	1992
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768277	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract Nc	1992
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768451	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract Nc	1992
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2153277	158449	Elphick,J.R.F., K.D. Bergh	Chronic Toxicity of Chloride to Freshwater Species: E	Environ. Toxicol. Chem.30(1): 239-246	2011
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2224806	160209	Hazelton,P.D., W.G. Cope	Partial Life-Cycle and Acute Toxicity of Perfluoroalky	Environ. Toxicol. Chem.31(7): 1611-1620	2012
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2224820	160209	Hazelton,P.D., W.G. Cope	Partial Life-Cycle and Acute Toxicity of Perfluoroalky	Environ. Toxicol. Chem.31(7): 1611-1620	2012
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231519	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231583	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231522	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231584	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231582	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231521	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231518	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231520	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
203677	45826	Birge,W.J., J.A. Black, A.G	Recommendations on Numerical Values for Regulati	University of Kentucky, Lexington, KY:73	1985
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2060276	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2152829	158449	Elphick,J.R.F., K.D. Bergh	Chronic Toxicity of Chloride to Freshwater Species: E	Environ. Toxicol. Chem.30(1): 239-246	2011
2060292	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060293	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060291	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060317	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060318	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060307	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060306	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060315	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060319	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060302	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060309	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
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2060326	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060329	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060335	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060336	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060333	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060352	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
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2060360	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
2060342	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
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201543	45826	Birge,W.J., J.A. Black, A.G	Recommendations on Numerical Values for Regulati	University of Kentucky, Lexington, KY:73	1985
231546	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231545	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231550	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231549	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231554	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231544	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231553	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231547	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231542	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231551	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231548	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
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768157	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768066	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768058	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768096	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768127	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768143	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768090	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768088	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768123	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
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768098	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768074	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
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768113	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768107	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768082	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768137	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768147	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768064	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768133	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
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741410	102785	Diamond,J., M. Bowerso	Effects of Pulsed Contaminant Exposures on Early Lif	Arch. Environ. Contam. Toxicol.49(4): 511	2005
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96885	16510	Pickering,Q.H., J.M. Lazo	Subchronic Sensitivity of One-, Four-, and Seven-Day	Environ. Toxicol. Chem.15(3): 353-359	1996
69057	16510	Pickering,Q.H., J.M. Lazo	Subchronic Sensitivity of One-, Four-, and Seven-Day	Environ. Toxicol. Chem.15(3): 353-359	1996
96907	16510	Pickering,Q.H., J.M. Lazo	Subchronic Sensitivity of One-, Four-, and Seven-Day	Environ. Toxicol. Chem.15(3): 353-359	1996
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768105	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768073	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768158	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768067	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768059	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768097	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768128	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768144	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768091	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768089	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768124	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768164	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768154	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768099	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768075	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768081	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768114	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768108	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768083	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768138	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768148	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768065	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
768134	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Incorporated	IPS Environmental and Analytical Services	1993
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741400	102785	Diamond,J., M. Bowerso	Effects of Pulsed Contaminant Exposures on Early Lif	Arch. Environ. Contam. Toxicol.49(4): 511	2005
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201538	45826	Birge,W.J., J.A. Black, A.G	Recommendations on Numerical Values for Regulati	University of Kentucky, Lexington, KY:73	1985
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740696	76054	Waller,D.L., S.W. Fisher,	Prevention of Zebra Mussel Infestation and Dispersa	Prog. Fish-Cult.58(2): 77-84	1996
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231528	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231531	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231530	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
231529	2050	Wurtz,C.B., and C.H. Brid	Preliminary Results From Macro-Invertebrate Bioass	Proc. Pa. Acad. Sci.35:51-56	1961
2060321	112901	ENVIRON International C	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared f	2009
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767475	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
767491	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
767505	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
767494	14761	Mount,D.R., and D.D. Gu	Development of a Salinity/Toxicity Relationship to Pr	Final Rep.GRI-92/0301, ENSR Contract No	1992
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2017145	153684	Elphick,J.R., M. Davies, G	An Aquatic Toxicological Evaluation of Sulfate: The C	Environ. Toxicol. Chem.30(1): 247-253	2011
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2017211	153684	Elphick,J.R., M. Davies, G	An Aquatic Toxicological Evaluation of Sulfate: The C	Environ. Toxicol. Chem.30(1): 247-253	2011
2017180	153684	Elphick,J.R., M. Davies, G	An Aquatic Toxicological Evaluation of Sulfate: The C	Environ. Toxicol. Chem.30(1): 247-253	2011
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Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Units
2152811	Sodium chloride (NaCl)	*Chironomus dilutus*	IC10	Biomass	2,316	80		100	mg/L CaCO3
2152812	Sodium chloride (NaCl)	*Chironomus dilutus*	IC25	Biomass	2,590	80		100	mg/L CaCO3
2152813	Sodium chloride (NaCl)	*Chironomus dilutus*	IC50	Biomass	3,047	80		100	mg/L CaCO3
2152815	Sodium chloride (NaCl)	*Chironomus dilutus*	LOEC	Biomass	3,960	80		100	mg/L CaCO3
2152814	Sodium chloride (NaCl)	*Chironomus dilutus*	NOEC	Biomass	2,133	80		100	mg/L CaCO3
201556	Sodium chloride (NaCl)	*Daphnia pulex*	LOEC	Length	441		96		mg/L CaCO3
201557	Sodium chloride (NaCl)	*Daphnia pulex*	MATC	Length	372		96		mg/L CaCO3
201555	Sodium chloride (NaCl)	*Daphnia pulex*	NOEC	Length	314		96		mg/L CaCO3
2152816	Sodium chloride (NaCl)	*Hyalella azteca*	IC25	Biomass	1,705	80		100	mg/L CaCO3
2152817	Sodium chloride (NaCl)	*Hyalella azteca*	IC50	Biomass	2,298	80		100	mg/L CaCO3
2152819	Sodium chloride (NaCl)	*Hyalella azteca*	LOEC	Biomass	4,237	80		100	mg/L CaCO3
2152818	Sodium chloride (NaCl)	*Hyalella azteca*	NOEC	Biomass	2,210	80		100	mg/L CaCO3
2152752	Sodium chloride (NaCl)	*Pimephales promelas*	IC25	Biomass	704	80		100	mg/L CaCO3
2152753	Sodium chloride (NaCl)	*Pimephales promelas*	IC50	Biomass	958	80		100	mg/L CaCO3
768151	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768129	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768092	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768111	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768141	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768161	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	5,000	*80*		*100*	mg/L CaCO3
768086	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	5,000	*80*		*100*	mg/L CaCO3
768094	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768149	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768078	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	5,000	*80*		*100*	mg/L CaCO3
768159	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768084	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768076	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768139	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
2152755	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	1,058	80		100	mg/L CaCO3
768070	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768068	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768119	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	5,000	*80*		*100*	mg/L CaCO3
768109	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768102	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,250	*80*		*100*	mg/L CaCO3
768131	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768121	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
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Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
768100	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	5,000	*80*		*100*	mg/L CaCO3
768060	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768062	Sodium chloride (NaCl)	*Pimephales promelas*	LOEC	Biomass	10,000	*80*		*100*	mg/L CaCO3
741831	Sodium chloride (NaCl)	*Pimephales promelas*	LOEL	Biomass	2,200	90		110	mg/L CaCO3
741780	Sodium chloride (NaCl)	*Pimephales promelas*	LOEL	Biomass	1,140	90		110	mg/L CaCO3
768152	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768130	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768093	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768112	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768142	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768162	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768087	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768095	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768150	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768079	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768160	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768085	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768077	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768140	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
2152754	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	558	80		100	mg/L CaCO3
768071	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768069	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	250	*80*		*100*	mg/L CaCO3
768120	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768110	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768103	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768132	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768122	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768101	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	2,500	*80*		*100*	mg/L CaCO3
768061	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	1,250	*80*		*100*	mg/L CaCO3
768063	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Biomass	5,000	*80*		*100*	mg/L CaCO3
14424	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Growth, general	4,000	86		94	mg/L CaCO3
42862	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Growth, general	4,000	86		94	mg/L CaCO3
14380	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Growth, general	4,000	86		94	mg/L CaCO3
42867	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Growth, general	4,000	86		94	mg/L CaCO3
96882	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Growth, general	4,000	86		94	mg/L CaCO3
108590	Sodium chloride (NaCl)	*Pimephales promelas*	NOEC	Growth, general	4,000	86		94	mg/L CaCO3

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
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Hardness values associated with sublethal toxicity endpoints.

						Hardness			
Result Number	**Chemical Name**	**Species Scientific Name**	**Endpoint**	**Effect Measurement**	**Concentration (mg/L)**	**Minimum**	**Mean**	**Maximum**	**Units**
741815	Sodium chloride (NaCl)	*Pimephales promelas*	NOEL	Biomass	860	90		110	mg/L CaCO3
742694	Sodium chloride (NaCl)	*Pimephales promelas*	NOEL	Biomass	210	90		110	mg/L CaCO3
741814	Sodium chloride (NaCl)	*Pimephales promelas*	NOEL	Biomass	2,000	90		110	mg/L CaCO3
765903	Sulfuric acid sodium salt (1:2	*Corbicula manilensis*	LOEC	Condition index	1,500		92		mg/L CaCO3
765902	Sulfuric acid sodium salt (1:2	*Corbicula manilensis*	LOEC	Dry weight (AQUIRE only)	1,500		92		mg/L CaCO3
765901	Sulfuric acid sodium salt (1:2	*Corbicula manilensis*	NOEC	Length	1,500		92		mg/L CaCO3
765900	Sulfuric acid sodium salt (1:2	*Corbicula manilensis*	NOEC	Dry weight (AQUIRE only)	1,500		92		mg/L CaCO3
766857	Sulfuric acid sodium salt (1:2	*Pimephales promelas*	NOEC	Biomass	1,301	*80*		*100*	mg/L CaCO3
2152820	Sodium chloride (NaCl)	*Brachionus calyciflorus*	IC10	Reproduction, general	1,241	80		100	mg/L CaCO3
2152821	Sodium chloride (NaCl)	*Brachionus calyciflorus*	IC25	Reproduction, general	1,505	80		100	mg/L CaCO3
2152822	Sodium chloride (NaCl)	*Brachionus calyciflorus*	IC50	Reproduction, general	1,945	80		100	mg/L CaCO3
2152824	Sodium chloride (NaCl)	*Brachionus calyciflorus*	LOEC	Reproduction, general	2,230	80		100	mg/L CaCO3
2152823	Sodium chloride (NaCl)	*Brachionus calyciflorus*	NOEC	Reproduction, general	1,120	80		100	mg/L CaCO3
2152725	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	*2,750*		98		mg/L CaCO3
741661	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	1,350	54		72	mg/L CaCO3
207720	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	*1,750*	94	102	104	mg/L CaCO3
741538	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	> 467	100	101	103	mg/L CaCO3
2148464	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Progeny counts/numbers	147		44		ppm
2148480	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Progeny counts/numbers	340		44		ppm
2148474	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Progeny counts/numbers	456		93		ppm
2153272	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	454		80		mg/L CaCO3
2152721	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	454	80		100	mg/L CaCO3
2152855	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	117		10		mg/L CaCO3
2153275	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	580		160		mg/L CaCO3
2153278	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	521		320		mg/L CaCO3
2153269	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	146		40		mg/L CaCO3
2152881	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC25	Reproduction, general	264		20		mg/L CaCO3
2148463	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Progeny counts/numbers	342		44		ppm
2148479	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Progeny counts/numbers	563		44		ppm
2148473	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Progeny counts/numbers	653		93		ppm
741679	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	750	40		48	mg/L CaCO3
741936	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	1,100	40		48	mg/L CaCO3
741950	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	670	40		48	mg/L CaCO3
742564	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	1,130	40		48	mg/L CaCO3
741951	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	960	40		48	mg/L CaCO3
741929	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	920	40		48	mg/L CaCO3

Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
742894	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	980	40		48	mg/L CaCO3
742895	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	610	40		48	mg/L CaCO3
741958	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	570	40		48	mg/L CaCO3
741948	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	720	40		48	mg/L CaCO3
741943	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	710	40		48	mg/L CaCO3
742899	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproducing organisms	680	40		48	mg/L CaCO3
2153273	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	697		80		mg/L CaCO3
2152731	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	697	80		100	mg/L CaCO3
2152873	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	161		10		mg/L CaCO3
2153276	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	895		160		mg/L CaCO3
2153279	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	700		320		mg/L CaCO3
2153270	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	481		40		mg/L CaCO3
2153267	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	IC50	Reproduction, general	301		20		mg/L CaCO3
767971	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767883	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	2,500	*80*		*100*	mg/L CaCO3
767957	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
766860	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	2,500	*80*		*100*	mg/L CaCO3
767901	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767860	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	2,500	*80*		*100*	mg/L CaCO3
767868	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
766868	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767874	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767893	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	2,500	*80*		*100*	mg/L CaCO3
767876	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767858	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
742568	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	850	54		72	mg/L CaCO3
767852	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767955	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767850	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
766862	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767866	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
766870	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767891	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767885	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767963	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767899	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3

Hardness values associated with sublethal toxicity endpoints.

						Hardness			
Result Number	**Chemical Name**	**Species Scientific Name**	**Endpoint**	**Effect Measurement**	**Concentration (mg/L)**	**Minimum**	**Mean**	**Maximum**	**Units**
767965	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767973	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	2,500	*80*		*100*	mg/L CaCO3
741947	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	1,000	40		48	mg/L CaCO3
741938	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	1,000	40		48	mg/L CaCO3
741952	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	250	40		48	mg/L CaCO3
742900	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	500	40		48	mg/L CaCO3
741944	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	500	40		48	mg/L CaCO3
742892	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	1,000	40		48	mg/L CaCO3
741957	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	1,000	40		48	mg/L CaCO3
741949	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	1,000	40		48	mg/L CaCO3
742563	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	1,000	40		48	mg/L CaCO3
742565	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	500	40		48	mg/L CaCO3
741945	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	250	40		48	mg/L CaCO3
741959	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEC	Reproducing organisms	500	40		48	mg/L CaCO3
2152727	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	LOEL	Progeny counts/numbers	2,160		98		mg/L CaCO3
767972	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767884	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767958	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
766861	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767902	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767861	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767869	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
766869	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767875	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767894	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
767877	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767859	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
741688	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	440	54		72	mg/L CaCO3
767853	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767956	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	130	*80*		*100*	mg/L CaCO3
767851	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
766863	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767867	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
766871	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767892	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	310	*80*		*100*	mg/L CaCO3
767886	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3

Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness			
						Minimum	Mean	Maximum	Units
767964	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767900	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767966	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	620	*80*		*100*	mg/L CaCO3
767974	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	1,250	*80*		*100*	mg/L CaCO3
742896	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	500	40		48	mg/L CaCO3
741953	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	250	40		48	mg/L CaCO3
742898	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	250	40		48	mg/L CaCO3
741937	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	500	40		48	mg/L CaCO3
742891	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	500	40		48	mg/L CaCO3
742893	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	500	40		48	mg/L CaCO3
742901	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	500	40		48	mg/L CaCO3
741648	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	500	40		48	mg/L CaCO3
741649	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	250	40		48	mg/L CaCO3
741946	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	< 250	40		48	mg/L CaCO3
741942	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	250	40		48	mg/L CaCO3
742897	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEC	Reproducing organisms	< 250	40		48	mg/L CaCO3
2152726	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEL	Progeny counts/numbers	1,296		98		mg/L CaCO3
741566	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	NOEL	Progeny counts/numbers	467	100	101	103	mg/L CaCO3
741654	Sodium chloride (NaCl)	*Daphnia ambigua*	EC50	Progeny counts/numbers	650	54		72	mg/L CaCO3
741696	Sodium chloride (NaCl)	*Daphnia ambigua*	LOEC	Progeny counts/numbers	850	54		72	mg/L CaCO3
741659	Sodium chloride (NaCl)	*Daphnia ambigua*	NOEC	Progeny counts/numbers	440	54		72	mg/L CaCO3
741530	Sodium chloride (NaCl)	*Daphnia magna*	EC50	Progeny counts/numbers	> 467	166	169	172	mg/L CaCO3
2152713	Sodium chloride (NaCl)	*Daphnia magna*	EC50	Progeny counts/numbers	*4,250*		170		mg/L CaCO3
2152732	Sodium chloride (NaCl)	*Daphnia magna*	IC25	Reproduction, general	421	80		100	mg/L CaCO3
2152733	Sodium chloride (NaCl)	*Daphnia magna*	IC50	Reproduction, general	1,037	80		100	mg/L CaCO3
2164766	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Fecundity	2,000		150		ppm
2164767	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Fecundity	1,000		150		ppm
2164768	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Fecundity	2,000		150		ppm
2164769	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Fecundity	2,000		150		ppm
2164770	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Fecundity	2,000		150		ppm
2164728	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Fecundity	1,000		150		ppm
2152735	Sodium chloride (NaCl)	*Daphnia magna*	LOEC	Reproduction, general	506	80		100	mg/L CaCO3
2152715	Sodium chloride (NaCl)	*Daphnia magna*	LOEL	Progeny counts/numbers	2,160		170		mg/L CaCO3
2164764	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Fecundity	500		150		ppm
2164761	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Fecundity	1,000		150		ppm
2164763	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Fecundity	1,000		150		ppm

Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness			
						Minimum	Mean	Maximum	Units
2164765	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Fecundity	1,000		150		ppm
2164762	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Fecundity	1,000		150		ppm
2164729	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Fecundity	500		150		ppm
2152734	Sodium chloride (NaCl)	*Daphnia magna*	NOEC	Reproduction, general	< 506	80		100	mg/L CaCO3
741546	Sodium chloride (NaCl)	*Daphnia magna*	NOEL	Progeny counts/numbers	467	166	169	172	mg/L CaCO3
2152714	Sodium chloride (NaCl)	*Daphnia magna*	NOEL	Progeny counts/numbers	1,296		170		mg/L CaCO3
201548	Sodium chloride (NaCl)	*Daphnia pulex*	LOEC	Fecundity	441		96		mg/L CaCO3
201551	Sodium chloride (NaCl)	*Daphnia pulex*	LOEC	Progeny counts/numbers	441		96		mg/L CaCO3
201549	Sodium chloride (NaCl)	*Daphnia pulex*	MATC	Fecundity	372		96		mg/L CaCO3
201552	Sodium chloride (NaCl)	*Daphnia pulex*	MATC	Progeny counts/numbers	372		96		mg/L CaCO3
201547	Sodium chloride (NaCl)	*Daphnia pulex*	NOEC	Fecundity	314		96		mg/L CaCO3
201550	Sodium chloride (NaCl)	*Daphnia pulex*	NOEC	Progeny counts/numbers	314		96		mg/L CaCO3
2152783	Sodium chloride (NaCl)	*Lumbriculus variegatus*	IC25	Reproduction, general	825	80		100	mg/L CaCO3
2152784	Sodium chloride (NaCl)	*Lumbriculus variegatus*	IC50	Reproduction, general	1,366	80		100	mg/L CaCO3
2152786	Sodium chloride (NaCl)	*Lumbriculus variegatus*	LOEC	Reproduction, general	366	80		100	mg/L CaCO3
2152785	Sodium chloride (NaCl)	*Lumbriculus variegatus*	NOEC	Reproduction, general	< 366	80		100	mg/L CaCO3
2152796	Sodium chloride (NaCl)	*Tubifex tubifex*	IC10	Reproduction, general	519	80		100	mg/L CaCO3
2152807	Sodium chloride (NaCl)	*Tubifex tubifex*	IC25	Reproduction, general	606	80		100	mg/L CaCO3
2152808	Sodium chloride (NaCl)	*Tubifex tubifex*	IC50	Reproduction, general	752	80		100	mg/L CaCO3
2152810	Sodium chloride (NaCl)	*Tubifex tubifex*	LOEC	Reproduction, general	964	80		100	mg/L CaCO3
2152809	Sodium chloride (NaCl)	*Tubifex tubifex*	NOEC	Reproduction, general	462	80		100	mg/L CaCO3
759472	Sulfuric acid magnesium salt	*Daphnia magna*	NOEC	Progeny counts/numbers	360		170		mg/L CaCO3
759471	Sulfuric acid magnesium salt	*Daphnia magna*	NOEC	Progeny counts/numbers	360		170		mg/L CaCO3
2017036	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC10	Progeny counts/numbers	137		40		ppm
2017047	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC10	Progeny counts/numbers	622		80		mg/L CaCO3
2017055	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC10	Progeny counts/numbers	1,174		160		ppm
2017064	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC10	Progeny counts/numbers	420		320		ppm
2017035	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC25	Progeny counts/numbers	246		40		ppm
2017046	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC25	Progeny counts/numbers	855		80		ppm
2017054	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC25	Progeny counts/numbers	1,212		160		ppm
2017063	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC25	Progeny counts/numbers	542		320		ppm
2017034	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	465		40		ppm
766229	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	1,458		92		mg/L CaCO3
766234	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	1,148		92		mg/L CaCO3
2017053	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	1,257		160		ppm
2017062	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	843		320		ppm

Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness Minimum	Hardness Mean	Hardness Maximum	Hardness Units
2017045	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	EC50	Progeny counts/numbers	1,129		80		ppm
2148468	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	IC25	Progeny counts/numbers	625		44		ppm
2148476	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	IC25	Progeny counts/numbers	496		44		ppm
2148470	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	IC25	Progeny counts/numbers	1,060		93		ppm
2148475	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	IC50	Progeny counts/numbers	715		44		ppm
2148469	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	IC50	Progeny counts/numbers	1,252		93		ppm
2148467	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	IC50	Progeny counts/numbers	766		44		ppm
2017032	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	150		40		ppm
2017043	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,250		80		ppm
766734	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	934	*80*		*100*	mg/L CaCO3
766737	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,195	*80*		*100*	mg/L CaCO3
766354	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,000		92		mg/L CaCO3
766344	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,000		92		mg/L CaCO3
766355	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,000		92		mg/L CaCO3
766230	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,236		92		mg/L CaCO3
766351	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,000		92		mg/L CaCO3
766356	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,000		92		mg/L CaCO3
766232	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	899		92		mg/L CaCO3
2017051	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	1,300		160		ppm
2017060	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	LOEC	Progeny counts/numbers	480		320		ppm
2017033	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	< 150		40		ppm
2017044	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	645		80		ppm
766735	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	780	*80*		*100*	mg/L CaCO3
766738	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	906	*80*		*100*	mg/L CaCO3
766855	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	1,301	*80*		*100*	mg/L CaCO3
766231	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	*618*		92		mg/L CaCO3
766233	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	*450*		92		mg/L CaCO3
2017052	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	775		160		ppm
2017061	Sulfuric acid sodium salt (1:2	*Ceriodaphnia dubia*	NOEC	Progeny counts/numbers	420		320		ppm
2017147	Sulfuric acid sodium salt (1:2	*Hyalella azteca*	EC10	Progeny counts/numbers	380		80		ppm
2017148	Sulfuric acid sodium salt (1:2	*Hyalella azteca*	EC25	Progeny counts/numbers	1,056		80		ppm
2017149	Sulfuric acid sodium salt (1:2	*Hyalella azteca*	EC50	Progeny counts/numbers	> 2,412		80		ppm
2017151	Sulfuric acid sodium salt (1:2	*Hyalella azteca*	LOEC	Progeny counts/numbers	2,412		80		ppm
2017150	Sulfuric acid sodium salt (1:2	*Hyalella azteca*	NOEC	Progeny counts/numbers	1,637		80		ppm
759464	Sulfuric acid, Calcium salt (1	*Daphnia magna*	NOEC	Progeny counts/numbers	360		170		mg/L CaCO3
759022	Sulfuric acid, Calcium salt (1	*Daphnia magna*	NOEC	Progeny counts/numbers	1,600	256		1,468	mg/L CaCO3

Supplemental Information in Support of a Use Attainability Analysis for Dissolved Minerals in the Red River in Arkansas
Prepared by FTN Associates, Ltd. for Southwestern Electric Power Company, September 27, 2016

Hardness values associated with sublethal toxicity endpoints.

Result Number	Chemical Name	Species Scientific Name	Endpoint	Effect Measurement	Concentration (mg/L)	Hardness			
						Minimum	Mean	Maximum	Units
759463	Sulfuric acid, Calcium salt (1	*Daphnia magna*	NOEC	Progeny counts/numbers	360		170		mg/L CaCO3
759484	Sulfuric acid, Calcium salt (1	*Daphnia magna*	NOEC	Progeny counts/numbers	1,600	256		1,468	mg/L CaCO3

	Reference Information				
Result Number	Reference Number	Author	Title	Source	Publication Year
2152811	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152812	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152813	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152815	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152814	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
201556	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201557	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201555	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2152816	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152817	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152819	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152818	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152752	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152753	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
768151	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768129	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768092	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768111	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768141	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768161	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768086	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768094	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768149	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768078	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768159	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768084	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768076	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768139	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
2152755	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
768070	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768068	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
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768109	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768102	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768131	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
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768112	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
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768162	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768087	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768095	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768150	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768079	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768160	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
768085	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
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741948	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
741943	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
742899	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
2153273	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152731	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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2153276	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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2153270	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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741952	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
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741959	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
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766863	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
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741937	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
742891	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
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742901	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
741648	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
741649	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
741946	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
741942	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
742897	71919	Aragao,M.A., and E.V. Perei	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-	2003
2152726	119414	Cowgill,U.M., and D.P. Mila	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
741566	106169	Cowgill,U.M., and D.P. Mila	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-	1991
741654	71674	Harmon,S.M., W.L. Specht,	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-8	2003
741696	71674	Harmon,S.M., W.L. Specht,	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-8	2003
741659	71674	Harmon,S.M., W.L. Specht,	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-8	2003
741530	106169	Cowgill,U.M., and D.P. Mila	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-	1991
2152713	119414	Cowgill,U.M., and D.P. Mila	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152732	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152733	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2164766	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164767	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164768	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164769	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164770	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164728	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2152735	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152715	119414	Cowgill,U.M., and D.P. Mila	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2164764	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164761	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164763	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013

	Reference Information				
Result Number	Reference Number	Author	Title	Source	Publication Year
2164765	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164762	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164729	163942	Kolkmeier,M.A., and B.W. B	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2152734	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
741546	106169	Cowgill,U.M., and D.P. Mila	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-	1991
2152714	119414	Cowgill,U.M., and D.P. Mila	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
201548	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201551	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201549	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201552	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201547	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201550	45826	Birge,W.J., J.A. Black, A.G. V	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2152783	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152784	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152786	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152785	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152796	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152807	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152808	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152810	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152809	158449	Elphick,J.R.F., K.D. Bergh, ar	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
759472	107318	Leblanc,G.A., and D.C. Surp	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759471	107318	Leblanc,G.A., and D.C. Surp	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
2017036	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017047	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017055	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017064	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017035	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017046	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017054	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017063	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017034	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766229	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766234	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017053	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017062	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011

	Reference Information				
Result Number	Reference Number	Author	Title	Source	Publication Year
2017045	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2148468	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148476	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148470	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148475	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148469	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148467	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2017032	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017043	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766734	116831	Illinois National History Sur	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.E	2005
766737	116831	Illinois National History Sur	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.E	2005
766354	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766344	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766355	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766230	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766351	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766356	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766232	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017051	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017060	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017033	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017044	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766735	116831	Illinois National History Sur	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.E	2005
766738	116831	Illinois National History Sur	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.E	2005
766855	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services,	1993
766231	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766233	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017052	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017061	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017147	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017148	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017149	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017151	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017150	153684	Elphick,J.R., M. Davies, G. G	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
759464	107318	Leblanc,G.A., and D.C. Surp	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759022	115903	E.G. and G. Bionomics	The Chronic Toxicity of Sulfate to the Water	Res.Rep.No.BN-79-10-546, Submitted to S	1979

	Reference Information				
Result Number	Reference Number	Author	Title	Source	Publication Year
759463	107318	Leblanc,G.A., and D.C. Surp	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759484	107318	Leblanc,G.A., and D.C. Surp	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2147187	10043524	Calcium chloride (CaCl2)	*Biomphalaria pfeifferi*	Snail	Molluscs	Renewal	Unmeasured	Fresh water	Lab
2152764	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160619	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160620	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2152765	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768180	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768284	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768182	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767342	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768283	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768183	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768181	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768286	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
742988	10043524	Calcium chloride (CaCl2)	*Cyprinodon variegatus*	Sheepshead Mir	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
44241	10043524	Calcium chloride (CaCl2)	*Daphnia hyalina*	Water Flea	Crustaceans	Static	Unmeasured	Fresh water	Lab
160622	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2152738	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152737	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
18686	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18685	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18688	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18684	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18683	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18687	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742079	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160621	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
32466	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
119478	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
768399	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768396	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768457	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768462	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2152736	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768402	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768460	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768398	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2153763	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
2153676	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
740759	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
740760	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
740732	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
2153700	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
2153697	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
740761	10043524	Calcium chloride (CaCl2)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
2063733	10043524	Calcium chloride (CaCl2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2063726	10043524	Calcium chloride (CaCl2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2063735	10043524	Calcium chloride (CaCl2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
740765	10043524	Calcium chloride (CaCl2)	*Ictalurus punctatus*	Channel Catfish	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
740777	10043524	Calcium chloride (CaCl2)	*Ictalurus punctatus*	Channel Catfish	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
126054	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
126052	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
126053	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
18689	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
196145	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
19522	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
40507	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
740778	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741717	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2153801	10043524	Calcium chloride (CaCl2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18693	10043524	Calcium chloride (CaCl2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18691	10043524	Calcium chloride (CaCl2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18690	10043524	Calcium chloride (CaCl2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18692	10043524	Calcium chloride (CaCl2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
2153798	10043524	Calcium chloride (CaCl2)	*Micropterus dolomieu*	Smallmouth Bas	Fish	Static	Unmeasured	Fresh water	Lab
740767	10043524	Calcium chloride (CaCl2)	*Micropterus dolomieu*	Smallmouth Bas	Fish	Static	Unmeasured	Fresh water	Lab
184730	10043524	Calcium chloride (CaCl2)	*Morone saxatilis ssp. x chry*	Sunshine Bass	Fish	Static	Unmeasured	Fresh water	Lab
99472	10043524	Calcium chloride (CaCl2)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
99476	10043524	Calcium chloride (CaCl2)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
99478	10043524	Calcium chloride (CaCl2)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
61681	10043524	Calcium chloride (CaCl2)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
99477	10043524	Calcium chloride (CaCl2)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
61680	10043524	Calcium chloride (CaCl2)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160623	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160624	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160625	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742078	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741718	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2153836	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2153835	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
768541	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
768539	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
742032	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742060	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742031	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
740738	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742933	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
740779	10043524	Calcium chloride (CaCl2)	*Sander vitreus*	Walleye	Fish	Static	Unmeasured	Fresh water	Lab
740744	10043524	Calcium chloride (CaCl2)	*Sander vitreus*	Walleye	Fish	Static	Unmeasured	Fresh water	Lab
2153802	10043524	Calcium chloride (CaCl2)	*Sander vitreus*	Walleye	Fish	Static	Unmeasured	Fresh water	Lab
740734	10043524	Calcium chloride (CaCl2)	*Sander vitreus*	Walleye	Fish	Static	Unmeasured	Fresh water	Lab
22954	7786303	Magnesium chloride	*Austropotamobius pallipes*	Crayfish	Crustaceans	Static	Measured	Fresh water	Lab
22953	7786303	Magnesium chloride	*Austropotamobius pallipes*	Crayfish	Crustaceans	Static	Measured	Fresh water	Lab
22952	7786303	Magnesium chloride	*Austropotamobius pallipes*	Crayfish	Crustaceans	Static	Measured	Fresh water	Lab
160513	7786303	Magnesium chloride	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160514	7786303	Magnesium chloride	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
768178	7786303	Magnesium chloride	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768176	7786303	Magnesium chloride	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768177	7786303	Magnesium chloride	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768277	7786303	Magnesium chloride	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
22960	7786303	Magnesium chloride	*Daphnia hyalina*	Water Flea	Crustaceans	Static	Unmeasured	Fresh water	Lab
160516	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
25475	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Not Reported	Fresh water	Lab
25474	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Not Reported	Fresh water	Lab
25476	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
160515	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
768454	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768393	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768501	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768451	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768390	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768392	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768395	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768456	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768503	7786303	Magnesium chloride	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2064007	7786303	Magnesium chloride	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064009	7786303	Magnesium chloride	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064004	7786303	Magnesium chloride	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
22955	7786303	Magnesium chloride	*Orconectes limosus*	Crayfish	Crustaceans	Static	Measured	Fresh water	Lab
22957	7786303	Magnesium chloride	*Orconectes limosus*	Crayfish	Crustaceans	Static	Measured	Fresh water	Lab
22956	7786303	Magnesium chloride	*Orconectes limosus*	Crayfish	Crustaceans	Static	Measured	Fresh water	Lab
160517	7786303	Magnesium chloride	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160518	7786303	Magnesium chloride	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160519	7786303	Magnesium chloride	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2055980	7647145	Sodium chloride (NaCl)	*Acipenser sinensis*	Chinese Sturgeo	Fish	Renewal	Unmeasured	Fresh water	Lab
741753	7647145	Sodium chloride (NaCl)	*Acroneuria abnormis*	Common Stonef	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
741747	7647145	Sodium chloride (NaCl)	*Acroneuria abnormis*	Common Stonef	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741782	7647145	Sodium chloride (NaCl)	*Acroneuria abnormis*	Common Stonef	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741787	7647145	Sodium chloride (NaCl)	*Agnetina capitata*	Stonefly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
741741	7647145	Sodium chloride (NaCl)	*Agnetina capitata*	Stonefly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741740	7647145	Sodium chloride (NaCl)	*Agnetina capitata*	Stonefly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
2455	7647145	Sodium chloride (NaCl)	*Anguilla rostrata*	American Eel	Fish	Static	Unmeasured	Fresh water	Lab
12210	7647145	Sodium chloride (NaCl)	*Anguilla rostrata*	American Eel	Fish	Static	Unmeasured	Fresh water	Lab
231580	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231578	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231574	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231577	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231575	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231576	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231579	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231581	7647145	Sodium chloride (NaCl)	*Argia sp.*	Damselfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
231569	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231568	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231571	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231567	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231573	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231572	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231563	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231566	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231570	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231565	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
231564	7647145	Sodium chloride (NaCl)	*Asellus communis*	Aquatic Sowbug	Crustaceans	Static	Unmeasured	Fresh water	Lab
764333	7647145	Sodium chloride (NaCl)	*Biomphalaria alexandrina*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764325	7647145	Sodium chloride (NaCl)	*Biomphalaria alexandrina*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764330	7647145	Sodium chloride (NaCl)	*Biomphalaria alexandrina*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764326	7647145	Sodium chloride (NaCl)	*Biomphalaria alexandrina*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764329	7647145	Sodium chloride (NaCl)	*Biomphalaria alexandrina*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2152847	7647145	Sodium chloride (NaCl)	*Brachionus calyciflorus*	Rotifer	Invertebrates; Standard Test Species	Static	Measured	Fresh water	Lab
741752	7647145	Sodium chloride (NaCl)	*Brachycentrus numerosus*	Caddisfly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
764481	7647145	Sodium chloride (NaCl)	*Bulinus truncatus*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
187905	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
187903	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
187902	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
187901	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
187906	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
187904	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
742006	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
742038	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
742918	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
742919	7647145	Sodium chloride (NaCl)	*Caenorhabditis elegans*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
196818	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196799	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196831	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196814	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196791	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196776	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196783	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196795	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196828	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196816	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
167864	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Not Reported	Fresh water	Lab
75451	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Static	Measured	Fresh water	Lab
196826	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196803	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196788	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196784	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196775	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196834	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196808	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196827	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196836	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196823	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196780	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196790	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196804	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196811	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196824	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196830	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196778	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196807	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196802	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196810	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196822	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196794	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196798	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196786	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196782	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196796	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196800	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab

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196812	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196779	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196792	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196815	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196835	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196820	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196774	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196806	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196832	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196840	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196819	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196787	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196801	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196817	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196837	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
167863	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Not Reported	Fresh water	Lab
196793	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196805	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196777	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196785	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196797	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196825	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196813	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196789	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196821	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196833	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196829	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196781	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
196809	7647145	Sodium chloride (NaCl)	*Carassius auratus*	Goldfish	Fish; U.S. Exotic/Nuisance Species	Renewal	Unmeasured	Fresh water	Lab
26112	7647145	Sodium chloride (NaCl)	*Carassius carassius*	Crucian Carp	Fish	Static	Unmeasured	Fresh water	Lab
741686	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2152825	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2075467	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2153271	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153268	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2075442	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075434	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075468	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075410	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075471	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2153274	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152724	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152723	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152874	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153277	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153280	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2075466	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075469	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075470	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2074934	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075402	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075426	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2075418	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
120843	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120826	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120844	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120840	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120842	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741547	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120829	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120845	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120837	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120827	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120841	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120824	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120839	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120828	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120825	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120838	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160319	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160320	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741288	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
207716	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
207717	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
742567	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
767903	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766864	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767897	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767961	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767879	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767895	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767872	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767959	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767870	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767967	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766872	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766866	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767889	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767856	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767969	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767846	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767953	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767887	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767881	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767975	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767864	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767862	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767848	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767854	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251007	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251003	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251001	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
250999	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251009	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
250998	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251005	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741687	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
767855	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767904	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766865	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767898	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767962	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767880	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767896	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767873	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767960	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767871	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767968	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766873	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766867	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767890	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767857	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767970	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767847	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767954	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767888	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767882	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767976	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767865	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767863	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767849	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
250997	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251000	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120855	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251004	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251002	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251008	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251006	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741695	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
741699	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
741671	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768272	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768340	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768268	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768173	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
207718	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
207719	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
741660	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
207721	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152722	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
742530	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768266	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768264	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768175	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
741435	7647145	Sodium chloride (NaCl)	*Ceriodaphnia reticulata*	Water Flea	Crustaceans	Static	Unmeasured	Fresh water	Lab
741635	7647145	Sodium chloride (NaCl)	*Channa punctata*	Snake-Head Cat	Fish	Renewal	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
741678	7647145	Sodium chloride (NaCl)	*Channa punctata*	Snake-Head Cat	Fish	Renewal	Unmeasured	Fresh water	Lab
2060209	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060210	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060211	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060212	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060213	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060214	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060216	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060217	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060218	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060220	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060221	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060222	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060223	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060225	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2152838	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060201	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060236	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060237	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060228	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060247	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060275	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060254	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060259	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2060270	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Static	Measured	Fresh water	Lab
2211037	7647145	Sodium chloride (NaCl)	*Chironomus tentans*	Midge	Insects/Spiders; Standard Test Specie	Flow-through	Measured	Fresh water	Lab
741489	7647145	Sodium chloride (NaCl)	*Clarias batrachus*	Walking Catfish	Fish	Static	Unmeasured	Fresh water	Lab
2162289	7647145	Sodium chloride (NaCl)	*Clarias gariepinus*	Zambezi Barbel	Fish	Static	Unmeasured	Fresh water	Lab
2162290	7647145	Sodium chloride (NaCl)	*Clarias gariepinus*	Zambezi Barbel	Fish	Static	Unmeasured	Fresh water	Lab
2211025	7647145	Sodium chloride (NaCl)	*Corbicula manilensis*	Asiatic Clam	Molluscs; U.S. Exotic/Nuisance Speci	Flow-through	Measured	Fresh water	Lab
2211024	7647145	Sodium chloride (NaCl)	*Corbicula manilensis*	Asiatic Clam	Molluscs; U.S. Exotic/Nuisance Speci	Flow-through	Measured	Fresh water	Lab
16495	7647145	Sodium chloride (NaCl)	*Cricotopus trifasciatus*	Midge	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
26114	7647145	Sodium chloride (NaCl)	*Culex sp.*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
26113	7647145	Sodium chloride (NaCl)	*Culex sp.*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
2152587	7647145	Sodium chloride (NaCl)	*Culiseta incidens*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
2152588	7647145	Sodium chloride (NaCl)	*Culiseta incidens*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
2152592	7647145	Sodium chloride (NaCl)	*Culiseta incidens*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
2060148	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060157	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060168	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060161	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060198	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060191	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060190	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
2060189	7647145	Sodium chloride (NaCl)	*Cyprinella leedsi*	Bannerfin Shine	Fish	Renewal	Measured	Fresh water	Lab
742566	7647145	Sodium chloride (NaCl)	*Daphnia ambigua*	Water Flea	Crustaceans	Static	Measured	Fresh water	Lab
741697	7647145	Sodium chloride (NaCl)	*Daphnia ambigua*	Water Flea	Crustaceans	Renewal	Measured	Fresh water	Lab
741698	7647145	Sodium chloride (NaCl)	*Daphnia ambigua*	Water Flea	Crustaceans	Renewal	Measured	Fresh water	Lab
2164727	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
18462	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18463	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18461	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
18464	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2152826	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759179	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152709	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152708	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
144221	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
144220	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
144218	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
144219	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
144222	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160322	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742529	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160321	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767302	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
772103	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767308	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
742019	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18460	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
119469	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
31699	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2164731	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768426	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768527	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768489	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768475	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768531	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768496	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768445	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768499	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768467	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768521	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768486	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2164732	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152707	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768428	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768533	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768500	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768431	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768498	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
741531	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768450	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768523	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768530	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2210504	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
768520	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768488	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
768526	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2210505	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742069	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742931	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742926	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742068	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

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742927	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741434	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2055812	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
201545	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
201566	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
201558	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
740690	7647145	Sodium chloride (NaCl)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
740662	7647145	Sodium chloride (NaCl)	*Dreissena polymorpha*	Zebra Mussel	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
741563	7647145	Sodium chloride (NaCl)	*Elliptio complanata*	Mussel, Eastern	Molluscs	Static	Measured	Fresh water	Lab
803856	7647145	Sodium chloride (NaCl)	*Elliptio complanata*	Mussel, Eastern	Molluscs	Static	Measured	Fresh water	Lab
2052775	7647145	Sodium chloride (NaCl)	*Epioblasma torulosa ssp. ra*	Northern Riffles	Molluscs; U.S. Threatened and Endar	Static	Unmeasured	Fresh water	Lab
231524	7647145	Sodium chloride (NaCl)	*Erpobdella punctata*	Red Leech	Worms	Static	Unmeasured	Fresh water	Lab
231523	7647145	Sodium chloride (NaCl)	*Erpobdella punctata*	Red Leech	Worms	Static	Unmeasured	Fresh water	Lab
231527	7647145	Sodium chloride (NaCl)	*Erpobdella punctata*	Red Leech	Worms	Static	Unmeasured	Fresh water	Lab
231525	7647145	Sodium chloride (NaCl)	*Erpobdella punctata*	Red Leech	Worms	Static	Unmeasured	Fresh water	Lab
231526	7647145	Sodium chloride (NaCl)	*Erpobdella punctata*	Red Leech	Worms	Static	Unmeasured	Fresh water	Lab
2062417	7647145	Sodium chloride (NaCl)	*Fundulus seminolis*	Seminole Killifis	Fish	Static	Unmeasured	Fresh water	Lab
2062416	7647145	Sodium chloride (NaCl)	*Fundulus seminolis*	Seminole Killifis	Fish	Static	Unmeasured	Fresh water	Lab
2064155	7647145	Sodium chloride (NaCl)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064156	7647145	Sodium chloride (NaCl)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064154	7647145	Sodium chloride (NaCl)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
118481	7647145	Sodium chloride (NaCl)	*Gambusia holbrooki*	Eastern Mosquit	Fish	Flow-through	Measured	Fresh water	Lab
741789	7647145	Sodium chloride (NaCl)	*Gammarus pseudolimnaeus*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742663	7647145	Sodium chloride (NaCl)	*Gammarus pseudolimnaeus*	Scud	Crustaceans; Standard Test Species	Flow-through	Unmeasured	Fresh water	Lab
2053816	7647145	Sodium chloride (NaCl)	*Gammarus roeseli*	Scud	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2053813	7647145	Sodium chloride (NaCl)	*Gammarus roeseli*	Scud	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2053818	7647145	Sodium chloride (NaCl)	*Gammarus roeseli*	Scud	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2053814	7647145	Sodium chloride (NaCl)	*Gammarus roeseli*	Scud	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2053819	7647145	Sodium chloride (NaCl)	*Gammarus roeseli*	Scud	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2053817	7647145	Sodium chloride (NaCl)	*Gammarus roeseli*	Scud	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
231537	7647145	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	Flatly Coiled Gyr	Molluscs	Static	Unmeasured	Fresh water	Lab
231535	7647145	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	Flatly Coiled Gyr	Molluscs	Static	Unmeasured	Fresh water	Lab
231533	7647145	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	Flatly Coiled Gyr	Molluscs	Static	Unmeasured	Fresh water	Lab
231536	7647145	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	Flatly Coiled Gyr	Molluscs	Static	Unmeasured	Fresh water	Lab
231534	7647145	Sodium chloride (NaCl)	*Gyraulus circumstriatus*	Flatly Coiled Gyr	Molluscs	Static	Unmeasured	Fresh water	Lab
2075474	7647145	Sodium chloride (NaCl)	*Gyraulus parvus*	Ash Gyro	Molluscs	Static	Unmeasured	Fresh water	Lab
2075475	7647145	Sodium chloride (NaCl)	*Gyraulus parvus*	Ash Gyro	Molluscs	Static	Unmeasured	Fresh water	Lab
2164548	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164547	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164549	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164550	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164551	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164553	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164552	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164554	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152842	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2164556	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164558	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164555	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164557	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
16496	7647145	Sodium chloride (NaCl)	*Hydroptila angusta*	Caddisfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
740725	7647145	Sodium chloride (NaCl)	*Ictalurus punctatus*	Channel Catfish	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab

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741710	7647145	Sodium chloride (NaCl)	*Ictalurus punctatus*	Channel Catfish	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
740689	7647145	Sodium chloride (NaCl)	*Ictalurus punctatus*	Channel Catfish	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2164711	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164646	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164696	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164693	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164628	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164700	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164641	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164625	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164613	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164645	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164618	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164695	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164692	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164699	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164640	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164627	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164710	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164623	7647145	Sodium chloride (NaCl)	*Isonychia bicolor*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2052772	7647145	Sodium chloride (NaCl)	*Lampsilis cardium*	Plain Pocketboo	Molluscs	Static	Unmeasured	Fresh water	Lab
2052780	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052782	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052786	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052784	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052781	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052783	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
741564	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Measured	Fresh water	Lab
2052773	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052774	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2052785	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
741584	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Renewal	Measured	Fresh water	Lab
803857	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Measured	Fresh water	Lab
2052779	7647145	Sodium chloride (NaCl)	*Lampsilis fasciola*	Wavy-Rayed Lar	Molluscs	Static	Unmeasured	Fresh water	Lab
2224815	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Renewal	Unmeasured	Fresh water	Lab
2052777	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
2052778	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
2052770	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
2052776	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
2052771	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
741568	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Measured	Fresh water	Lab
803860	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Measured	Fresh water	Lab
741594	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Renewal	Measured	Fresh water	Lab
2224806	7647145	Sodium chloride (NaCl)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Renewal	Unmeasured	Fresh water	Lab
18184	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
196203	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
201540	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
40512	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
13417	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
220765	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
2210845	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
740684	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
740724	7647145	Sodium chloride (NaCl)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2224820	7647145	Sodium chloride (NaCl)	*Ligumia recta*	Black Sandshell	Molluscs	Renewal	Unmeasured	Fresh water	Lab
2224821	7647145	Sodium chloride (NaCl)	*Ligumia recta*	Black Sandshell	Molluscs	Renewal	Unmeasured	Fresh water	Lab
231519	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231583	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231522	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231584	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231582	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231521	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231518	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
231520	7647145	Sodium chloride (NaCl)	*Limnodrilus hoffmeisteri*	Tubificid Worm,	Worms	Static	Unmeasured	Fresh water	Lab
203677	7647145	Sodium chloride (NaCl)	*Lirceus fontinalis*	Aquatic Sowbug	Crustaceans	Flow-through	Measured	Fresh water	Lab
203678	7647145	Sodium chloride (NaCl)	*Lirceus fontinalis*	Aquatic Sowbug	Crustaceans	Flow-through	Measured	Fresh water	Lab
2152829	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Static	Measured	Fresh water	Lab
2060288	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060289	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060290	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060276	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060292	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060293	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060291	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060317	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060318	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060307	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060306	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060315	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060319	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060302	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060309	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
18185	7647145	Sodium chloride (NaCl)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18186	7647145	Sodium chloride (NaCl)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764505	7647145	Sodium chloride (NaCl)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
741739	7647145	Sodium chloride (NaCl)	*Maccaffertium mexicanum*	Mayfly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
2164606	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164588	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164592	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164600	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164609	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164603	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164595	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164605	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164587	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164591	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164599	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164608	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164602	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
2164594	7647145	Sodium chloride (NaCl)	*Maccaffertium sp.*	Mayfly	Insects/Spiders	Renewal	Unmeasured	Fresh water	Lab
802493	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802503	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802492	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802504	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802490	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
802505	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802506	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802491	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802494	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802495	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802499	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802500	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802501	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802497	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802496	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802502	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6172	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6170	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6174	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6169	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6173	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6167	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6171	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6168	7647145	Sodium chloride (NaCl)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
2075478	7647145	Sodium chloride (NaCl)	*Musculium transversum*	Long Fingernail (	Molluscs	Static	Unmeasured	Fresh water	Lab
16494	7647145	Sodium chloride (NaCl)	*Nais variabilis*	Oligochaete	Worms	Static	Unmeasured	Fresh water	Lab
2060327	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060325	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060326	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060329	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060335	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060336	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060333	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060352	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060350	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060361	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060360	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060342	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
2060354	7647145	Sodium chloride (NaCl)	*Nephelopsis obscura*	Leech	Worms	Renewal	Measured	Fresh water	Lab
740693	7647145	Sodium chloride (NaCl)	*Perca flavescens*	Yellow Perch	Fish	Static	Unmeasured	Fresh water	Lab
741709	7647145	Sodium chloride (NaCl)	*Perca flavescens*	Yellow Perch	Fish	Static	Unmeasured	Fresh water	Lab
201542	7647145	Sodium chloride (NaCl)	*Physa gyrina*	Pouch Snail	Molluscs	Flow-through	Measured	Fresh water	Lab
201543	7647145	Sodium chloride (NaCl)	*Physa gyrina*	Pouch Snail	Molluscs	Flow-through	Measured	Fresh water	Lab
231546	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231545	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231550	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231549	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231554	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231544	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231553	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231547	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231542	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231551	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231548	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231540	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231543	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231539	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
231538	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231552	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
231541	7647145	Sodium chloride (NaCl)	*Physa heterostropha*	Pond Snail, Pneu	Molluscs	Static	Unmeasured	Fresh water	Lab
196750	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196772	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196755	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196735	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196768	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196767	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196736	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196713	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196744	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196724	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196763	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759180	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196745	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196714	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196748	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196728	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196741	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196756	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196729	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196760	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196759	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196731	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196839	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196770	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196720	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196766	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196723	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196732	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196740	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152828	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
196716	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196751	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196711	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196737	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196712	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196764	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196733	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196758	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196725	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196752	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196715	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196727	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196771	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196721	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196739	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196754	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196717	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196747	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196743	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
196762	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196719	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2055542	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160325	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160324	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
167861	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Not Reported	Fresh water	Lab
160323	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
201537	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
196726	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196769	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196765	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196734	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196761	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196738	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196718	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196753	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196757	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196749	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196722	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196742	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196746	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196773	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
196730	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
167862	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Not Reported	Fresh water	Lab
42866	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
96881	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
42423	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
96906	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
14389	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
68598	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768104	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768072	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768157	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768066	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768058	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768096	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768127	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768143	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768090	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768088	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768123	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768163	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768153	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768098	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768074	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768080	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768113	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768107	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768082	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768137	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768147	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768064	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnow	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
768133	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768117	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
201561	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
2210509	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741744	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
742691	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
741410	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
201562	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
68599	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
42865	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
14383	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
96885	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
69057	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
96907	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768105	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
201560	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
768073	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768158	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768067	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768059	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768097	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768128	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768144	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768091	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768089	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768124	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768164	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768154	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768099	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768075	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768081	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768114	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768108	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768083	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768138	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768148	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768065	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768134	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768118	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741400	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Flow-through	Unmeasured	Fresh water	Lab
742666	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
740697	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
201538	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Flow-through	Measured	Fresh water	Lab
768558	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
740694	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
740696	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742059	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742029	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742057	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742070	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742077	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742932	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
742058	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
768559	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
742027	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742030	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742026	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
231532	7647145	Sodium chloride (NaCl)	*Planorbella campanulata*	Snail, Bellmouth	Molluscs	Static	Unmeasured	Fresh water	Lab
231528	7647145	Sodium chloride (NaCl)	*Planorbella campanulata*	Snail, Bellmouth	Molluscs	Static	Unmeasured	Fresh water	Lab
231531	7647145	Sodium chloride (NaCl)	*Planorbella campanulata*	Snail, Bellmouth	Molluscs	Static	Unmeasured	Fresh water	Lab
231530	7647145	Sodium chloride (NaCl)	*Planorbella campanulata*	Snail, Bellmouth	Molluscs	Static	Unmeasured	Fresh water	Lab
231529	7647145	Sodium chloride (NaCl)	*Planorbella campanulata*	Snail, Bellmouth	Molluscs	Static	Unmeasured	Fresh water	Lab
26115	7647145	Sodium chloride (NaCl)	*Poecilia latipinna*	Sailfin Molly	Fish	Static	Unmeasured	Fresh water	Lab
26116	7647145	Sodium chloride (NaCl)	*Poecilia latipinna*	Sailfin Molly	Fish	Static	Unmeasured	Fresh water	Lab
2060321	7647145	Sodium chloride (NaCl)	*Poecilia reticulata*	Guppy	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060324	7647145	Sodium chloride (NaCl)	*Poecilia reticulata*	Guppy	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2060323	7647145	Sodium chloride (NaCl)	*Poecilia reticulata*	Guppy	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
741795	7647145	Sodium chloride (NaCl)	*Pycnopsyche guttifera*	Caddisfly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
742665	7647145	Sodium chloride (NaCl)	*Pycnopsyche guttifera*	Caddisfly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
742664	7647145	Sodium chloride (NaCl)	*Pycnopsyche guttifera*	Caddisfly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741756	7647145	Sodium chloride (NaCl)	*Pycnopsyche lepida*	Northern Caddis	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
741783	7647145	Sodium chloride (NaCl)	*Pycnopsyche lepida*	Northern Caddis	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741751	7647145	Sodium chloride (NaCl)	*Pycnopsyche lepida*	Northern Caddis	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
2170552	7647145	Sodium chloride (NaCl)	*Rocio octofasciata*	Jack Dempsey C	Fish	Static	Unmeasured	Fresh water	Lab
740686	7647145	Sodium chloride (NaCl)	*Sander vitreus*	Walleye	Fish	Static	Unmeasured	Fresh water	Lab
740685	7647145	Sodium chloride (NaCl)	*Sander vitreus*	Walleye	Fish	Static	Unmeasured	Fresh water	Lab
2075473	7647145	Sodium chloride (NaCl)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
2075472	7647145	Sodium chloride (NaCl)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
231556	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231560	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231561	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231559	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231557	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231558	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231562	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
231555	7647145	Sodium chloride (NaCl)	*Sphaerium sp.*	Orb Cockle, Fing	Molluscs	Static	Unmeasured	Fresh water	Lab
741781	7647145	Sodium chloride (NaCl)	*Stenacron interpunctatum*	Mayfly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741788	7647145	Sodium chloride (NaCl)	*Tipula abdominalis*	Crane Fly	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
741743	7647145	Sodium chloride (NaCl)	*Tipula abdominalis*	Crane Fly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
741742	7647145	Sodium chloride (NaCl)	*Tipula abdominalis*	Crane Fly	Insects/Spiders	Flow-through	Unmeasured	Fresh water	Lab
2075476	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2075477	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2152833	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Static	Measured	Fresh water	Lab
803853	7647145	Sodium chloride (NaCl)	*Villosa constricta*	Notched Rainbo	Molluscs	Static	Measured	Fresh water	Lab
741562	7647145	Sodium chloride (NaCl)	*Villosa constricta*	Notched Rainbo	Molluscs	Static	Measured	Fresh water	Lab
741561	7647145	Sodium chloride (NaCl)	*Villosa delumbis*	Eastern Creeksh	Molluscs	Static	Measured	Fresh water	Lab
741583	7647145	Sodium chloride (NaCl)	*Villosa delumbis*	Eastern Creeksh	Molluscs	Renewal	Measured	Fresh water	Lab
803850	7647145	Sodium chloride (NaCl)	*Villosa delumbis*	Eastern Creeksh	Molluscs	Static	Measured	Fresh water	Lab
759169	7487889	Sulfuric acid magnesium salt (1:1)	*Biomphalaria alexandrina*	Snail	Molluscs	Renewal	Unmeasured	Fresh water	Lab
764615	7487889	Sulfuric acid magnesium salt (1:1)	*Bulinus truncatus*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
160288	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160287	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767346	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767362	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
767348	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767402	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767365	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767407	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767364	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767366	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767410	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767347	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767405	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767461	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767465	7487889	Sulfuric acid magnesium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759182	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160289	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160290	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
24910	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
24907	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
24908	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
24906	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
24909	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767488	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767485	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767471	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767487	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767490	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759473	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759470	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2064012	7487889	Sulfuric acid magnesium salt (1:1)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064016	7487889	Sulfuric acid magnesium salt (1:1)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064015	7487889	Sulfuric acid magnesium salt (1:1)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
220044	7487889	Sulfuric acid magnesium salt (1:1)	*Heterorhabditis bacterioph*	Nematode	Worms	Static	Unmeasured	Fresh water	Lab
24911	7487889	Sulfuric acid magnesium salt (1:1)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
24914	7487889	Sulfuric acid magnesium salt (1:1)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
24912	7487889	Sulfuric acid magnesium salt (1:1)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
24913	7487889	Sulfuric acid magnesium salt (1:1)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
24915	7487889	Sulfuric acid magnesium salt (1:1)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
89658	7487889	Sulfuric acid magnesium salt (1:1)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
61287	7487889	Sulfuric acid magnesium salt (1:1)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
61288	7487889	Sulfuric acid magnesium salt (1:1)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
61289	7487889	Sulfuric acid magnesium salt (1:1)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
89662	7487889	Sulfuric acid magnesium salt (1:1)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
89660	7487889	Sulfuric acid magnesium salt (1:1)	*Oryzias latipes*	Japanese Medal	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160291	7487889	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
759181	7487889	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160292	7487889	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160293	7487889	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767519	7487889	Sulfuric acid magnesium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
18178	7757826	Sulfuric acid sodium salt (1:2)	*Amphipoda*	Scud Order	Crustaceans	Static	Unmeasured	Fresh water	Lab
18176	7757826	Sulfuric acid sodium salt (1:2)	*Amphipoda*	Scud Order	Crustaceans	Static	Unmeasured	Fresh water	Lab
18177	7757826	Sulfuric acid sodium salt (1:2)	*Amphipoda*	Scud Order	Crustaceans	Static	Unmeasured	Fresh water	Lab
18179	7757826	Sulfuric acid sodium salt (1:2)	*Amphipoda*	Scud Order	Crustaceans	Static	Unmeasured	Fresh water	Lab
764340	7757826	Sulfuric acid sodium salt (1:2)	*Biomphalaria alexandrina*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764585	7757826	Sulfuric acid sodium salt (1:2)	*Bulinus truncatus*	Snail	Molluscs	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2017048	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017057	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017040	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017029	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
766435	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766427	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766433	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766419	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766431	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766429	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766216	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766604	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766426	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766228	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766227	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766221	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766226	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759078	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766432	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160330	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766430	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766418	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766428	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766215	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160331	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766434	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766576	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766609	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766554	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766567	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766580	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766565	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766607	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766556	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766720	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766574	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766717	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766577	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766560	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766603	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766575	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766581	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766722	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766573	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766578	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766595	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766586	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766610	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766555	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766566	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766718	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766570	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
766723	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766605	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766591	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766724	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766572	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766548	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766606	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766585	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766588	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766608	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766551	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766563	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766592	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766726	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766587	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766612	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766561	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766590	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766593	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766594	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766571	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766584	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766745	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766748	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766224	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766222	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759072	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017050	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017059	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017042	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017031	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
766739	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766730	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766225	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766223	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759073	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017049	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017058	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017041	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017030	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
761596	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766740	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766731	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766854	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
767457	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767375	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767380	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767350	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767411	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767454	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767351	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767459	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
767456	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767412	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767353	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767376	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766218	7757826	Sulfuric acid sodium salt (1:2)	*Chironomus tentans*	Midge	Insects/Spiders; Standard Test Specie	Static	Unmeasured	Fresh water	Lab
766217	7757826	Sulfuric acid sodium salt (1:2)	*Chironomus tentans*	Midge	Insects/Spiders; Standard Test Specie	Static	Unmeasured	Fresh water	Lab
18144	7757826	Sulfuric acid sodium salt (1:2)	*Culex sp.*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
18145	7757826	Sulfuric acid sodium salt (1:2)	*Culex sp.*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
759175	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767294	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767307	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767306	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767296	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767303	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767295	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767298	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
18452	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18147	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18453	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18454	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18451	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18450	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18146	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
759092	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767297	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767305	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767299	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
160332	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160333	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
119467	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
31684	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
759090	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759091	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767473	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767496	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767475	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767491	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767505	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767494	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767507	7757826	Sulfuric acid sodium salt (1:2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2064207	7757826	Sulfuric acid sodium salt (1:2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064204	7757826	Sulfuric acid sodium salt (1:2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064206	7757826	Sulfuric acid sodium salt (1:2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2064205	7757826	Sulfuric acid sodium salt (1:2)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2017113	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017143	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017144	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766367	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766638	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766642	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766639	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766712	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
766716	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766618	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766713	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766641	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766616	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766625	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766633	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766631	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766640	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766644	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766627	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766617	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766624	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766619	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766714	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766715	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766629	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766710	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766623	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766643	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766630	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766635	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766711	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766637	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766622	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766709	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766628	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766626	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766636	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766632	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766634	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766621	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767290	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767310	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767293	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767291	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767311	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767312	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767289	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759093	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767292	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766365	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766415	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
759094	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017146	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766446	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766441	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766438	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766439	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766443	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766442	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759095	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2017145	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766444	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766445	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766440	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
766659	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766663	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766664	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766658	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766666	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766662	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766657	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766656	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766665	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
766661	7757826	Sulfuric acid sodium salt (1:2)	*Lampsilis siliquoidea*	Lamp-Mussel	Molluscs	Static	Unmeasured	Fresh water	Lab
18180	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
126071	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
126072	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
126070	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
200196	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
40509	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
40508	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
13415	7757826	Sulfuric acid sodium salt (1:2)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
18150	7757826	Sulfuric acid sodium salt (1:2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18151	7757826	Sulfuric acid sodium salt (1:2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18152	7757826	Sulfuric acid sodium salt (1:2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
18149	7757826	Sulfuric acid sodium salt (1:2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
764588	7757826	Sulfuric acid sodium salt (1:2)	*Lymnaea sp.*	Pond Snail	Molluscs	Static	Unmeasured	Fresh water	Lab
802675	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802677	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802664	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802665	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802678	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802663	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802676	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802666	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802668	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802670	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802671	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802667	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802669	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802672	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802674	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
802673	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6211	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41636	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41641	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6217	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41642	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41640	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6214	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6216	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6215	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
41635	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6212	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6213	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41637	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41638	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
41639	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
6218	7757826	Sulfuric acid sodium salt (1:2)	*Morone saxatilis*	Striped Bass	Fish	Static	Unmeasured	Fresh water	Lab
2017209	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017178	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017188	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017168	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017210	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017179	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017189	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017169	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017211	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017180	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017190	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017170	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
759176	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
160335	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160334	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160336	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2017213	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017182	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017172	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017192	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
761598	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2017191	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
766856	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017212	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017181	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017171	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
18153	7757826	Sulfuric acid sodium salt (1:2)	*Poecilia latipinna*	Sailfin Molly	Fish	Static	Unmeasured	Fresh water	Lab
18148	7757826	Sulfuric acid sodium salt (1:2)	*Poecilia latipinna*	Sailfin Molly	Fish	Static	Unmeasured	Fresh water	Lab
766364	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766706	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766705	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766363	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766707	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766703	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766704	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
766708	7757826	Sulfuric acid sodium salt (1:2)	*Sphaerium simile*	Grooved Fingerr	Molluscs	Static	Unmeasured	Fresh water	Lab
160500	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160498	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160497	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767397	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767360	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767399	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767463	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767462	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767317	7778189	Sulfuric acid, Calcium salt (1:1)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
160499	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
759021	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Flow-through	Measured	Fresh water	Lab
767483	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767467	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767469	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
767484	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
759462	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759465	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2063748	7778189	Sulfuric acid, Calcium salt (1:1)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2063749	7778189	Sulfuric acid, Calcium salt (1:1)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
2063750	7778189	Sulfuric acid, Calcium salt (1:1)	*Gambusia affinis*	Western Mosqu	Fish; U.S. Exotic/Nuisance Species	Static	Unmeasured	Fresh water	Lab
196198	7778189	Sulfuric acid, Calcium salt (1:1)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
26240	7778189	Sulfuric acid, Calcium salt (1:1)	*Lepomis macrochirus*	Bluegill	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160503	7778189	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160502	7778189	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
160501	7778189	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Unmeasured	Fresh water	Lab
767512	7778189	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
767515	7778189	Sulfuric acid, Calcium salt (1:1)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
67863	7681381	Sulfuric acid, Monosodium salt	*Culex sp.*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
67862	7681381	Sulfuric acid, Monosodium salt	*Culex sp.*	Mosquito	Insects/Spiders	Static	Unmeasured	Fresh water	Lab
761768	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761769	10043524	Calcium chloride (CaCl2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152811	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Renewal	Measured	Fresh water	Lab
2152812	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Renewal	Measured	Fresh water	Lab
2152813	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Renewal	Measured	Fresh water	Lab
2152815	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Renewal	Measured	Fresh water	Lab
2152814	7647145	Sodium chloride (NaCl)	*Chironomus dilutus*	Midge	Insects/Spiders	Renewal	Measured	Fresh water	Lab
201556	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201557	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201555	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2164559	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152816	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152817	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152819	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152818	7647145	Sodium chloride (NaCl)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
761548	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761558	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761565	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761553	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761566	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761569	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761561	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761557	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761551	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761562	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761554	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761570	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152752	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152753	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
768151	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768129	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768092	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab

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768111	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768141	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768161	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768086	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768094	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768149	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768078	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768159	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768084	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768076	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768139	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152755	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
768070	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768068	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768119	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768109	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768102	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768131	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768121	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768100	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768060	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768062	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761764	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741831	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
741780	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
761549	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761567	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761560	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761555	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761550	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761564	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761552	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761568	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761556	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761563	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761571	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768152	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768130	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768093	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768112	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768142	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768162	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768087	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768095	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768150	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768079	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768160	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768085	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768077	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768140	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152754	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
768071	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
768069	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768120	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768110	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761559	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768103	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768132	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768122	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768101	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768061	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
768063	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
14424	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
42862	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
14380	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
42867	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
96882	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
108590	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761765	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741815	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
742694	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Static	Measured	Fresh water	Lab
741814	7647145	Sodium chloride (NaCl)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Flow-through	Unmeasured	Fresh water	Lab
765903	7757826	Sulfuric acid sodium salt (1:2)	*Corbicula manilensis*	Asiatic Clam	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
765902	7757826	Sulfuric acid sodium salt (1:2)	*Corbicula manilensis*	Asiatic Clam	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
765901	7757826	Sulfuric acid sodium salt (1:2)	*Corbicula manilensis*	Asiatic Clam	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
765900	7757826	Sulfuric acid sodium salt (1:2)	*Corbicula manilensis*	Asiatic Clam	Molluscs; U.S. Exotic/Nuisance Speci	Static	Unmeasured	Fresh water	Lab
761599	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761762	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766857	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Measured	Fresh water	Lab
761763	7757826	Sulfuric acid sodium salt (1:2)	*Pimephales promelas*	Fathead Minnov	Fish; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152766	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152768	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152767	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761756	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia sp.*	Water Flea	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
761757	10043524	Calcium chloride (CaCl2)	*Ceriodaphnia sp.*	Water Flea	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2152739	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152741	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152740	10043524	Calcium chloride (CaCl2)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152820	7647145	Sodium chloride (NaCl)	*Brachionus calyciflorus*	Rotifer	Invertebrates; Standard Test Species	Static	Measured	Fresh water	Lab
2152821	7647145	Sodium chloride (NaCl)	*Brachionus calyciflorus*	Rotifer	Invertebrates; Standard Test Species	Static	Measured	Fresh water	Lab
2152822	7647145	Sodium chloride (NaCl)	*Brachionus calyciflorus*	Rotifer	Invertebrates; Standard Test Species	Static	Measured	Fresh water	Lab
2152824	7647145	Sodium chloride (NaCl)	*Brachionus calyciflorus*	Rotifer	Invertebrates; Standard Test Species	Static	Measured	Fresh water	Lab
2152823	7647145	Sodium chloride (NaCl)	*Brachionus calyciflorus*	Rotifer	Invertebrates; Standard Test Species	Static	Measured	Fresh water	Lab
2152725	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741661	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
207720	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
741538	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761580	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761575	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761587	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761576	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2148464	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148480	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148474	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
761579	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761588	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761572	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761584	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761591	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761583	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761592	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2153272	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152721	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152855	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153275	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153278	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153269	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152881	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2148463	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148479	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148473	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
120834	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120851	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120833	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120830	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120832	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120852	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120853	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120850	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120836	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120849	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120846	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120835	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120848	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120847	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120854	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120831	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761595	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741679	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741936	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741950	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742564	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741951	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741929	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742894	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742895	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741958	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741948	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741943	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742899	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2153273	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152731	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152873	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153276	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153279	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2153270	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2153267	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
767971	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767883	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767957	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766860	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767901	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767860	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767868	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766868	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767874	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767893	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767876	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767858	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
742568	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
767852	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767955	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767850	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766862	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767866	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766870	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767891	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767885	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767963	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767899	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767965	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767973	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251022	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251024	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251014	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251020	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251016	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251010	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251018	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251012	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741947	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741938	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741952	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742900	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741944	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742892	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741957	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741949	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742563	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742565	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741945	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741959	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2152727	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767972	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767884	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767958	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766861	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767902	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
761582	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767861	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767869	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766869	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767875	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767894	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767877	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767859	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741688	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
761594	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761578	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761586	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761574	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761590	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767853	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767956	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767851	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766863	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767867	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766871	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767892	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767886	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767964	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767900	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767966	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
767974	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251019	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251023	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251017	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
120856	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251013	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251015	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251011	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
251021	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761585	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761577	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761589	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761573	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761593	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761581	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
742896	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741953	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742898	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741937	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742891	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742893	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742901	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741648	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741649	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741946	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
741942	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
742897	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2152726	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
741566	7647145	Sodium chloride (NaCl)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
761752	7647145	Sodium chloride (NaCl)	*Ceriodaphnia sp.*	Water Flea	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
761753	7647145	Sodium chloride (NaCl)	*Ceriodaphnia sp.*	Water Flea	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
741654	7647145	Sodium chloride (NaCl)	*Daphnia ambigua*	Water Flea	Crustaceans	Renewal	Measured	Fresh water	Lab
741696	7647145	Sodium chloride (NaCl)	*Daphnia ambigua*	Water Flea	Crustaceans	Renewal	Measured	Fresh water	Lab
741659	7647145	Sodium chloride (NaCl)	*Daphnia ambigua*	Water Flea	Crustaceans	Renewal	Measured	Fresh water	Lab
741530	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152713	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152732	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152733	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2164766	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164767	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164768	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164769	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164770	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164728	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152735	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152715	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164764	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164761	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164763	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164765	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164762	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2164729	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152734	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
741546	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2152714	7647145	Sodium chloride (NaCl)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
201548	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201551	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201549	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201552	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201547	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
201550	7647145	Sodium chloride (NaCl)	*Daphnia pulex*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152783	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152784	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152786	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152785	7647145	Sodium chloride (NaCl)	*Lumbriculus variegatus*	Oligochaete, Wo	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152796	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152807	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152808	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152810	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
2152809	7647145	Sodium chloride (NaCl)	*Tubifex tubifex*	Tubificid Worm	Worms; Standard Test Species	Renewal	Measured	Fresh water	Lab
759472	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759471	7487889	Sulfuric acid magnesium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2017036	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017047	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017055	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017064	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017035	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017046	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017054	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab

Result Number	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Exposure Type	Chemical Analysis	Media Type	Test Location
2017063	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017034	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
766229	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766234	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2017053	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017062	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017045	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2148468	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148476	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148470	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
761597	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759076	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2148475	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148469	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
2148467	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
759077	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017032	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017043	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
766734	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766737	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766354	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766344	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766355	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766230	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766351	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766356	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766232	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2017051	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017060	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
759074	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
2017033	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017044	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
766735	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766738	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Unmeasured	Fresh water	Lab
766855	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
766231	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
766233	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
2017052	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017061	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
759075	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia dubia*	Water Flea	Crustaceans; Standard Test Species	Static	Measured	Fresh water	Lab
761750	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia sp.*	Water Flea	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
761751	7757826	Sulfuric acid sodium salt (1:2)	*Ceriodaphnia sp.*	Water Flea	Crustaceans	Renewal	Unmeasured	Fresh water	Lab
2017147	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017148	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017149	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017151	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
2017150	7757826	Sulfuric acid sodium salt (1:2)	*Hyalella azteca*	Scud	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab
759464	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759022	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Flow-through	Measured	Fresh water	Lab
759463	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Unmeasured	Fresh water	Lab
759484	7778189	Sulfuric acid, Calcium salt (1:1)	*Daphnia magna*	Water Flea	Crustaceans; Standard Test Species	Renewal	Measured	Fresh water	Lab

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2147187		Not reported	7	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2152764		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160619		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160620		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152765		Not reported	9	NR	NR	Day(s)	LC50	Mortality	Mortality	
768180	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768284	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768182	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767342	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768283	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768183	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768181	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768286	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742988		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
44241	CA, MG, NA+K, SO4, CL2	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160622		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152738		Not reported	10	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152737		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
18686		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18685		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18688		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18684		Not reported	2.0833	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18683		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18687		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
742079		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160621		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
32466		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
119478		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
768399	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768396	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768457	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768462	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2152736		Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768402	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768460	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768398	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2153763		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2153676		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740759		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740760		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740732		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2153700		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2153697		Not reported	1.5	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740761		Not reported	1.5	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2063733		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2063726		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2063735		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
740765		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740777		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
126054		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
126052		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
126053		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
18689		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
196145		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
19522	WATER CHEM PARAMETERS RPTD	Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	
40507	COMPOSITION WATER CHEM RPTD	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
740778		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741717		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2153801		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
18693		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18691		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18690		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18692		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
2153798		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740767		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
184730	RECIRCULATING	Not reported	42	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
99472		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
99476		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
99478		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
61681		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
99477		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
61680		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160623		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160624		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160625		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
742078		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
741718		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2153836		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2153835		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768541	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768539	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
742032		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
742060	REP 3	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
742031	REP 7	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740738		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
742933	REP 10	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740779		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740744		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2153802		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740734		Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
22954		Not reported	30	NR	NR	Day(s)	LC50	Mortality	Mortality	
22953		Not reported	30	NR	NR	Day(s)	LC50	Mortality	Mortality	
22952		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160513		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160514		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
768178	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768176	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768177	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768277	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
22960	CA, MG, NA+K, SULPHATE, CL2	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160516		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
25475		Not reported	2.0833	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
25474		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
25476		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
160515		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
768454	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768393	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768501	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768451	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768390	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768392	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768395	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768456	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768503	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2064007		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064009		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064004		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
22955		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
22957		Not reported	30	NR	NR	Day(s)	LC50	Mortality	Mortality	
22956		Not reported	30	NR	NR	Day(s)	LC50	Mortality	Mortality	
160517		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160518		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160519		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2055980	3 REPLICATES	Not reported	6	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741753	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
741747	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741782	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741787	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
741741	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741740	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2455		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
12210		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
231580		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231578		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231574		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231577		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231575		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231576		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231579		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231581		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231569		Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231568		Not reported	6	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231571		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231567		Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231573		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231572		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231563		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231566		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231570		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231565		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231564		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
764333		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
764325		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
764330		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
764326		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
764329		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2152847	4 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
741752	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
764481		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
187905	MINERAL WATER, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
187903	RECON WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
187902	RECON WATER, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
187901	RECON WATER	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
187906	MINERAL WATER, FED	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
187904	MINERAL WATER	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
742006	MEDIUM HARD RECONSTITUTED WATER (MHRW)	Not reported	1	NR	NR	Day(s)	LOEL	Mortality	Mortality	
742038	MEDIUM HARD RECONSTITUTED WATER (MHRW)	Not reported	4	NR	NR	Day(s)	LOEL	Mortality	Mortality	
742918	MEDIUM HARD RECONSTITUTED WATER (MHRW)	Not reported	1	NR	NR	Day(s)	NOEL	Mortality	Mortality	
742919	MEDIUM HARD RECONSTITUTED WATER (MHRW)	Not reported	4	NR	NR	Day(s)	NOEL	Mortality	Mortality	
196818		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196799		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196831		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196814		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196791		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196776		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196783		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196795		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196828		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196816		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
167864		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
75451		Not reported	10	NR	NR	Day(s)	LC50	Mortality	Mortality	
196826		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196803		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196788		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196784		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196775		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196834		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196808		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196827		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196836		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196823		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196780		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196790		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196804		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196811		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196824		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196830		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196778		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196807		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196802		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196810		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196822		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196794		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196798		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196786		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196782		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196796		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196800		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
196812		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196779		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196792		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196815		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196835		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196820		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196774		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196806		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196832		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196840		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
196819		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196787		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196801		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196817		Not reported	7	NR	NR	Day(s)	LETC	Mortality	Mortality	
196837		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
167863		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196793		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196805		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196777		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196785		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196797		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196825		Not reported	7	NR	NR	Day(s)	LETC	Mortality	Mortality	
196813		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196789		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196821		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196833		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196829		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196781		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
196809		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
26112		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
741686	ACUTE	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152825	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075467		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2153271	HARDNESS OF 40 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2153268	HARDNESS OF 20 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075442		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075434		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075468		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075410		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075471		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2153274	HARDNESS OF 80 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152724		Not reported	9	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152723		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152874	HARDNESS OF 10 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2153277	HARDNESS OF 160 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2153280	HARDNESS OF 320 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075466		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075469		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075470		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2074934		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075402		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075426		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2075418		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
120843	LAB H, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120826	LAB G, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120844	LAB H, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120840	LAB F, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120842	LAB G, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
741547	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	LC50	Mortality	Mortality	
120829	LAB J, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120845	LAB I, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120837	LAB B, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120827	LAB G, TEST 2, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120841	LAB G, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120824	LAB A, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120839	LAB D, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120828	LAB H, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120825	LAB D, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
120838	LAB D, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
160319		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160320		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
741288	REFERENCE TOXICANT TEST, VALUE DETERMINED F	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
207716		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Survival	
207717		Not reported	8	NR	NR	Day(s)	LC50	Mortality	Survival	
742567	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767903		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
766864		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767897		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767961		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767879		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767895		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767872		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767959		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767870		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767967		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
766872		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
766866		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767889		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767856		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767969		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767846		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767953		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767887		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767881		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767975		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767864		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767862		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767848		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
767854		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
251007	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
251003	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
251001	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
250999	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
251009	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
250998	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
251005	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
741687	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767855		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767904		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
766865		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767898		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767962		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767880		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767896		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767873		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767960		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767871		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767968		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
766873		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
766867		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767890		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767857		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767970		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767847		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767954		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767888		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767882		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767976		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767865		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767863		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767849		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
250997	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND BETWEEN 10 AND 20% OF L
251000	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND IN ~10% OF LABS///
120855	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND BETWEEN 80 AND 90% OF L
251004	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND IN ~10% OF LABS///
251002	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND IN ~10% OF LABS///
251008	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND BETWEEN 50 AND 60% OF L
251006	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/FOUND IN ~10% OF LABS///
741695	ACUTE	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
741699	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
741671		Not reported	14	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768272	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768340	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768268	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768173	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
207718		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
207719		Not reported	8	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741660	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
207721		Not reported	8	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/NOEL///
2152722		Not reported	9	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742530	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768266	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768264	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768175	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741435	MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
741635		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
741678		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2060209	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC01	Mortality	Survival	
2060210	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC05	Mortality	Survival	
2060211	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC10	Mortality	Survival	
2060212	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC15	Mortality	Survival	
2060213	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC20	Mortality	Survival	
2060214	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC25	Mortality	Survival	
2060216	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC40	Mortality	Survival	
2060217	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC60	Mortality	Survival	
2060218	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC75	Mortality	Survival	
2060220	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC80	Mortality	Survival	
2060221	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC85	Mortality	Survival	
2060222	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC90	Mortality	Survival	
2060223	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC95	Mortality	Survival	
2060225	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC99	Mortality	Survival	
2152838	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2060201	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2060236	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LOEC	Mortality	Survival	
2060237	4 REPLICATES	Not reported	2	NR	NR	Day(s)	MATC	Mortality	Survival	
2060228	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NOEC	Mortality	Survival	
2060247	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE A/
2060275	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE D/
2060254	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE B/
2060259	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE B/
2060270	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE C/
2211037	SAND AND SILICA SEDIMENT, 2 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741489	FIBERGLASS TANKS FILLED WITH 20L OF TEST SOLU	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2162289	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
2162290	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
2211025		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2211024		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
16495		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
26114		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
26113		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
2152587		Not reported	11	NR	NR	Day(s)	LD50	Mortality	Mortality	
2152588		Not reported	11	NR	NR	Day(s)	LD99	Mortality	Mortality	
2152592		Not reported	11	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2060148	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 0.0%/
2060157	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 5.0%/
2060168	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 20.0%/
2060161	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 10.0%/
2060198	2 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE 1/
2060191	2 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE 2/
2060190	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE 2/
2060189	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE 1/
742566	ACUTE	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
741697	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	LOEC	Mortality	Survival	
741698	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	NOEC	Mortality	Survival	
2164727	10 REPLICATES	Not reported	21	NR	NR	Day(s)	EC50	Mortality	Survival	
18462		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18463		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18461		Not reported	2.0833	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
18464		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
2152826	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
759179		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152709		Not reported	10	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152708		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
144221		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
144220		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
144218		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
144219		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
144222		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160322		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
742529	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	LC50	Mortality	Mortality	
160321		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
767302	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
772103	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767308	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
742019		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
18460		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
119469		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
31699		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
2164731	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768426	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768527	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768489	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768475	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768531	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768496	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768445	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768499	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768467	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768521	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768486	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2164732	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2152707		Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768428	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768533	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768500	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768431	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768498	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741531	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768450	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768523	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768530	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2210504	DEFINITIVE ACUTE, 4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768520	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768488	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768526	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2210505	RANGEFINDING ACUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742069		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742931		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742926		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742068		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
742927		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741434	MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2055812	4-10 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
201545		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Survival	
201566	NATURAL DILUTION WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Survival	
201558		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740690		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740662		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
741563		Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	
803856	3 REPLICATES	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052775	RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
231524		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231523		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231527		Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231525		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231526		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
2062417	7 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2062416	7 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2064155		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064156		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064154		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
118481		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
741789	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
742663	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2053816	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
2053813	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
2053818	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
2053814	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
2053819	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
2053817	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
231537		Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231535		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231533		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231536		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231534		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
2075474		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075475		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2164548	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	14	NR	NR	Day(s)	LC10	Mortality	Mortality	
2164547	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	7	NR	NR	Day(s)	LC10	Mortality	Mortality	
2164549	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	21	NR	NR	Day(s)	LC10	Mortality	Mortality	
2164550	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	28	NR	NR	Day(s)	LC10	Mortality	Mortality	
2164551	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	7	NR	NR	Day(s)	LC25	Mortality	Mortality	
2164553	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	21	NR	NR	Day(s)	LC25	Mortality	Mortality	
2164552	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	14	NR	NR	Day(s)	LC25	Mortality	Mortality	
2164554	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	28	NR	NR	Day(s)	LC25	Mortality	Mortality	
2152842	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2164556	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	14	NR	NR	Day(s)	LC50	Mortality	Mortality	
2164558	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	28	NR	NR	Day(s)	LC50	Mortality	Mortality	
2164555	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
2164557	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Not reported	21	NR	NR	Day(s)	LC50	Mortality	Mortality	
16496		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
740725		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	

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741710		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740689		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2164711	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164646	SPRING	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164696	SUMMER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164693	SPRING	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164628	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164700	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164641	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164625	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164613	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164645	SPRING	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164618	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164695	SUMMER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164692	SPRING	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164699	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164640	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164627	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164710	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164623	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2052772	RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052780	GRAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Mortality	Survival	
2052782	SYDENHAM RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Mortality	Survival	
2052786	THAMES RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Mortality	Survival	
2052784	MAITLAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Mortality	Survival	
2052781	SYDENHAM RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052783	MAITLAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
741564		Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	
2052773	RECONSTITUTED WATER, 2008	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052774	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052785	THAMES RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
741584		Not reported	4	NR	NR	Day(s)	EC50	Mortality	Survival	
803857		Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052779	GRAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2224815	3 REPLICATES	Not reported	4	NR	NR	Day(s)	EC50	Mortality	Survival	MSMT/BASED ON FOOT MOVEMENT/
2052777	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052778	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052770	RECONSTITUTED WATER, 2008	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052776	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
2052771	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
741568		Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
803860		Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	
741594		Not reported	4	NR	NR	Day(s)	EC50	Mortality	Survival	
2224806	3 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	MSMT/BASED ON FOOT MOVEMENT/
18184		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
196203		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
201540		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
40512	COMPOSITION OF WATER RPTD	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
13417	8 PARAMETERS, SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
220765		Not reported	1.7611	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2210845		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740684		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	

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740724		Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2224820	3 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	MSMT/BASED ON FOOT MOVEMENT/
2224821	3 REPLICATES	Not reported	4	NR	NR	Day(s)	EC50	Mortality	Survival	MSMT/BASED ON FOOT MOVEMENT/
231519		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231583		Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231522		Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231584		Not reported	10.875	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231582		Not reported	6	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231521		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231518		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231520		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
203677		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
203678		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
2152829	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2060288	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 5.0%/
2060289	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 10.0%/
2060290	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 20.0%/
2060276	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 0.0%/
2060292	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Survival	
2060293	4 REPLICATES	Not reported	4	NR	NR	Day(s)	MATC	Mortality	Survival	
2060291	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality	Survival	
2060317	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE C/
2060318	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE D/
2060307	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE B/
2060306	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE A/
2060315	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE C/
2060319	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE D/
2060302	4 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE A/
2060309	4 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE B/
18185		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18186		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
764505		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
741739	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2164606	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164588	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164592	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164600	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164609	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164603	SPRING	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164595	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Mortality	Survivorship	
2164605	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164587	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164591	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164599	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164608	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164602	SPRING	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
2164594	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Mortality	Survivorship	
802493	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality	Mortality	
802503	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality	Mortality	
802492	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality	Mortality	
802504	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality	Mortality	
802490	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
802505	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality	Mortality	
802506	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality	Mortality	
802491	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality	Mortality	
802494	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality	Mortality	
802495	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality	Mortality	
802499	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality	Mortality	
802500	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality	Mortality	
802501	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality	Mortality	
802497	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality	Mortality	
802496	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality	Mortality	
802502	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality	Mortality	
6172		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
6170		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
6174		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
6169		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
6173		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
6167		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
6171		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
6168		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075478		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
16494		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2060327	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 10.0%/
2060325	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 0.0%/
2060326	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 5.0%/
2060329	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TRIM LEVEL 20.0%/
2060335	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Survival	
2060336	3 REPLICATES	Not reported	4	NR	NR	Day(s)	MATC	Mortality	Survival	
2060333	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality	Survival	
2060352	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE B/
2060350	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE A/
2060361	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	MSMT/REPLICATE C/
2060360	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE C/
2060342	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE A/
2060354	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE B/
740693		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741709		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
201542		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
201543		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
231546		Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231545		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231550		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231549		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231554		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231544		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231553		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231547		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231542		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231551		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231548		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231540		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231543		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231539		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
231538		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231552		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231541		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
196750		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196772		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196755		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196735		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196768		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196767		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196736		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196713		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196744		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196724		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196763		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
759180		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196745		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196714		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196748		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196728		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196741		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196756		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196729		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196760		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196759		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196731		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196839		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
196770		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196720		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196766		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196723		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196732		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196740		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152828	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196716		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196751		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196711		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196737		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196712		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196764		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196733		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196758		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196725		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196752		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196715		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196727		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196771		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196721		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196739		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196754		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196717		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
196747		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
196743		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
196762		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
196719		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
2055542	4-10 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160325		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160324		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
167861		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160323		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
201537		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
196726		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196769		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196765		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196734		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196761		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196738		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196718		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196753		Not reported	5	NR	NR	Day(s)	LETC	Mortality	Mortality	
196757		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196749		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196722		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196742		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196746		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196773		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
196730		Not reported	4	NR	NR	Day(s)	LETC	Mortality	Mortality	
167862		Not reported	6	NR	NR	Day(s)	LETC	Mortality	Mortality	
42866		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
96881		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
42423		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
96906		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
14389		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
68598		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
768104		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768072		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768157		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768066		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768058		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768096		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768127		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768143		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768090		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768088		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768123		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768163		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768153		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768098		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768074		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768080		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768113		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768107		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768082		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768137		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768147		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768064		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
768133		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
768117		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
201561		Not reported	33	NR	NR	Day(s)	LOEC	Mortality	Survival	
2210509	DEFINITIVE CHRONIC, 4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Survival	
741744	24 HOUR PULSE DURATION	Not reported	4	NR	NR	Day(s)	LOEL	Mortality	Survival	
742691	3 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Mortality	Survival	
741410	96 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Mortality	Survival	
201562		Not reported	33	NR	NR	Day(s)	MATC	Mortality	Survival	
68599		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
42865		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
14383		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
96885		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
69057		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
96907		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
768105		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
201560		Not reported	33	NR	NR	Day(s)	NOEC	Mortality	Survival	
768073		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768158		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768067		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768059		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768097		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768128		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768144		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768091		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768089		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768124		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768164		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768154		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768099		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768075		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768081		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768114		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768108		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768083		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768138		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768148		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768065		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768134		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
768118		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
741400	CONTINUOUS EXPOSURE	Not reported	7	NR	NR	Day(s)	NOEL	Mortality	Survival	MSMT/CONC/ AVERAGE 7 DAY CONCENTRA
742666	24 HOUR PULSE DURATION	Not reported	4	NR	NR	Day(s)	NOEL	Mortality	Survival	
740697		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
201538		Not reported	3	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
768558	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
740694		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740696		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742059		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742029		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742057		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742070		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742077		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742932		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
742058		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
768559	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742027		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742030		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742026		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
231532		Not reported	5	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231528		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231531		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231530		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231529		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
26115		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
26116		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
2060321	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2060324	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE B/
2060323	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE A/
741795	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
742665	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
742664	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741756	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
741783	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741751	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2170552		Not reported	30	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740686		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
740685		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2075473		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075472		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
231556		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231560		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231561		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231559		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231557		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231558		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231562		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
231555		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM/
741781	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741788	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
741743	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
741742	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2075476		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2075477		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2152833	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
803853		Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
741562		Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	
741561		Not reported	1	NR	NR	Day(s)	EC50	Mortality	Survival	
741583		Not reported	4	NR	NR	Day(s)	EC50	Mortality	Survival	
803850		Not reported	2	NR	NR	Day(s)	EC50	Mortality	Survival	
759169		Not reported	28	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
764615		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
160288		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160287		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
767346	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767362	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
767348	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767402	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767365	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767407	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767364	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767366	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767410	UNFED, MODERATELY HARD RECONSTITUTED WATI	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767347	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767405	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767461	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767465	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
759182		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160289		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160290		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
24910		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24907		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24908		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24906		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24909		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
767488	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767485	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767471	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767487	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767490	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
759473		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE B///
759470		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE A///
2064012		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064016		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064015		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
220044		Not reported	4	NR	NR	Day(s)	NOEC	Mortality	Mortality	MSMT/CORRECTED FOR CONTROL///
24911		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24914		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24912		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24913		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
24915		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
89658		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
61287		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
61288		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
61289		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
89662		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
89660		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160291		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
759181		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160292		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160293		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767519	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
18178		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18176		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18177		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18179		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
764340		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
764585		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2017048		Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
2017057		Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
2017040		Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
2017029		Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
766435		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766427		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766433		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766419	REFORMULATED MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766431		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766429		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766216		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	
766604	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766426		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766228	REFORMULATED MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766227	MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766221	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
766226	REFORMULATED MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Mortality	
759078		Not reported	3	NR	NR	Brood or litter	LC50	Mortality	Mortality	
766432		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160330		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
766430		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766418	REFORMULATED MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766428		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766215		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
160331		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766434		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766576	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766609	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766554	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766567	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766580	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766565	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766607	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766556	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766720	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766574	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766717	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766577	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766560	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766603	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766575	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766581	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766722	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766573	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766578	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766595	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766586	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766610	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766555	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766566	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766718	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766570	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
766723	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766605	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766591	CA:MG RATIO 5.4	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766724	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766572	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766548	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766606	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766585	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766588	CA:MG RATIO 5.4	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766608	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766551	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766563	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766592	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766726	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766587	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766612	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766561	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766590	CA:MG RATIO 5.4	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766593	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766594	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766571	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766584	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766745	REFORMULATED MODERATELY HARD RECONSTITU	Not reported	7	NR	NR	Day(s)	LC50	Mortality	Survival	MSMT/MEAN OF 3 TESTS/
766748	MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Survival	MSMT/MEAN OF 3 TESTS/
766224	REFORMULATED MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
766222	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Mortality	
759072		Not reported	3	NR	NR	Brood or litter	LOEC	Mortality	Mortality	
2017050		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
2017059		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
2017042		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
2017031		Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
766739	REFORMULATED MODERATELY HARD RECONSTITU	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	MSMT/MEAN OF 3 TESTS/
766730	MODERATELY HARD RECONSTITUTED WATER	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	MSMT/MEAN OF 3 TESTS/
766225	REFORMULATED MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
766223	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
759073		Not reported	3	NR	NR	Brood or litter	NOEC	Mortality	Mortality	
2017049		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
2017058		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
2017041		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
2017030		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
761596		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
766740	REFORMULATED MODERATELY HARD RECONSTITU	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/MEAN OF 3 TESTS/
766731	MODERATELY HARD RECONSTITUTED WATER	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/MEAN OF 3 TESTS/
766854		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
767457	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767375	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767380	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767350	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767411	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767454	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767351	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767459	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
767456	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767412	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767353	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767376	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
766218		Not reported	2	NR	NR	Day(s)	LC10	Mortality	Mortality	MSMT/MEAN OF TWO TESTS/
766217		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF TWO TESTS/
18144		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18145		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
759175		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767294		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767307	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767306	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767296		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767303	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767295		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767298	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
18452		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18147		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18453		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18454		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18451		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18450		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18146		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
759092		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767297		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767305	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
767299	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160332		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160333		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
119467		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
31684		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
759090		Not reported	2	NR	NR	Day(s)	LOEC	Mortality	Mortality	
759091		Not reported	2	NR	NR	Day(s)	NOEC	Mortality	Mortality	
767473	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767496	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767475	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767491	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767505	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
767494	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767507	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
2064207		Not reported	6	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064204		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064206		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2064205		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2017113	4 REPLICATES	Not reported	4	NR	NR	Day(s)	EC10	Mortality	Survival	
2017143	4 REPLICATES	Not reported	4	NR	NR	Day(s)	EC25	Mortality	Survival	
2017144	4 REPLICATES	Not reported	4	NR	NR	Day(s)	EC50	Mortality	Survival	
766367		Not reported	4	NR	NR	Day(s)	LC10	Mortality	Mortality	MSMT/MEAN OF THREE TESTS/
766638	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766642	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766639	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766712	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
766716	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766618	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766713	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766641	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766616	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766625	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766633	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766631	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766640	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766644	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766627	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766617	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766624	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766619	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766714	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766715	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766629	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766710	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766623	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766643	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766630	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766635	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766711	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766637	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766622	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766709	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766628	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766626	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766636	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766632	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766634	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766621	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767290		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767310	CA:MG MOLAR RATIO 7.0	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767293		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767291		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767311	CA:MG MOLAR RATIO 1.8	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767312	CA:MG MOLAR RATIO 0.7	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767289		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
759093		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
767292		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766365		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF THREE TESTS/
766415	REFORMULATED MODERATELY HARD WATER	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
759094		Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Mortality	
2017146	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Survival	
766446		Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Survival	
766441		Not reported	2	NR	NR	Day(s)	LOEC	Mortality	Survival	
766438		Not reported	2	NR	NR	Day(s)	LOEC	Mortality	Survival	
766439		Not reported	3	NR	NR	Day(s)	LOEC	Mortality	Survival	
766443		Not reported	4	NR	NR	Day(s)	LOEC	Mortality	Survival	
766442		Not reported	3	NR	NR	Day(s)	LOEC	Mortality	Survival	
759095		Not reported	4	NR	NR	Day(s)	NOEC	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2017145	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality	Survival	
766444		Not reported	2	NR	NR	Day(s)	NOEC	Mortality	Survival	
766445		Not reported	3	NR	NR	Day(s)	NOEC	Mortality	Survival	
766440		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
766659	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766663	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766664	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766658	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766666	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766662	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766657	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
766656	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766665	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
766661	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
18180		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
126071		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
126072		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
126070		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
200196		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
40509	COMPOSITION OF WATER REPORTED	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
40508	COMPOSITION OF WATER REPORTED	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
13415	8 PARAMETERS, SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
18150		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18151		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18152		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18149		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
764588		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality	Mortality	
802675	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality	Mortality	
802677	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality	Mortality	
802664	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality	Mortality	
802665	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality	Mortality	
802678	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality	Mortality	
802663	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality	Mortality	
802676	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality	Mortality	
802666	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality	Mortality	
802668	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality	Mortality	
802670	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality	Mortality	
802671	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality	Mortality	
802667	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality	Mortality	
802669	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality	Mortality	
802672	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality	Mortality	
802674	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality	Mortality	
802673	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality	Mortality	
6211		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
41636		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
41641		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
6217		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
41642		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
41640		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
6214		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
6216		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
6215		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
41635		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
6212		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
6213		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
41637		Not reported	3	NR	NR	Day(s)	LC50	Mortality	Mortality	
41638		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
41639		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
6218		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2017209	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Mortality	Survival	
2017178	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Mortality	Survival	
2017188	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Mortality	Survival	
2017168	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Mortality	Survival	
2017210	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Mortality	Survival	
2017179	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Mortality	Survival	
2017189	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Mortality	Survival	
2017169	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Mortality	Survival	
2017211	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
2017180	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
2017190	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
2017170	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Mortality	Survival	
759176		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160335		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160334		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
160336		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
2017213	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
2017182	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
2017172	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
2017192	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Mortality	Survival	
761598		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Mortality	
2017191	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
766856		Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
2017212	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
2017181	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
2017171	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Mortality	Survival	
18153		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
18148		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
766364		Not reported	4	NR	NR	Day(s)	LC10	Mortality	Mortality	MSMT/MEAN OF THREE TESTS/
766706	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 2 TESTS/
766705	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 2 TESTS/
766363		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF THREE TESTS/
766707	CA:MG RATIO 5.4	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 2 TESTS/
766703	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
766704	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 2 TESTS/
766708	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/MEAN OF 3 TESTS/
160500		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160498		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160497		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
767397	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767360	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767399	UNFED, MODERATELY HARD RECONSTITUTED WAT	Not reported	NR	1	2	Day(s)	NR-ZERO	Mortality	Mortality	
767463	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767462	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767317	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
160499		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
759021	CACL2 FOR HARDNESS CONTROL	Not reported	42	NR	NR	Day(s)	NOEC	Mortality	Survival	MSMT/F/F2 SURVIVAL/
767483	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767467	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767469	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767484	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
759462		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE A///
759465		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	MSMT/REPLICATE B///
2063748		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2063749		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
2063750		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	ENDPT/TLM/
196198		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Survival	
26240	8 PARAMETERS,SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160503		Not reported	4	NR	NR	Day(s)	LC50	Mortality	Mortality	
160502		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	
160501		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	
767512	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
767515	FED, MODERATELY HARD RECONSTITUTED WATER	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality	Mortality	
67863		Not reported	2	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
67862		Not reported	1	NR	NR	Day(s)	LC50	Mortality	Mortality	MSMT/TLM///
761768		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Weight	
761769		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Weight	
2152811	4 REPLICATES	Not reported	20	NR	NR	Day(s)	IC10	Growth	Biomass	
2152812	4 REPLICATES	Not reported	20	NR	NR	Day(s)	IC25	Growth	Biomass	
2152813	4 REPLICATES	Not reported	20	NR	NR	Day(s)	IC50	Growth	Biomass	
2152815	4 REPLICATES	Not reported	20	NR	NR	Day(s)	LOEC	Growth	Biomass	
2152814	4 REPLICATES	Not reported	20	NR	NR	Day(s)	NOEC	Growth	Biomass	
201556		Not reported	21	NR	NR	Day(s)	LOEC	Growth	Length	
201557		Not reported	21	NR	NR	Day(s)	MATC	Growth	Length	MSMT/CHRONIC VALUE///
201555		Not reported	21	NR	NR	Day(s)	NOEC	Growth	Length	
2164559	4 TO 6 REPLICATES, CONDUCTED IN STANDARD ART	Whole organism	28	NR	NR	Day(s)	EC25	Growth	Weight	MSMT/DRY WEIGHT/
2152816	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC25	Growth	Biomass	
2152817	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC50	Growth	Biomass	
2152819	4 REPLICATES	Not reported	28	NR	NR	Day(s)	LOEC	Growth	Biomass	
2152818	4 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Growth	Biomass	
761548		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761558		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761565		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761553		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761566		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761569		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761561		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761557		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761551		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761562		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761554		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761570		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
2152752	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	IC25	Growth	Biomass	
2152753	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	IC50	Growth	Biomass	
768151		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768129		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768092		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
768111		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768141		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768161		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768086		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768094		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768149		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768078		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768159		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768084		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768076		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768139		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
2152755	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	LOEC	Growth	Biomass	
768070		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768068		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768119		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768109		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768102		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768131		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768121		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768100		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768060		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
768062		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Biomass	
761764		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Weight	
741831	96 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Growth	Biomass	
741780	3 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Growth	Biomass	
761549		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761567		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761560		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761555		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761550		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761564		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761552		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761568		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761556		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761563		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761571		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768152		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768130		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768093		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768112		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768142		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768162		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768087		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768095		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768150		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768079		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768160		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768085		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768077		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768140		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
2152754	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	NOEC	Growth	Biomass	
768071		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
768069		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768120		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768110		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761559		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768103		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768132		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768122		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768101		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768061		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
768063		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
14424		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Growth, general	MSMT/AVE FINAL DRY WT///
42862		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Growth, general	MSMT/AVE FINAL DRY WT///
14380		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Growth, general	MSMT/AVE FINAL DRY WT///
42867		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Growth, general	MSMT/AVE FINAL DRY WT///
96882		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Growth, general	MSMT/AVE FINAL DRY WT///
108590		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Growth, general	MSMT/AVE FINAL DRY WT///
761765		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Weight	
741815	3 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	NOEL	Growth	Biomass	
742694	3 HOUR PULSE DURATION	Whole organism	7	NR	NR	Day(s)	NOEL	Growth	Biomass	
741814	CONTINUOUS EXPOSURE	Whole organism	7	NR	NR	Day(s)	NOEL	Growth	Biomass	MSMT/CONC/ AVERAGE 7 DAY CONCENTRA
765903		Not reported	28	NR	NR	Day(s)	LOEC	Growth	Condition index	MSMT/SOFT TISSUE WEIGHT TO SHELL WEI
765902		Soft tissue	28	NR	NR	Day(s)	LOEC	Growth	Dry weight (AQUIRE only)	
765901		Shell	28	NR	NR	Day(s)	NOEC	Growth	Length	
765900		Shell	28	NR	NR	Day(s)	NOEC	Growth	Dry weight (AQUIRE only)	
761599		Not reported	7	NR	NR	Day(s)	IC25	Growth	Biomass	
761762		Not reported	7	NR	NR	Day(s)	LOEC	Growth	Weight	
766857		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Biomass	
761763		Not reported	7	NR	NR	Day(s)	NOEC	Growth	Weight	
2152766		Not reported	9	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2152768		Not reported	9	NR	NR	Day(s)	LOEL	Reproduction	Progeny counts/numbers	
2152767		Not reported	9	NR	NR	Day(s)	NOEL	Reproduction	Progeny counts/numbers	
761756		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Fecundity	
761757		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Fecundity	
2152739		Not reported	10	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2152741		Not reported	10	NR	NR	Day(s)	LOEL	Reproduction	Progeny counts/numbers	
2152740		Not reported	10	NR	NR	Day(s)	NOEL	Reproduction	Progeny counts/numbers	
2152820	8 REPLICATES	Not reported	2	NR	NR	Day(s)	IC10	Reproduction	Reproduction, general	
2152821	8 REPLICATES	Not reported	2	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152822	8 REPLICATES	Not reported	2	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2152824	8 REPLICATES	Not reported	2	NR	NR	Day(s)	LOEC	Reproduction	Reproduction, general	
2152823	8 REPLICATES	Not reported	2	NR	NR	Day(s)	NOEC	Reproduction	Reproduction, general	
2152725		Not reported	9	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
741661	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
207720		Not reported	8	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
741538	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
761580		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761575		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761587		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761576		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
2148464	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Reproduction	Progeny counts/numbers	
2148480	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Reproduction	Progeny counts/numbers	
2148474	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Reproduction	Progeny counts/numbers	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
761579		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761588		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761572		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761584		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761591		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761583		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761592		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
2153272	HARDNESS OF 80 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152721	10 REPLICATES	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152855	HARDNESS OF 10 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2153275	HARDNESS OF 160 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2153278	HARDNESS OF 320 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2153269	HARDNESS OF 40 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152881	HARDNESS OF 20 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2148463	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Reproduction	Progeny counts/numbers	
2148479	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Reproduction	Progeny counts/numbers	
2148473	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120834	LAB G, TEST 2, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120851	LAB G, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120833	LAB G, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120830	LAB A, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120832	LAB D, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120852	LAB H, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120853	LAB H, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120850	LAB G, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120836	LAB J, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120849	LAB F, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120846	LAB B, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120835	LAB H, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120848	LAB D, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120847	LAB D, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120854	LAB I, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
120831	LAB B, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
761595		Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Progeny counts/numbers	
741679	TEST 3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741936	TEST 5	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741950	TEST 12	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742564	TEST 1	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741951	TEST 4	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741929	TEST 2	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742894	TEST 6	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742895	TEST 10	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741958	TEST 9	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741948	TEST 11	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741943	TEST 7	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742899	TEST 8	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
2153273	HARDNESS OF 80 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2152731	10 REPLICATES	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2152873	HARDNESS OF 10 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2153276	HARDNESS OF 160 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2153279	HARDNESS OF 320 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2153270	HARDNESS OF 40 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	

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2153267	HARDNESS OF 20 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
767971		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767883		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767957		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766860		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767901		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767860		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767868		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766868		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767874		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767893		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767876		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767858		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
742568	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767852		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767955		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767850		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766862		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767866		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766870		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767891		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767885		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767963		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767899		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767965		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
767973		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251022	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251024	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251014	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251020	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251016	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251010	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251018	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
251012	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
741947	TEST 4	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741938	TEST 6	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741952	TEST 7	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742900	TEST 11	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741944	TEST 8	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742892	TEST 5	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741957	TEST 2	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741949	TEST 12	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742563	TEST 1	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742565	TEST 3	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741945	TEST 10	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741959	TEST 9	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
2152727		Not reported	9	NR	NR	Day(s)	LOEL	Reproduction	Progeny counts/numbers	
767972		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767884		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767958		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766861		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767902		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
761582		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767861		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767869		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766869		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767875		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767894		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767877		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767859		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
741688	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761594		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761578		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761586		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761574		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761590		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767853		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767956		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767851		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766863		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767867		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766871		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767892		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767886		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767964		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767900		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767966		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
767974		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
251019	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND IN ~10% OF LABS///
251023	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND BETWEEN 60 AND 70% OF L
251017	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND IN ~20% OF LABS///
120856	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND BETWEEN 10 AND 20% OF L
251013	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND BETWEEN 40 AND 50% OF L
251015	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND BETWEEN 30 AND 40% OF L
251011	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND BETWEEN 10 AND 20% OF L
251021	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/n	MSMT/FOUND IN ~10% OF LABS///
761585		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761577		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761589		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761573		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761593		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
761581		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
742896	TEST 4	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741953	TEST 11	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742898	TEST 8	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741937	TEST 5	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742891	TEST 2	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742893	TEST 6	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742901	TEST 12	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741648	TEST 1	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741649	TEST 3	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741946	TEST 10	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
741942	TEST 9	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (
742897	TEST 7	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Reproducing orga	MSMT/AUTHOR REPORTS REPRODUCTION (

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2152726		Not reported	9	NR	NR	Day(s)	NOEL	Reproduction	Progeny counts/numbers	
741566	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	NOEL	Reproduction	Progeny counts/numbers	
761752		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Fecundity	
761753		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Fecundity	
741654	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
741696	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
741659	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
741530	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2152713		Not reported	10	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2152732	10 REPLICATES	Not reported	21	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152733	10 REPLICATES	Not reported	21	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2164766	10 REPLICATES	Not reported	6	NR	NR	Brood or litter	LOEC	Reproduction	Fecundity	
2164767	10 REPLICATES	Not reported	5	NR	NR	Brood or litter	LOEC	Reproduction	Fecundity	
2164768	10 REPLICATES	Not reported	4	NR	NR	Brood or litter	LOEC	Reproduction	Fecundity	
2164769	10 REPLICATES	Not reported	3	NR	NR	Brood or litter	LOEC	Reproduction	Fecundity	
2164770	10 REPLICATES	Not reported	2	NR	NR	Brood or litter	LOEC	Reproduction	Fecundity	
2164728	10 REPLICATES	Not reported	21	NR	NR	Day(s)	LOEC	Reproduction	Fecundity	
2152735	10 REPLICATES	Not reported	21	NR	NR	Day(s)	LOEC	Reproduction	Reproduction, general	
2152715		Not reported	10	NR	NR	Day(s)	LOEL	Reproduction	Progeny counts/numbers	
2164764	10 REPLICATES	Not reported	5	NR	NR	Brood or litter	NOEC	Reproduction	Fecundity	
2164761	10 REPLICATES	Not reported	2	NR	NR	Brood or litter	NOEC	Reproduction	Fecundity	
2164763	10 REPLICATES	Not reported	4	NR	NR	Brood or litter	NOEC	Reproduction	Fecundity	
2164765	10 REPLICATES	Not reported	6	NR	NR	Brood or litter	NOEC	Reproduction	Fecundity	
2164762	10 REPLICATES	Not reported	3	NR	NR	Brood or litter	NOEC	Reproduction	Fecundity	
2164729	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Fecundity	
2152734	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Reproduction, general	
741546	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	NOEL	Reproduction	Progeny counts/numbers	
2152714		Not reported	10	NR	NR	Day(s)	NOEL	Reproduction	Progeny counts/numbers	
201548		Not reported	21	NR	NR	Day(s)	LOEC	Reproduction	Fecundity	
201551		Not reported	21	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
201549		Not reported	21	NR	NR	Day(s)	MATC	Reproduction	Fecundity	MSMT/CHRONIC VALUE///
201552		Not reported	21	NR	NR	Day(s)	MATC	Reproduction	Progeny counts/r	MSMT/CHRONIC VALUE///
201547		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Fecundity	
201550		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/CHRONIC VALUE///
2152783	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152784	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2152786	4 REPLICATES	Not reported	28	NR	NR	Day(s)	LOEC	Reproduction	Reproduction, general	
2152785	4 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Reproduction	Reproduction, general	
2152796	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC10	Reproduction	Reproduction, general	
2152807	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC25	Reproduction	Reproduction, general	
2152808	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC50	Reproduction	Reproduction, general	
2152810	4 REPLICATES	Not reported	28	NR	NR	Day(s)	LOEC	Reproduction	Reproduction, general	
2152809	4 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Reproduction	Reproduction, general	
759472		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/REPLICATE B///
759471		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/REPLICATE A///
2017036		Not reported	7	NR	NR	Day(s)	EC10	Reproduction	Progeny counts/numbers	
2017047		Not reported	7	NR	NR	Day(s)	EC10	Reproduction	Progeny counts/numbers	
2017055		Not reported	7	NR	NR	Day(s)	EC10	Reproduction	Progeny counts/numbers	
2017064		Not reported	7	NR	NR	Day(s)	EC10	Reproduction	Progeny counts/numbers	
2017035		Not reported	7	NR	NR	Day(s)	EC25	Reproduction	Progeny counts/numbers	
2017046		Not reported	7	NR	NR	Day(s)	EC25	Reproduction	Progeny counts/numbers	
2017054		Not reported	7	NR	NR	Day(s)	EC25	Reproduction	Progeny counts/numbers	

Result Number	Experimental Design	Response Site	Observed Duration Mean (Days)	Observed Duration Min (Days)	Observed Duration Max (Days)	Observed Duration Units (Days)	Endpoint	Effect*	Effect Measurement	EE Comment
2017063		Not reported	7	NR	NR	Day(s)	EC25	Reproduction	Progeny counts/numbers	
2017034		Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
766229	REFORMULATED MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
766234	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2017053		Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2017062		Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2017045		Not reported	7	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2148468	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Reproduction	Progeny counts/numbers	
2148476	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Reproduction	Progeny counts/numbers	
2148470	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Reproduction	Progeny counts/numbers	
761597		Not reported	7	NR	NR	Day(s)	IC25	Reproduction	Progeny counts/numbers	
759076		Not reported	3	NR	NR	Brood or litter	IC25	Reproduction	Reproductive success (general)	
2148475	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Reproduction	Progeny counts/numbers	
2148469	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Reproduction	Progeny counts/numbers	
2148467	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Reproduction	Progeny counts/numbers	
759077		Not reported	3	NR	NR	Brood or litter	IC50	Reproduction	Reproductive success (general)	
2017032		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
2017043		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766734	MODERATELY HARD RECONSTITUTED WATER	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/r	MSMT/MEAN OF 3 TESTS/
766737	REFORMULATED MODERATELY HARD RECONSTITUT	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/r	MSMT/MEAN OF 3 TESTS/
766354	MODERATELY HARD WATER	Not reported	3	NR	NR	Generation	LOEC	Reproduction	Progeny counts/r	MSMT/MEASURED IN F3 GENERATION/
766344	MODERATELY HARD WATER	Not reported	8	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766355	MODERATELY HARD WATER	Not reported	4	NR	NR	Generation	LOEC	Reproduction	Progeny counts/r	MSMT/MEASURED IN F4 GENERATION/
766230	REFORMULATED MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
766351	MODERATELY HARD WATER	Not reported	2	NR	NR	Generation	LOEC	Reproduction	Progeny counts/r	MSMT/MEASURED IN F2 GENERATION/
766356	MODERATELY HARD WATER	Not reported	5	NR	NR	Generation	LOEC	Reproduction	Progeny counts/r	MSMT/MEASURED IN F5 GENERATION/
766232	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
2017051		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
2017060		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
759074		Not reported	3	NR	NR	Brood or litter	LOEC	Reproduction	Reproductive success (general)	
2017033		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
2017044		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766735	MODERATELY HARD RECONSTITUTED WATER	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/MEAN OF 3 TESTS/
766738	REFORMULATED MODERATELY HARD RECONSTITUT	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/MEAN OF 3 TESTS/
766855		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766231	REFORMULATED MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
766233	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
2017052		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
2017061		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
759075		Not reported	3	NR	NR	Brood or litter	NOEC	Reproduction	Reproductive success (general)	
761750		Not reported	7	NR	NR	Day(s)	LOEC	Reproduction	Fecundity	
761751		Not reported	7	NR	NR	Day(s)	NOEC	Reproduction	Fecundity	
2017147	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	EC10	Reproduction	Progeny counts/numbers	
2017148	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	EC25	Reproduction	Progeny counts/numbers	
2017149	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	EC50	Reproduction	Progeny counts/numbers	
2017151	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	LOEC	Reproduction	Progeny counts/numbers	
2017150	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/numbers	
759464		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/STATISTICALLY SIGNIFICANT INCREA
759022	CACL2 FOR HARDNESS CONTROL	Not reported	42	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/F1 AND F2 CUMULATIVE NUMBER/
759463		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/STATISTICALLY SIGNIFICANT INCREA
759484		Not reported	21	NR	NR	Day(s)	NOEC	Reproduction	Progeny counts/r	MSMT/STATISTICALLY SIGNIFICANT INCREA

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2147187		1,000	Not applicable		NA					
2152764		2,250	Not applicable		NA					TMETH/APHA, 1989// CONC1/FROM GRAPH//
160619		2,260	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160620		1,830	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
2152765		1,250	Not applicable		NA					TMETH/APHA, 1989// CONC1/FROM GRAPH//
768180		1,599	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768284		1,599	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768182		1,599	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767342		800	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768283		800	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768183		800	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768181		800	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768286		401	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
742988		4,970	Not applicable		NA					DNUM/6//DOSES/4190/4310/4810/5250/5430 mg/L//TES
44241		3,000	Not applicable		NA					
160622		2,770	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
2152738		1,750	Not applicable		NA					TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152737		2,250	Not applicable		NA					TMETH/APHA, 1989// CONC1/FROM GRAPH//
18686		759	Not applicable		NA					
18685		1,838	Not applicable		NA					
18688		649	Not applicable		NA					
18684		3,005	Not applicable		NA					
18683		3,526	Not applicable		NA					
18687		759	Not applicable		NA					
742079		590	Not applicable		NA					DNUM/6//DOSES/410/470/580/660/760 mg/L//TESTID/2
160621		3,250	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
32466		1,838	Not applicable		NA					
119478		759	Not applicable		NA					
768399		3,196	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768396		3,196	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768457		4,780	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768462		1,196	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2152736		172	Not applicable		NA					TMETH/APHA, 1989//
768402		800	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768460		1,196	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768398		800	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2153763		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153676		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740759		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740760		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740732		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153700		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153697		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740761		10,000	Not applicable		NA	180			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2063733		13,400	Not applicable		NA					
2063726		13,400	Not applicable		NA					
2063735		13,400	Not applicable		NA					
740765		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740777		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
126054		11,300	Not reported		NR					
126052		9,500	Not reported		NR					
126053		9,500	Not reported		NR					

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
18689		8,350	Not applicable		NA					
196145		10,650	Not applicable		NA	10			mg/L CaCO3	
19522		10,650	Not applicable		NA					
40507		10,650	Not applicable		NA		6314	11900	mg/L CaCO3	
740778		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
741717		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153801		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
18693		2,573	Not applicable		NA					
18691		3,094	Not applicable		NA					
18690		4,485	Not applicable		NA					
18692		3,308	Not applicable		NA					
2153798		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740767		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
184730		43	Not reported		NR					
99472	>	1,000	Not applicable		NA					
99476	>	1,000	Not applicable		NA					
99478	>	1,000	Not applicable		NA					
61681	>	1,000	Not applicable		NA					
99477	>	1,000	Not applicable		NA					
61680	>	1,000	Not applicable		NA					
160623	>	6,660	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160624	>	6,560	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160625		4,630	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
742078		2,110	Not applicable		NA					DNUM/6//DOSES/1760/2000/2260/2540/2640 mg/L//TES
741718		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153836		20,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153835		20,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
768541		4,780	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768539		4,780	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
742032		2,640	Not applicable		NA					DNUM/6//DOSES/1760/2000/2260/2540/2640 mg/L//TES
742060		2,840	Not applicable		NA					DNUM/2//DOSES/2840 mg/L//TESTID/24//
742031		2,840	Not applicable		NA					DNUM/2//DOSES/2840 mg/L//TESTID/23//
740738		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
742933		2,840	Not applicable		NA					DNUM/2//DOSES/2840 mg/L//TESTID/22//
740779		20,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740744		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2153802		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740734		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
22954		360	Not applicable		NA					
22953		270	Not applicable		NA					
22952		480	Not applicable		NA					
160513		1,270	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160514		880	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
768178		933	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768176		933	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768177		467	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768277		467	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
22960		32	Not applicable		NA					O EFCT CONT/MEDIAN LETHALCONC//CONTR/11.2% MOR
160516		1,330	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
25475		3,699	Not applicable		NA					
25474		3,391	Not applicable		NA					
25476		3,484	Not applicable		NA					

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
160515		1,560	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
768454		2,044	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768393		1,864	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768501		1,491	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768451		2,044	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768390		1,864	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768392		467	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768395		467	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768456		512	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768503		747	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2064007		17,750	Not applicable		NA					
2064009		16,500	Not applicable		NA					
2064004		18,750	Not applicable		NA					
22955		760	Not applicable		NA					
22957		570	Not applicable		NA					
22956		440	Not applicable		NA					
160517		3,520	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160518		2,840	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160519		2,120	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
2055980		616	Not applicable		NA	22			mg/L CaCO3	
741753	>	10,000	Not applicable		NA					DNUM/4//DOSES/1000/5000/10000 mg/l//TESTID/15//
741747		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741782		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741787	>	10,000	Not applicable		NA					DNUM/4//DOSES/1000/5000/10000 mg/l//TESTID/16//
741741		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741740		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
2455		17,880	Not applicable		NA		40	48	mg/L CaCO3	
12210		21,450	Not applicable		NA		40	48	mg/L CaCO3	
231580		26,000	Not applicable		NA	100			mg/L	TESTID/13//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231578	>	32,000	Not applicable		NA	20			mg/L	TESTID/13//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231574	>	32,000	Not applicable		NA	100			mg/L	TESTID/12//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231577		24,000	Not applicable		NA	100			mg/L	TESTID/12//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231575		26,000	Not applicable		NA	100			mg/L	TESTID/12//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231576		24,000	Not applicable		NA	100			mg/L	TESTID/12//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231579		32,000	Not applicable		NA	20			mg/L	TESTID/13//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231581		23,000	Not applicable		NA	100			mg/L	TESTID/13//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231569		6,150	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231568		6,800	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231571	>	5,600	Not applicable		NA	20			mg/L	TESTID/11//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231567		7,200	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231573		5,100	Not applicable		NA	20			mg/L	TESTID/11//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231572		5,100	Not applicable		NA	20			mg/L	TESTID/11//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231563	>	10,000	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231566		8,250	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231570	>	5,600	Not applicable		NA	20			mg/L	TESTID/11//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231565		8,250	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
231564	>	10,000	Not applicable		NA	100			mg/L	TESTID/10//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT
764333		3,700	Not applicable		NA					DOSES/NA ppm//TESTID/5//OEF/MIXTURE,TEMP EFCTS//
764325		4,600	Not applicable		NA					DOSES/NA ppm//TESTID/1//OEF/MIXTURE////
764330		3,900	Not applicable		NA					DOSES/NA ppm//TESTID/4//OEF/MIXTURE,TEMP EFCTS//
764326		4,300	Not applicable		NA					DOSES/NA ppm//TESTID/2//OEF/MIXTURE,TEMP EFCTS//
764329		4,100	Not applicable		NA					DOSES/NA ppm//TESTID/3//OEF/MIXTURE,TEMP EFCTS//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2152847		1,645	Not applicable		NA		80	100	mg/L CaCO3	
741752		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
764481		2,600	Not applicable		NA					DOSES/NA ppm//TESTID/20//OEF/MIXTURE,TEMP EFCTS/
187905		23,817	Not applicable		NA		80	90	mg/L CaCO3	
187903		24,829	Not applicable		NA		80	90	mg/L CaCO3	
187902		25,064	Not applicable		NA		80	90	mg/L CaCO3	
187901		25,190	Not applicable		NA		80	90	mg/L CaCO3	
187906		22,457	Not applicable		NA		80	90	mg/L CaCO3	
187904		25,786	Not applicable		NA		80	90	mg/L CaCO3	
742006		20,550	Significant		0.05		80	100	mg/L CaCO3	
742038		21,000	Significant		0.05		80	100	mg/L CaCO3	
742918		20,500	No significance		0.05		80	100	mg/L CaCO3	
742919		20,950	No significance		0.05		80	100	mg/L CaCO3	TESTID/4//OEF/PH, HARDNESS////
196818		10,400	Not applicable		NA					
196799		8,200	Not applicable		NA					
196831		7,150	Not applicable		NA					
196814		10,450	Not applicable		NA					
196791		7,950	Not applicable		NA					
196776		7,000	Not applicable		NA					
196783		7,200	Not applicable		NA					
196795		7,400	Not applicable		NA					
196828		7,300	Not applicable		NA					
196816		7,950	Not applicable		NA					
167864		7,341	Not applicable		NA	210			mg/L CaCO3	
75451		4,324	Not applicable		NA	148.8			mg/L CaCO3	12 H PHOTO//NOT FED//AERATED//DECHLORINATED, AG
196826		9,600	Not applicable		NA					
196803		8,400	Not applicable		NA					
196788		6,800	Not applicable		NA					
196784		7,050	Not applicable		NA					
196775		7,550	Not applicable		NA					
196834		9,950	Not applicable		NA					
196808		7,200	Not applicable		NA					
196827		7,850	Not applicable		NA					
196836		6,800	Not applicable		NA					
196823		7,900	Not applicable		NA					
196780		6,950	Not applicable		NA					
196790		9,850	Not applicable		NA					
196804		8,050	Not applicable		NA					
196811		7,400	Not applicable		NA					
196824		7,650	Not applicable		NA					
196830		8,800	Not applicable		NA					
196778		9,750	Not applicable		NA					
196807		7,900	Not applicable		NA					
196802		11,050	Not applicable		NA					
196810		10,200	Not applicable		NA					
196822		9,980	Not applicable		NA					
196794		10,000	Not applicable		NA					
196798		11,050	Not applicable		NA					
196786		8,350	Not applicable		NA					
196782		9,800	Not applicable		NA					
196796		7,200	Not applicable		NA					
196800		7,900	Not applicable		NA					

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
196812		7,050	Not applicable		NA					
196779		7,350	Not applicable		NA					
196792		7,600	Not applicable		NA					
196815		8,800	Not applicable		NA					
196835		6,950	Not applicable		NA					
196820		7,950	Not applicable		NA					
196774		9,900	Not applicable		NA					
196806		10,100	Not applicable		NA					
196832		7,000	Not applicable		NA					
196840		7,388	Not applicable		NA					
196819		8,500	Not applicable		NA					
196787		6,800	Not applicable		NA					
196801		7,900	Not applicable		NA					
196817		7,750	Not applicable		NA					
196837		6,800	Not applicable		NA					
167863		7,322	Not applicable		NA	210			mg/L CaCO3	
196793		7,600	Not applicable		NA					
196805		8,050	Not applicable		NA					
196777		7,000	Not applicable		NA					
196785		7,050	Not applicable		NA					
196797		7,200	Not applicable		NA					
196825		7,550	Not applicable		NA					
196813		7,050	Not applicable		NA					
196789		6,800	Not applicable		NA					
196821		7,950	Not applicable		NA					
196833		7,000	Not applicable		NA					
196829		7,300	Not applicable		NA					
196781		6,950	Not applicable		NA					
196809		7,200	Not applicable		NA					
26112		13,750	Not applicable		NA					
741686		1,590	Not applicable		NA		54	72	mg/L CaCO3	DNUM/6//DOSES/0.479/0.879/1.27/1.79/2.26 g/L//TESTI
2152825		1,068	Not applicable		NA		80	100	mg/L CaCO3	
2075467		1,489	Not applicable		NA	278	276	280	mg/L CaCO3	
2153271		540	Not applicable		NA	40			mg/L CaCO3	
2153268		316	Not applicable		NA	20			mg/L CaCO3	
2075442		1,836	Not applicable		NA	796	792	800	mg/L CaCO3	
2075434		1,779	Not applicable		NA	565	560	570	mg/L CaCO3	
2075468		1,317	Not applicable		NA	282	280	283	mg/L CaCO3	
2075410		1,249	Not applicable		NA	96	95	96	mg/L CaCO3	
2075471		1,192	Not applicable		NA	279	278	280	mg/L CaCO3	
2153274		1,134	Not applicable		NA	80			mg/L CaCO3	
2152724		*2,750*	Not applicable		NA	98			mg/L CaCO3	TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152723		*2,750*	Not applicable		NA	98			mg/L CaCO3	TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152874		132	Not applicable		NA	10			mg/L CaCO3	
2153277		1,240	Not applicable		NA	160			mg/L CaCO3	
2153280		1,303	Not applicable		NA	320			mg/L CaCO3	
2075466		1,356	Not applicable		NA	280	279	280	mg/L CaCO3	
2075469		1,357	Not applicable		NA	281	280	281	mg/L CaCO3	
2075470		1,154	Not applicable		NA	285	280	290	mg/L CaCO3	
2074934		977	Not applicable		NA	28	25	30	mg/L CaCO3	
2075402		861	Not applicable		NA	47	44	49	mg/L CaCO3	
2075426		1,589	Not applicable		NA	388	375	400	mg/L CaCO3	

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2075418		1,402	Not applicable		NA	187	180	194	mg/L CaCO3	
120843		1,170	Not applicable		NA					TESTID/33//
120826		1,940	Not applicable		NA					TESTID/22//
120844		910	Not applicable		NA					TESTID/34//
120840		280	Not applicable		NA					TESTID/30//
120842		1,940	Not applicable		NA					TESTID/32//
741547	>	467	Not applicable		NA	101	100	103	mg/L CaCO3	
120829		1,830	Not applicable		NA					TESTID/25//
120845		1,430	Not applicable		NA					TESTID/35//
120837	<	330	Not applicable		NA					TESTID/27//
120827		1,830	Not applicable		NA					TESTID/23//
120841		1,940	Not applicable		NA					TESTID/31//
120824		1,740	Not applicable		NA					TESTID/20//
120839		1,940	Not applicable		NA					TESTID/29//
120828		1,710	Not applicable		NA					TESTID/24//
120825		1,640	Not applicable		NA					TESTID/21//
120838		1,830	Not applicable		NA					TESTID/28//
160319		3,380	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160320		1,960	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
741288		1,042	Not applicable		NA					CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
207716		*2,250*	Not applicable		NA	102	94	104	mg/L CaCO3	CONC/FROM GRAPH//
207717	~	2,000	Not applicable		NA	102	94	104	mg/L CaCO3	CONC/FROM GRAPH//
742567		2,200	Significant	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
767903		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/20//
766864		5,000	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/4//
767897		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/19//
767961		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/23//
767879		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/14//
767895		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/18//
767872		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/13//
767959		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/22//
767870		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/12//
767967		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/24//
766872		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/6//
766866		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/5//
767889		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/17//
767856		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/9//
767969		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/25//
767846		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/3//
767953		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/21//
767887		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/16//
767881		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/15//
767975		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/26//
767864		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/11//
767862		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/10//
767848		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/7//
767854		2,500	Not reported		NR		*80*	*100*	NR	DOSES/NA g/L//TESTID/8//
251007		1,500	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251003		500	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251001		300	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
250999		2,500	Significant		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251009		2,500	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
250998		900	Significant		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251005		900	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
741687		1,700	No significance	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
767855		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/8//
767904		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/20//
766865		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/4//
767898		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/19//
767962		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/23//
767880		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/14//
767896		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/18//
767873		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/13//
767960		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/22//
767871		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/12//
767968		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/24//
766873		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/6//
766867		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/5//
767890		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/17//
767857		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/9//
767970		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/25//
767847		620	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/3//
767954		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/21//
767888		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/16//
767882		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/15//
767976		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/26//
767865		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/11//
767863		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/10//
767849		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/7//
250997	ABS///	500	No significance		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251000	<	300	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
120855	ABS///	1,500	No significance		NR					TESTID/36//COMPEP/1//
251004		500	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251002		300	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251008	ABS///	1,500	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251006		900	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
741695		2,260	Not applicable		NA		54	72	mg/L CaCO3	DNUM/6//DOSES/0.479/0.879/1.27/1.79/2.26 g/L//TESTI
741699		2,200	Not applicable		NA		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
741671		4,500	Not applicable		NA					DNUM/5//DOSES/0.75/1.5/3.0/4.5 g/L//TESTID/1//
768272		1,701	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768340		3,035	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768268		1,701	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768173		1,701	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
207718		1,250	Not applicable		NA	102	94	104	mg/L CaCO3	CONC/FROM GRAPH//
207719		1,250	Not applicable		NA	102	94	104	mg/L CaCO3	CONC/FROM GRAPH//
741660		850	Not reported		NR		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
207721		1,250	Not applicable		NA	102	94	104	mg/L CaCO3	CONC/FROM GRAPH//
2152722		467	Not applicable		NA	98			mg/L CaCO3	TMETH/APHA, 1989//
742530		467	Not reported		NR	101	100	103	mg/L CaCO3	
768266		760	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768264		760	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768175		872	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
741435		1,250	Not applicable		NA	84			mg/L	TESTID/2//
741635	~	12,000	Not applicable		NA					LIFESTG/INITIAL BW, AVG LENGTH 148MM//TIME/OTHER

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
741678		1,200	Not applicable		NA					LIFESTG/INITIAL BW, AVG LENGTH 148MM//TIME/OTHER
2060209		4,163	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060210		4,640	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060211		4,917	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060212		5,113	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060213		5,274	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060214		5,417	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060216		5,793	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060217		6,280	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060218		6,717	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060220		6,898	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060221		7,116	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060222		7,399	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060223		7,840	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060225		8,740	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2152838		5,867	Not applicable		NA		80	100	mg/L CaCO3	
2060201		6,032	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060236		7,810	Significant	<=	0.01	296			mg/L CaCO3	CONTR/B,C//
2060237		6,211	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060228		4,940	No significance	<=	0.01	296			mg/L CaCO3	CONTR/B,C//
2060247		11,600	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060275		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060254		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060259		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060270		4,940	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2211037		10,000	Not applicable		NA		140	160	mg/L	
741489		14,040	Not applicable		NA					TIME/ADDITIONAL DURATIONS REPORTED//DNUM/6//DC
2162289		610	Not applicable		NA					
2162290		700	Not applicable		NA					
2211025		10,800	Not applicable		NA		140	160	mg/L	
2211024		4,850	Not applicable		NA		140	160	mg/L	
16495		6,221	Not applicable		NA	124			mg/L CaCO3	
26114		10,200	Not applicable		NA					
26113		10,500	Not applicable		NA					
2152587		4,700	Not applicable		NA					
2152588		11,000	Not applicable		NA					
2152592		13,000	Not applicable		NA					
2060148		6,070	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060157		6,137	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060168		6,137	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060161		6,137	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060198		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060191		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060190		3,100	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060189		4,940	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
742566		2,000	Not applicable		NA		54	72	mg/L CaCO3	DNUM/6//DOSES/0.479/0.879/1.27/1.79/2.26 g/L//TESTI
741697		850	Significant	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
741698		440	No significance	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
2164727		4,040	Not applicable		NA	149.6			mg/L	
18462		3,114	Not applicable		NA					
18463		3,412	Not applicable		NA					
18461		5,874	Not applicable		NA					

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
18464		3,310	Not applicable		NA					
2152826		3,630	Not applicable		NA		80	100	mg/L CaCO3	
759179		6,500	Not applicable		NA	563	404	694	mg/L CaCO3	DOSES/NA mg/L//TESTID/5//OEF/LEACHATE STUDY, MIXT
2152709	~	6,000	Not applicable		NA	170			mg/L CaCO3	TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152708		7,500	Not applicable		NA	170			mg/L CaCO3	TMETH/APHA, 1989// CONC1/FROM GRAPH//
144221		6,027	Not applicable		NA	240			mg/L CaCO3	
144220		6,027	Not applicable		NA	240			mg/L CaCO3	
144218		5,600	Not applicable		NA	240			mg/L CaCO3	
144219		5,020	Not applicable		NA	240			mg/L CaCO3	
144222		5,600	Not applicable		NA	240			mg/L CaCO3	
160322		4,770	Not applicable		NA		80	100	NR	HARD/MODERATELYHARD//
742529	>	467	Not applicable		NA	169	166	172	mg/L CaCO3	
160321		6,380	Not applicable		NA		80	100	NR	HARD/MODERATELYHARD//
767302		3,222	Not applicable		NA	106			mg/L CaCO3	CA/27.2 mg/L//MG/9.2 mg/L//NA/32.8 mg/L//POT/2.6 m
772103		3,136	Not applicable		NA	106			mg/L CaCO3	CA/17.4 mg/L//MG/15.1 mg/L//NA/32.8 mg/L//POT/2.6 n
767308		3,137	Not applicable		NA	106			mg/L CaCO3	CA/37.0 mg/L//MG/3.2 mg/L//NA/32.8 mg/L//POT/2.6 m
742019		5,480	Not applicable		NA		160	180	mg/L CaCO3	DNUM/8//DOSES/2/4/6/7/8/9/10 g/L//TESTID/1//
18460		6,447	Not applicable		NA					
119469		3,318	Not applicable		NA					
31699		3,412	Not applicable		NA					
2164731		8,000	Not applicable		NA	149.6			mg/L	
768426		6,069	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768527		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768489		6,069	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768475		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768531		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768496		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768445		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768499		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768467		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768521		4,321	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768486		6,069	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2164732		500	Not applicable		NA	149.6			mg/L	
2152707		280	Not applicable		NA	170			mg/L CaCO3	TMETH/APHA, 1989//
768428		1,519	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768533		2,766	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768500		3,457	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768431		1,519	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768498		2,766	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
741531		467	Not reported		NR	169	166	172	mg/L CaCO3	
768450		2,766	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768523		3,466	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768530		2,766	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2210504		1,155	Not applicable		NA					CONC1/ONLY CONC TESTED//
768520		2,766	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768488		1,519	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
768526		2,213	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2210505		1,155	Not applicable		NA					CONC1/ONLY CONC TESTED//
742069		1,770	Not applicable		NA					DNUM/2//DOSES/1770 mg/L//TESTID/11//
742931		1,770	Not applicable		NA					DNUM/2//DOSES/1770 mg/L//TESTID/10//
742926		1,770	Not applicable		NA					DNUM/2//DOSES/1770 mg/L//TESTID/7//
742068		1,770	Not applicable		NA					DNUM/2//DOSES/1770 mg/L//TESTID/8//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
742927		1,770	Not applicable		NA					DNUM/2//DOSES/1770 mg/L//TESTID/9//
741434		1,250	Not applicable		NA	84	80	100	mg/L	TESTID/1//
2055812		1,760	Not applicable		NA		28	82	mg/L CaCO3	
201545		1,470	Not applicable		NA	92.8			mg/L CaCO3	
201566		3,050	Not applicable		NA					
201558		441	Not applicable		NA	96.3			mg/L CaCO3	
740690		10,000	Not applicable		NA	180			mg/L CaCO3	
740662		20,000	Not applicable		NA	180			mg/L CaCO3	
741563		2,230	Not applicable		NA		170	192	mg/L CaCO3	TIME/OTHER DURATIONS ALSO REPORTED//DNUM/6-7//I
803856		2,670	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID/19//CONTR/C
2052775		244	Not applicable		NA					
231524		7,500	Not applicable		NA	100			mg/L	TESTID/2//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231523	>	10,000	Not applicable		NA	100			mg/L	TESTID/2//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231527		7,500	Not applicable		NA	100			mg/L	TESTID/2//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231525		7,500	Not applicable		NA	100			mg/L	TESTID/2//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231526		7,500	Not applicable		NA	100			mg/L	TESTID/2//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
2062417		24,000	Not applicable		NA	193.9	171	256.5	mg/L CaCO3	
2062416		16,000	Not applicable		NA	193.9	171	256.5	mg/L CaCO3	
2064155		18,100	Not applicable		NA					
2064156		17,550	Not applicable		NA					
2064154		18,100	Not applicable		NA					
118481		11,540	Not applicable		NA					
741789		7,700	Not applicable		NA					DNUM/4//DOSES/1000/5000/10000 mg/l//TESTID/18//
742663		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/1
2053816		9,260	Not applicable		NA					
2053813		10,040	Not applicable		NA					
2053818		8,530	Not applicable		NA					
2053814		12,110	Not applicable		NA					
2053819		12,000	Not applicable		NA					
2053817		12,600	Not applicable		NA					
231537		3,200	Not applicable		NA	100			mg/L	TESTID/4//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231535		3,700	Not applicable		NA	100			mg/L	TESTID/4//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231533	>	10,000	Not applicable		NA	100			mg/L	TESTID/4//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231536		3,200	Not applicable		NA	100			mg/L	TESTID/4//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
231534	>	10,000	Not applicable		NA	100			mg/L	TESTID/4//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/I
2075474		3,078	Not applicable		NA	56			mg/L CaCO3	
2075475		3,009	Not applicable		NA	212			mg/L CaCO3	
2164548		842	Not applicable		NA					
2164547		831	Not applicable		NA					
2164549		781	Not applicable		NA					
2164550		733	Not applicable		NA					
2164551		1,140	Not applicable		NA					
2164553		998	Not applicable		NA					
2164552		1,050	Not applicable		NA					
2164554		954	Not applicable		NA					
2152842		1,382	Not applicable		NA		80	100	mg/L CaCO3	
2164556		1,280	Not applicable		NA					
2164558		1,200	Not applicable		NA					
2164555		1,510	Not applicable		NA					
2164557		1,240	Not applicable		NA					
16496		6,621	Not applicable		NA	124			mg/L CaCO3	
740725		20,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
741710		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740689		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2164711		4,000	Significant		0.05					
2164646		2,000	Significant		0.05					
2164696		4,000	Significant		0.05					
2164693		4,000	Significant		0.05					
2164628		2,000	Significant		0.05					
2164700		1,000	Significant		0.05					
2164641		4,000	Significant		0.05					
2164625		2,000	Significant		0.05					
2164613		8,000	Not significant at all concentration		0.05					
2164645		1,000	No significance		0.05					
2164618		8,000	Not significant at all concentration		0.05					
2164695		2,000	No significance		0.05					
2164692		2,000	No significance		0.05					
2164699		500	No significance		0.05					
2164640		2,000	No significance		0.05					
2164627		1,000	No significance		0.05					
2164710		2,000	No significance		0.05					
2164623		2,000	No significance		0.05					
2052772		817	Not applicable		NA					
2052780		432	Not applicable		NA	278			mg/L CaCO3	
2052782		403	Not applicable		NA	292			mg/L CaCO3	
2052786		153	Not applicable		NA	306			mg/L CaCO3	
2052784		261	Not applicable		NA	322			mg/L CaCO3	
2052781		1,559	Not applicable		NA	292			mg/L CaCO3	
2052783		1,391	Not applicable		NA	322			mg/L CaCO3	
741564		1,740	Not applicable		NA		170	192	mg/L CaCO3	TIME/OTHER DURATIONS ALSO REPORTED//DNUM/6-7//[
2052773		113	Not applicable		NA					
2052774		285	Not applicable		NA					
2052785		1,265	Not applicable		NA	306			mg/L CaCO3	
741584		3,980	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.5 to 8.0 g/L//TESTID/21//CONTR/C
803857		1,840	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID/20//CONTR/C
2052779		1,313	Not applicable		NA	278			mg/L CaCO3	
2224815		2,630	Not applicable		NA		160	180	mg/L CaCO3	
2052777		1,962	Not applicable		NA	172			mg/L CaCO3	
2052778		1,870	Not applicable		NA	322			mg/L CaCO3	
2052770		168	Not applicable		NA					
2052776		763	Not applicable		NA	47			mg/L CaCO3	
2052771		1,430	Not applicable		NA	99			mg/L CaCO3	
741568		550	Not applicable		NA		170	192	mg/L CaCO3	TIME/OTHER DURATIONS ALSO REPORTED//DNUM/6-7//[
803860		560	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID/23//CONTR/C
741594		4,560	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.5 to 8.0 g/L//TESTID/22//CONTR/C
2224806		3,570	Not applicable		NA		160	180	mg/L CaCO3	
18184		14,125	Not applicable		NA					
196203		12,946	Not applicable		NA	10			mg/L CaCO3	
201540		5,840	Not applicable		NA	101.7			mg/L CaCO3	
40512		1,295	Not applicable		NA		39.2	52	mg/L CaCO3	AERATION//CONTR/NO MORT//
13417		12,946	Not applicable		NA					
220765		9,103	Not applicable		NA	429			mg/L CaCO3	
2210845		5,220	Not applicable		NA		140	160	mg/L	
740684		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
740724		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2224820		3,750	Not applicable		NA		160	180	mg/L CaCO3	
2224821		2,510	Not applicable		NA		160	180	mg/L CaCO3	
231519		6,950	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231583		5,800	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231522		6,200	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231584		5,800	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231582		5,800	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231521		6,200	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231518	>	7,500	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231520		6,800	Not applicable		NA	100			ppm	TESTID/1//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
203677		2,970	Not applicable		NA	100.8			mg/L CaCO3	
203678		4,580	Not applicable		NA	100.8			mg/L CaCO3	
2152829		3,100	Not applicable		NA		80	100	mg/L CaCO3	
2060288		5,458	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060289		5,506	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060290		5,589	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060276		5,407	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060292		4,940	Significant	<=	0.01	296			mg/L CaCO3	CONTR/B,C//
2060293		3,913	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060291		3,100	No significance	<=	0.01	296			mg/L CaCO3	CONTR/B,C//
2060317		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060318		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060307		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060306		7,810	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060315		3,100	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060319		4,940	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060302		4,940	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
2060309		4,940	Not applicable		NA	296			mg/L CaCO3	CONTR/B,C//
18185		3,412	Not applicable		NA					
18186		3,388	Not applicable		NA					
764505		2,600	Not applicable		NA					DOSES/NA ppm//TESTID/21//OEF/MIXTURE,TEMP EFCTS/
741739		10,000	Not reported		NR					LIFESTG/STENONEMA INTEGRUM//DNUM/5//DOSES/100
2164606		1,000	Significant		0.05					
2164588		8,000	Significant		0.05					
2164592		10,000	Significant		0.05					
2164600		4,000	Significant		0.05					
2164609		4,000	Significant		0.05					
2164603		2,000	Significant		0.05					
2164595		4,000	Significant		0.05					
2164605		500	No significance		0.05					
2164587		4,000	No significance		0.05					
2164591		8,000	No significance		0.05					
2164599		2,000	No significance		0.05					
2164608		2,000	No significance		0.05					
2164602		1,000	No significance		0.05					
2164594		2,000	No significance		0.05					
802493	<	1,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802503		4,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802492	<	1,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802504		4,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802490		1,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
802505		4,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802506		7,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802491	<	1,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802494		2,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802495		2,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802499	>	7,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802500		6,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802501		6,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
802497		4,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802496		2,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/27//OEF/NO FOAM
802502		6,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/28//OEF/NO FOAM
6172		5,000	Not applicable		NA					CONTR/< 10 % MORT//
6170		1,000	Not applicable		NA					CONTR/< 10 % MORT///
6174		5,000	Not applicable		NA					CONTR/< 10 % MORT//
6169		1,000	Not applicable		NA					CONTR/< 10 % MORT//
6173		5,000	Not applicable		NA					CONTR/< 10 % MORT//
6167		3,000	Not applicable		NA					CONTR/< 10 % MORT//
6171	>	7,000	Not applicable		NA					CONTR/< 10 % MORT//
6168		1,500	Not applicable		NA					CONTR/< 10 % MORT//
2075478		1,930	Not applicable		NA	48			mg/L CaCO3	
16494		2,569	Not applicable		NA	124			mg/L CaCO3	CONTR/11 % MORT//
2060327		4,270	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060325		4,310	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060326		4,270	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060329		4,270	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060335		5,340	Significant	<=	0.01	290	288	292	mg/L CaCO3	CONTR/B,C//
2060336		4,211	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060333		3,320	No significance	<=	0.01	290	288	292	mg/L CaCO3	CONTR/B,C//
2060352		5,340	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060350		5,340	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060361		7,720	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060360		5,340	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060342		5,340	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060354		5,340	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
740693		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
741709		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
201542		2,540	Not applicable		NA	100.1			mg/L CaCO3	
201543		5,060	Not applicable		NA	100.1			mg/L CaCO3	
231546		5,100	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231545		5,100	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231550		6,200	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231549		6,200	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231554		4,100	Not applicable		NA	20			mg/L	TESTID/7//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231544	>	5,600	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231553		4,250	Not applicable		NA	20			mg/L	TESTID/7//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231547		7,500	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231542	>	5,600	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231551		4,800	Not applicable		NA	20			mg/L	TESTID/7//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231548		6,950	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231540		3,500	Not applicable		NA	100			mg/L	TESTID/5//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231543	>	5,600	Not applicable		NA	100			mg/L	TESTID/6//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231539		3,700	Not applicable		NA	100			mg/L	TESTID/5//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
231538		4,200	Not applicable		NA	100			mg/L	TESTID/5//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231552		4,250	Not applicable		NA	20			mg/L	TESTID/7//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231541		3,500	Not applicable		NA	100			mg/L	TESTID/5//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
196750		7,750	Not applicable		NA					
196772		7,500	Not applicable		NA					
196755		7,950	Not applicable		NA					
196735		9,000	Not applicable		NA					
196768		7,200	Not applicable		NA					
196767		7,200	Not applicable		NA					
196736		8,300	Not applicable		NA					
196713		7,050	Not applicable		NA					
196744		7,800	Not applicable		NA					
196724		7,650	Not applicable		NA					
196763		8,300	Not applicable		NA					
759180		11,400	Not applicable		NA	563	404	694	mg/L CaCO3	DOSES/NA mg/L//TESTID/6//OEF/LEACHATE STUDY, MIXT
196745		7,800	Not applicable		NA					
196714		7,050	Not applicable		NA					
196748		7,650	Not applicable		NA					
196728		7,400	Not applicable		NA					
196741		8,200	Not applicable		NA					
196756		7,950	Not applicable		NA					
196729		7,400	Not applicable		NA					
196760		8,400	Not applicable		NA					
196759		8,700	Not applicable		NA					
196731		7,500	Not applicable		NA					
196839		7,650	Not applicable		NA					
196770		7,600	Not applicable		NA					
196720		7,400	Not applicable		NA					
196766		7,500	Not applicable		NA					
196723		7,700	Not applicable		NA					
196732		7,300	Not applicable		NA					
196740		8,200	Not applicable		NA					
2152828		4,079	Not applicable		NA		80	100	mg/L CaCO3	
196716		7,100	Not applicable		NA					
196751		7,550	Not applicable		NA					
196711		7,100	Not applicable		NA					
196737		8,300	Not applicable		NA					
196712		7,050	Not applicable		NA					
196764		8,150	Not applicable		NA					
196733		7,200	Not applicable		NA					
196758		8,800	Not applicable		NA					
196725		7,650	Not applicable		NA					
196752		7,450	Not applicable		NA					
196715		7,200	Not applicable		NA					
196727		7,750	Not applicable		NA					
196771		7,500	Not applicable		NA					
196721		7,400	Not applicable		NA					
196739		8,300	Not applicable		NA					
196754		8,100	Not applicable		NA					
196717		7,100	Not applicable		NA					
196747		7,650	Not applicable		NA					
196743		8,150	Not applicable		NA					

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
196762		8,800	Not applicable		NA					
196719		7,400	Not applicable		NA					
2055542		8,360	Not applicable		NA		52	96	mg/L CaCO3	
160325		6,390	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160324		6,510	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
167861		7,650	Not applicable		NA	210			mg/L CaCO3	
160323		8,280	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
201537		6,570	Not applicable		NA	96.3			mg/L CaCO3	
196726		7,650	Not applicable		NA					
196769		7,200	Not applicable		NA					
196765		8,150	Not applicable		NA					
196734		7,200	Not applicable		NA					
196761		8,400	Not applicable		NA					
196738		8,300	Not applicable		NA					
196718		7,100	Not applicable		NA					
196753		7,450	Not applicable		NA					
196757		7,950	Not applicable		NA					
196749		7,650	Not applicable		NA					
196722		7,400	Not applicable		NA					
196742		8,200	Not applicable		NA					
196746		7,800	Not applicable		NA					
196773		7,500	Not applicable		NA					
196730		7,400	Not applicable		NA					
167862		7,650	Not applicable		NA	210			mg/L CaCO3	
42866		8,000	Significant		0.05		86	94	mg/L CaCO3	
96881		8,000	Significant		0.05		86	94	mg/L CaCO3	
42423		8,000	Significant		0.05		86	94	mg/L CaCO3	
96906		8,000	Significant		0.05		86	94	mg/L CaCO3	
14389		8,000	Significant		0.05		86	94	mg/L CaCO3	
68598		8,000	Significant		0.05		86	94	mg/L CaCO3	
768104		2,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/40//
768072		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/32//
768157		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/51//
768066		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/31//
768058		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/29//
768096		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/38//
768127		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/45//
768143		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/48//
768090		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/37//
768088		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/36//
768123		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/44//
768163		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/52//
768153		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/50//
768098		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/39//
768074		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/33//
768080		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/34//
768113		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/42//
768107		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/41//
768082		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/35//
768137		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/47//
768147		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/49//
768064		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/30//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
768133		5,000	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/46//
768117		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/43//
201561		352	Significant	<	0.05	96.9			mg/L CaCO3	
2210509		201	Significant at all concentrations		0.05					CONC1/ONLY CONC TESTED//
741744		1,140	Significant		0.05		90	110	mg/L	TIME/MEASURED DURING RECOVERY.//DNUM/3//DOSES
742691		210	Significant		0.05		90	110	mg/L	TIME/MEASURED DURING RECOVERY//DNUM/3//DOSES/
741410		2,200	Significant at all concentrations		0.05		90	110	mg/L	DNUM/2//DOSES/2.2 g/L//TESTID/2//CONC/ AVERAGE 7
201562		298	Not applicable		NA	96.9			mg/L CaCO3	
68599		4,000	No significance		0.05		86	94	mg/L CaCO3	
42865		4,000	No significance		0.05		86	94	mg/L CaCO3	
14383		4,000	No significance		0.05		86	94	mg/L CaCO3	
96885		4,000	No significance		0.05		86	94	mg/L CaCO3	
69057		4,000	No significance		0.05		86	94	mg/L CaCO3	
96907		4,000	No significance		0.05		86	94	mg/L CaCO3	
768105		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/40//
201560		252	No significance	<	0.05	96.9			mg/L CaCO3	
768073		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/32//
768158		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/51//
768067		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/31//
768059		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/29//
768097		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/38//
768128		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/45//
768144		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/48//
768091		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/37//
768089		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/36//
768124		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/44//
768164		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/52//
768154		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/50//
768099		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/39//
768075		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/33//
768081		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/34//
768114		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/42//
768108		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/41//
768083		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/35//
768138		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/47//
768148		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/49//
768065		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/30//
768134		2,500	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/46//
768118		1,250	Not reported		NR		80	100	NR	DOSES/NA g/L//TESTID/43//
741400	TION///	2,000	Not significant at all concentration		0.05		90	110	mg/L	DNUM/2//DOSES/2 g/L//TESTID/1//
742666		860	No significance		0.05		90	110	mg/L	TIME/MEASURED DURING RECOVERY.//DNUM/3//DOSES
740697		20,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
201538		7,310	Not applicable		NA	96.3			mg/L CaCO3	
768558		6,069	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
740694		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740696		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
742059		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/17//
742029		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/12//
742057		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/15//
742070		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/18//
742077		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/21//
742932		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/19//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
742058		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/16//
768559		3,035	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
742027		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/20//
742030		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/14//
742026		4,490	Not applicable		NA					DNUM/2//DOSES/4490 mg/L//TESTID/13//
231532		6,150	Not applicable		NA	100			mg/L	TESTID/3//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231528	>	10,000	Not applicable		NA	100			mg/L	TESTID/3//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231531		6,150	Not applicable		NA	100			mg/L	TESTID/3//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231530		6,150	Not applicable		NA	100			mg/L	TESTID/3//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231529		7,500	Not applicable		NA	100			mg/L	TESTID/3//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
26115		18,735	Not applicable		NA					
26116		16,595	Not applicable		NA					
2060321	>	11,700	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060324		11,700	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
2060323		7,720	Not applicable		NA	290	288	292	mg/L CaCO3	CONTR/B,C//
741795		3,526	Not applicable		NA					DNUM/4//DOSES/1000/5000/10000 mg/l//TESTID/19//
742665		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
742664		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741756		3,526	Not applicable		NA					DNUM/4//DOSES/1000/5000/10000 mg/l//TESTID/20//
741783		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741751		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
2170552		4,000	Not applicable		NA		132	205	mg/L	CONC1/ONLY CONC TESTED//
740686		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
740685		10,000	Not applicable		NA	140			mg/L CaCO3	CONC1/ONLY CONC TESTED//
2075473		1,100	Not applicable		NA	192			mg/L CaCO3	
2075472		740	Not applicable		NA	51			mg/L CaCO3	
231556		1,950	Not applicable		NA	100			mg/L	TESTID/8//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231560		1,550	Not applicable		NA	20			mg/L	TESTID/9//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231561		1,250	Not applicable		NA	20			mg/L	TESTID/9//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231559		2,400	Not applicable		NA	20			mg/L	TESTID/9//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231557		1,250	Not applicable		NA	100			mg/L	TESTID/8//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231558		1,100	Not applicable		NA	100			mg/L	TESTID/8//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231562		1,150	Not applicable		NA	20			mg/L	TESTID/9//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
231555		2,250	Not applicable		NA	100			mg/L	TESTID/8//MSMT/NR//DOSES/NR//SOURCE/NR//WTINT/
741781		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741788	>	10,000	Not applicable		NA					DNUM/4//DOSES/1000/5000/10000 mg/l//TESTID/17//
741743		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
741742		10,000	Not reported		NR					DNUM/5//DOSES/1000/2500/5000/10000 mg/l//TESTID/
2075476		4,278	Not applicable		NA	52			mg/L CaCO3	
2075477		6,008	Not applicable		NA	220			mg/L CaCO3	
2152833		5,648	Not applicable		NA		80	100	mg/L CaCO3	
803853		2,760	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID/18//CONTR/
741562		2,590	Not applicable		NA		170	192	mg/L CaCO3	TIME/OTHER DURATIONS ALSO REPORTED//DNUM/6-7//
741561		3,310	Not applicable		NA		170	192	mg/L CaCO3	TIME/OTHER DURATIONS ALSO REPORTED//DNUM/6-7//
741583		5,230	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.5 to 8.0 g/L//TESTID/17//CONTR/C
803850		3,630	Not applicable		NA		170	192	mg/L CaCO3	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID/16//CONTR/
759169		1,000	Not applicable		NA					DNUM/3//DOSES/1000/2000 ppm//TESTID/1//OEF/RECO
764615		4,000	Not applicable		NA					DOSES/NA ppm//TESTID/30//OEF/MIXTURE,TEMP EFCTS/
160288		1,770	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160287		1,770	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
767346		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767362		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
767348		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767402		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767365		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767407		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767364		1,079	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767366		1,079	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767410		580	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767347		1,079	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767405		1,079	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767461		1,036	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767465		1,394	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
759182		4,300	Not applicable		NA	563	404	694	mg/L CaCO3	DOSES/NA mg/L//TESTID/8//OEF/LEACHATE STUDY, MIXT
160289		2,360	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160290		1,820	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
24910		3,803	Not applicable		NA					
24907		929	Not applicable		NA					
24908		861	Not applicable		NA					
24906		963	Not applicable		NA					
24909		788	Not applicable		NA					
767488		4,071	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767485		4,071	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767471		1,079	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767487		1,079	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767490		580	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
759473		360	Not applicable		NA	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/6//CONC/ONLY CON
759470		360	Not applicable		NA	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/5//CONC/ONLY CON
2064012		15,500	Not applicable		NA					
2064016		15,500	Not applicable		NA					
2064015		15,500	Not applicable		NA					
220044		450	Not significant at all concentration		0.05					
24911		19,000	Not applicable		NA					
24914		6,300	Not applicable		NA					
24912		10,530	Not applicable		NA					
24913		6,525	Not applicable		NA					
24915		6,250	Not applicable		NA					
89658	>	1,000	Not applicable		NA					
61287	>	1,000	Not applicable		NA					
61288	>	1,000	Not applicable		NA					
61289	>	1,000	Not applicable		NA					
89662	>	1,000	Not applicable		NA					
89660	>	1,000	Not applicable		NA					
160291		4,630	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
759181		7,900	Not applicable		NA	563	404	694	mg/L CaCO3	DOSES/NA mg/L//TESTID/7//OEF/LEACHATE STUDY, MIXT
160292		3,510	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160293		2,820	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
767519		2,076	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
18178		880	Not applicable		NA					
18176		2,380	Not applicable		NA					
18177		1,110	Not applicable		NA					
18179		880	Not applicable		NA					
764340		4,800	Not applicable		NA					DOSES/NA ppm//TESTID/9//OEF/MIXTURE, TEMP EFCTS//
764585		900	Not applicable		NA					DOSES/NA ppm//TESTID/28//OEF/MIXTURE,TEMP EFCTS/

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2017048		1,551	Not applicable		NA	160			mg/L	
2017057		1,619	Not applicable		NA	320			mg/L	
2017040		1,267	Not applicable		NA	80			mg/L	
2017029		914	Not applicable		NA	40			mg/L	
766435		2,547	Not applicable		NA	578			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766427		2,173	Not applicable		NA	194			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766433		2,793	Not applicable		NA	484			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766419		2,216	Not applicable		NA	107	*80*	*100*	mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766431		2,744	Not applicable		NA	390			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766429		2,389	Not applicable		NA	288			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766216		1,759	Not applicable		NA	94			mg/L CaCO3	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg/L//POT/2.1 n
766604		2,853	Not applicable		NA	288			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/35//C
766426		3,000	Not applicable		NA	194			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766228		3,065	Not applicable		NA	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
766227		2,446	Not applicable		NA	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
766221		2,049	Not applicable		NA	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
766226		2,442	Not applicable		NA	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
759078		1,967	Not applicable		NA					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
766432		3,516	Not applicable		NA	484			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
160330		3,590	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
766430		3,174	Not applicable		NA	390			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766418		2,526	Not applicable		NA	107	*80*	*100*	mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766428		2,946	Not applicable		NA	288			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766215		2,050	Not applicable		NA	94			mg/L CaCO3	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg/L//POT/2.1 n
160331		3,080	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
766434		3,288	Not applicable		NA	578			mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 mg
766576		1,830	Not applicable		NA	98			mg/L CaCO3	CL/273.7 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/18
766609		3,716	Not applicable		NA	484			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/40//C
766554		2,526	Not applicable		NA	102			mg/L CaCO3	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/3//OE
766567		2,724	Not applicable		NA	96			mg/L CaCO3	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/11//
766580		1,328	Not applicable		NA	96			mg/L CaCO3	CL/491 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/21//
766565		2,494	Not applicable		NA	94			mg/L CaCO3	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/9//OE
766607		3,073	Not applicable		NA	390			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/38//C
766556		2,243	Not applicable		NA	94			mg/L CaCO3	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/5//OE
766720		2,419	Not applicable		NA	100			mg/L CaCO3	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/22//
766574		2,757	Not applicable		NA	96			mg/L CaCO3	CL/101.5 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/16
766717		2,469	Not applicable		NA	100			mg/L CaCO3	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/20//
766577		1,793	Not applicable		NA	102			mg/L CaCO3	CL/281.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/19
766560		2,402	Not applicable		NA	94			mg/L CaCO3	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/6//OE
766603		3,361	Not applicable		NA	288			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/34//C
766575		2,184	Not applicable		NA	104			mg/L CaCO3	CL/102.8 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/17
766581		1,828	Not applicable		NA	98			mg/L CaCO3	CL/491.7 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/22
766722		2,272	Not applicable		NA	100			mg/L CaCO3	CL/25 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/23//
766573		2,404	Not applicable		NA	96			mg/L CaCO3	CL/100.4 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/15
766578		2,095	Not applicable		NA	102			mg/L CaCO3	CL/288.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/20
766595		2,383	Not applicable		NA	288			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/33//C
766586		1,868	Not applicable		NA	94			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/25//C
766610		3,506	Not applicable		NA	484			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/41//C
766555		2,223	Not applicable		NA	92			mg/L CaCO3	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/4//OE
766566		2,198	Not applicable		NA	100			mg/L CaCO3	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/10//
766718		2,289	Not applicable		NA	100			mg/L CaCO3	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/21//
766570		1,925	Not applicable		NA	96			mg/L CaCO3	CL/25.1 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/12//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
766723		2,417	Not applicable		NA	100			mg/L CaCO3	CL/100 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/24//
766605		3,297	Not applicable		NA	288			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/36//
766591		2,436	Not applicable		NA	107			mg/L CaCO3	CL/34 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/29//C
766724		1,914	Not applicable		NA	100			mg/L CaCO3	CL/300 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/25//
766572		2,481	Not applicable		NA	96			mg/L CaCO3	CL/24.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/14/
766548		2,526	Not applicable		NA	100			mg/L CaCO3	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/1//OE
766606		3,369	Not applicable		NA	390			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/37//
766585		2,030	Not applicable		NA	94			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/24//
766588		2,538	Not applicable		NA	107			mg/L CaCO3	CL/34 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/27//C
766608		3,091	Not applicable		NA	390			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/39//
766551		2,357	Not applicable		NA	100			mg/L CaCO3	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/2//OE
766563		2,295	Not applicable		NA	94			mg/L CaCO3	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/8//OE
766592		3,059	Not applicable		NA	194			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/30//
766726		1,496	Not applicable		NA	100			mg/L CaCO3	CL/500 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/26//
766587		2,269	Not applicable		NA	94			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/26//
766612		3,338	Not applicable		NA	484			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/42//
766561		2,470	Not applicable		NA	94			mg/L CaCO3	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/7//OE
766590		2,607	Not applicable		NA	107			mg/L CaCO3	CL/34 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/28//C
766593		2,706	Not applicable		NA	194			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/31//
766594		3,265	Not applicable		NA	194			mg/L CaCO3	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/32//
766571		2,472	Not applicable		NA	96			mg/L CaCO3	CL/24.6 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/13/
766584		1,116	Not applicable		NA	94			mg/L CaCO3	CL/497.7 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/23
766745		3,250	Not reported		NR		80	100	mg/L CaCO3	DNUM/7//DOSES/7742/989/1299/1713/2264/3000 mg/L
766748		2,250	Not reported		NR		80	100	mg/L CaCO3	DNUM/7//DOSES/780/1011/1318/1727/2273/3000 mg/L
766224		3,000	Significant	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
766222		2,216	Significant	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
759072		3,650	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
2017050		2,600	Significant		NR	160			mg/L	
2017059		2,700	Significant		NR	320			mg/L	
2017042		2,000	Significant		NR	80			mg/L	
2017031		1,300	Significant		NR	40			mg/L	
766739		3,000	Not reported		NR		80	100	mg/L CaCO3	DNUM/7//DOSES/7742/989/1299/1713/2264/3000 mg/L
766730		2,273	Not reported		NR		80	100	mg/L CaCO3	DNUM/7//DOSES/780/1011/1318/1727/2273/3000 mg/L
766225		2,250	No significance	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
766223		1,750	No significance	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
759073		1,060	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
2017049		1,300	No significance		NR	160			mg/L	
2017058		1,450	No significance		NR	320			mg/L	
2017041		1,250	No significance		NR	80			mg/L	
2017030		610	No significance		NR	40			mg/L	
761596		1,381	Not applicable		NA					DNUM/6//DOSES/854/1181/1259/1355/1381 mg/L//TEST
766740		2,264	Not reported		NR		80	100	mg/L CaCO3	DNUM/7//DOSES/7742/989/1299/1713/2264/3000 mg/L
766731		1,727	Not reported		NR		80	100	mg/L CaCO3	DNUM/7//DOSES/780/1011/1318/1727/2273/3000 mg/L
766854		1,301	Not reported		NR		80	100	NR	DNUM/8//DOSES/594.9/710.4/851.7/873.4/1011.6/1272
767457		2,989	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767375		3,463	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767380		3,463	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767350		3,463	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767411		3,463	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767454		2,989	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767351		1,772	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767459		2,178	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
767456		2,178	Not reported		NR		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767412		1,772	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767353		1,772	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767376		1,772	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
766218		11,682	Not applicable		NA	94			mg/L CaCO3	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg/L//POT/2.1 n
766217		14,134	Not applicable		NA	94			mg/L CaCO3	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg/L//POT/2.1 n
18144		11,430	Not applicable		NA					
18145		13,350	Not applicable		NA					
759175		8,600	Not applicable		NA	563	404	694	mg/L CaCO3	DOSES/NA mg/L//TESTID/1//OEF/LEACHATE STUDY, MIXT
767294		1,194	Not applicable		NA	25			mg/L CaCO3	DOSES/NA mg/L//TESTID/6//
767307		4,395	Not applicable		NA	106			mg/L CaCO3	CA/37.0 mg/L//MG/3.2 mg/L//NA/32.8 mg/L//POT/2.6 mg
767306		1,985	Not applicable		NA	25			mg/L CaCO3	DOSES/NA mg/L//TESTID/18//
767296		3,342	Not applicable		NA	75			mg/L CaCO3	DOSES/NA mg/L//TESTID/8//
767303		3,808	Not applicable		NA	106			mg/L CaCO3	CA/27.2 mg/L//MG/9.2 mg/L//NA/32.8 mg/L//POT/2.6 mg
767295		1,551	Not applicable		NA	50			mg/L CaCO3	DOSES/NA mg/L//TESTID/7//
767298		1,194	Not applicable		NA	25			mg/L CaCO3	DOSES/NA mg/L//TESTID/10//
18452		725	Not applicable		NA					
18147		6,100	Not applicable		NA					
18453		630	Not applicable		NA					
18454		4,547	Not applicable		NA					
18451		2,564	Not applicable		NA					
18450		8,384	Not applicable		NA					
18146		6,800	Not applicable		NA					
759092		5,218	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
767297		3,203	Not applicable		NA	100			mg/L CaCO3	DOSES/NA mg/L//TESTID/9//
767305		1,563	Not applicable		NA	25			mg/L CaCO3	DOSES/NA mg/L//TESTID/17//
767299		3,203	Not applicable		NA	106			mg/L CaCO3	CA/17.4 mg/L//MG/15.1 mg/L//NA/32.8 mg/L//POT/2.6 n
160332		6,290	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160333		4,580	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
119467		2,564	Not applicable		NA					
31684		8,384	Not applicable		NA					
759090		7,460	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
759091		3,650	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
767473		6,844	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767496		6,844	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767475		6,844	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767491		6,844	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767505		5,492	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767494		927	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767507		1,434	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
2064207		10,000	Not applicable		NA					
2064204		24,000	Not applicable		NA					
2064206		16,500	Not applicable		NA					
2064205		17,500	Not applicable		NA					
2017113		2,069	Not applicable		NA	80			mg/L	
2017143		2,246	Not applicable		NA	80			mg/L	
2017144		2,461	Not applicable		NA	80			mg/L	
766367		262	Not applicable		NA	94			mg/L CaCO3	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg/L//POT/2.1 n
766638		2,840	Not applicable		NA	292			mg/L CaCO3	CL/26.6 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/64/
766642		4,145	Not applicable		NA	486			mg/L CaCO3	CL/24.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/68/
766639		2,724	Not applicable		NA	392			mg/L CaCO3	CL/25.4 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/65/
766712		1,854	Not applicable		NA	100			mg/L CaCO3	CL/25 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/15//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
766716		1,470	Not applicable		NA	100			mg/L CaCO3	CL/500 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/19//
766618		1,779	Not applicable		NA	96			mg/L CaCO3	CL/33.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/45/
766713		1,799	Not applicable		NA	100			mg/L CaCO3	CL/33 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/16//
766641		4,336	Not applicable		NA	396			mg/L CaCO3	CL/25.5 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/67/
766616		1,767	Not applicable		NA	96			mg/L CaCO3	CL/33.6 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/43/
766625		1,684	Not applicable		NA	100			mg/L CaCO3	CL/303.7 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/51
766633		2,740	Not applicable		NA	194			mg/L CaCO3	CL/25.1 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/59/
766631		1,621	Not applicable		NA	98			mg/L CaCO3	CL/25.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/57/
766640		4,046	Not applicable		NA	396			mg/L CaCO3	CL/25.5 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/66/
766644		3,796	Not applicable		NA	482			mg/L CaCO3	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/70/
766627		1,480	Not applicable		NA	100			mg/L CaCO3	CL/525.5 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/53
766617		1,820	Not applicable		NA	100			mg/L CaCO3	CL/33.7 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/44/
766624		1,616	Not applicable		NA	96			mg/L CaCO3	CL/310.2 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/50
766619		1,879	Not applicable		NA	98			mg/L CaCO3	CL/108 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/46//
766714		1,938	Not applicable		NA	100			mg/L CaCO3	CL/100 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/17//
766715		1,691	Not applicable		NA	100			mg/L CaCO3	CL/300 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/18//
766629		2,000	Not applicable		NA	106			mg/L CaCO3	CL/25.5 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/55/
766710		1,563	Not applicable		NA	100			mg/L CaCO3	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/13//
766623		1,679	Not applicable		NA	98			mg/L CaCO3	CL/308 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/49//
766643		4,345	Not applicable		NA	482			mg/L CaCO3	CL/25 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/69//C
766630		1,901	Not applicable		NA	100			mg/L CaCO3	CL/25.6 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/56/
766635		2,955	Not applicable		NA	196			mg/L CaCO3	CL/25.6 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/61/
766711		1,562	Not applicable		NA	100			mg/L CaCO3	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/14//
766637		3,462	Not applicable		NA	292			mg/L CaCO3	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/63/
766622		2,002	Not applicable		NA	100			mg/L CaCO3	CL/105.7 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/48
766709		1,387	Not applicable		NA	100			mg/L CaCO3	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/12//
766628		1,438	Not applicable		NA	100			mg/L CaCO3	CL/445 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/54//
766626		1,433	Not applicable		NA	98			mg/L CaCO3	CL/485 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/52//
766636		2,121	Not applicable		NA	296			mg/L CaCO3	CL/24.9 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/62/
766632		2,002	Not applicable		NA	102			mg/L CaCO3	CL/26.1 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/58/
766634		2,203	Not applicable		NA	192			mg/L CaCO3	CL/26.3 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/60/
766621		1,830	Not applicable		NA	100			mg/L CaCO3	CL/105.5 mg/L//DNUM/6-7//DOSES/NA mg/L//TESTID/47
767290		1,448	Not applicable		NA	50			mg/L CaCO3	DOSES/NA mg/L//TESTID/2//
767310		2,725	Not applicable		NA	102			mg/L CaCO3	CA/35.9 mg/L//MG/3.1 mg/L//NA/27.7 mg/L//POT/2.2 m
767293		5,259	Not applicable		NA	250			mg/L CaCO3	DOSES/NA mg/L//TESTID/5//
767291		1,580	Not applicable		NA	75			mg/L CaCO3	DOSES/NA mg/L//TESTID/3//
767311		2,240	Not applicable		NA	102			mg/L CaCO3	CA/26.3 mg/L//MG/8.9 mg/L//NA/27.7 mg/L//POT/2.2 m
767312		2,101	Not applicable		NA	102			mg/L CaCO3	CA/16.8 mg/L//MG/14.6 mg/L//NA/27.7 mg/L//POT/2.2 r
767289		569	Not applicable		NA	25			mg/L CaCO3	DOSES/NA mg/L//TESTID/1//
759093		1,226	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
767292		3,144	Not applicable		NA	123			mg/L CaCO3	DOSES/NA mg/L//TESTID/4//
766365		512	Not applicable		NA	94			mg/L CaCO3	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg/L//POT/2.1 r
766415		2,855	Not applicable		NA	107	*80*	*100*	mg/L CaCO3	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/L//POT/2.1 m
759094		3,650	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
2017146		2,412	Significant		NR	80			mg/L	
766446		1,460	Significant at all con	<	0.05	300			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766441		1,460	Significant at all con	<	0.05	200			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766438		1,460	Significant at all con	<	0.05	100			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766439		1,460	Significant at all con	<	0.05	100			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766443		1,460	Significant at all con	<	0.05	200			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766442		1,460	Significant at all con	<	0.05	200			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
759095		1,060	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2017145		1,637	No significance		NR	80			mg/L	
766444		1,460	Not significant at all	<	0.05	300			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766445		1,460	Not significant at all	<	0.05	300			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766440		1,460	Not applicable		NA	100			mg/L CaCO3	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3* mg/L//POT/2
766659		3,525	Not applicable		NA	300			mg/L CaCO3	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/2//
766663		1,702	Not applicable		NA	100			mg/L CaCO3	CL/5 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/4//
766664		1,727	Not applicable		NA	100			mg/L CaCO3	CL/5 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/4//
766658		3,523	Not applicable		NA	300			mg/L CaCO3	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/2//
766666		1,822	Not applicable		NA	100			mg/L CaCO3	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/5//
766662		3,729	Not applicable		NA	500			mg/L CaCO3	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/3//
766657		3,377	Not applicable		NA	100			mg/L CaCO3	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/1//
766656		3,183	Not applicable		NA	100			mg/L CaCO3	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/1//
766665		2,661	Not applicable		NA	100			mg/L CaCO3	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/5//
766661		3,574	Not applicable		NA	500			mg/L CaCO3	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/3//
18180		17,500	Not applicable		NA					
126071		12,750	Not reported		NR					
126072		12,500	Not reported		NR					
126070		13,000	Not reported		NR					
200196		13,500	Not applicable		NA	10			mg/L CaCO3	
40509		3,040	Not applicable		NA		35	62	mg/L CaCO3	CONTR/NO MORT//
40508		4,380	Not applicable		NA		35	62	mg/L CaCO3	CONTR/NO MORT//
13415		13,500	Not applicable		NA					
18150		5,400	Not applicable		NA					
18151		5	Not applicable		NA					
18152		4	Not applicable		NA					
18149		5,401	Not applicable		NA					
764588		1,000	Not applicable		NA					DOSES/NA ppm//TESTID/29//OEF/MIXTURE,TEMP EFCTS/
802675		100	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802677		100	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802664		2,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802665		2,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802678		500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802663		2,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802676		100	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802666		2,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802668		4,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802670		4,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802671	>	2,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802667		4,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802669		4,500	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/49//OEF/NO FOAM
802672	>	2,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802674		1,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
802673		2,000	Not applicable		NA					DNUM/11//DOSES/NA ppm//TESTID/50//OEF/NO FOAM
6211		650	Not applicable		NA					CONTR/< 10 % MORTALITY//
41636		220	Not applicable		NA					CONTR/< 10 % MORTALITY//
41641		790	Not applicable		NA					CONTR/< 10 % MORTALITY//
6217		1,100	Not applicable		NA					CONTR/< 10 % MORTALITY//
41642		790	Not applicable		NA					CONTR/< 10 % MORTALITY//
41640		790	Not applicable		NA					CONTR/< 10 % MORTALITY//
6214		81	Not applicable		NA					CONTR/< 10 % MORTALITY//
6216		1,100	Not applicable		NA					CONTR/< 10 % MORTALITY//
6215		1,100	Not applicable		NA					CONTR/< 10 % MORTALITY//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
41635		450	Not applicable		NA					CONTR/< 10 % MORTALITY//
6212		320	Not applicable		NA					CONTR/< 10 % MORTALITY//
6213		160	Not applicable		NA					CONTR/< 10 % MORTALITY//
41637		110	Not applicable		NA					CONTR/< 10 % MORTALITY//
41638		56	Not applicable		NA					CONTR/< 10 % MORTALITY//
41639		790	Not applicable		NA					CONTR/< 10 % MORTALITY//
6218		1,100	Not applicable		NA					CONTR/< 10 % MORTALITY//
2017209		2,451	Not applicable		NA	320			mg/L	
2017178		1,555	Not applicable		NA	80			mg/L	
2017188		3,231	Not applicable		NA	160			mg/L	
2017168		559	Not applicable		NA	40			mg/L	
2017210	>	5,250	Not applicable		NA	320			mg/L	
2017179		2,183	Not applicable		NA	80			mg/L	
2017189		3,801	Not applicable		NA	160			mg/L	
2017169		933	Not applicable		NA	40			mg/L	
2017211	>	5,250	Not applicable		NA	320			mg/L	
2017180		2,938	Not applicable		NA	80			mg/L	
2017190		4,553	Not applicable		NA	160			mg/L	
2017170		1,649	Not applicable		NA	40			mg/L	
759176		15,200	Not applicable		NA	563	404	694	mg/L CaCO3	DOSES/NA mg/L//TESTID/2//OEF/LEACHATE STUDY, MIXT
160335	>	7,960	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160334	>	8,080	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160336		7,960	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
2017213		5,250	Significant		NR	320			mg/L	
2017182		2,850	Significant		NR	80			mg/L	
2017172		1,250	Significant		NR	40			mg/L	
2017192		5,500	Significant		NR	160			mg/L	
761598		1,381	Not applicable		NA					DNUM/6//DOSES/854/1181/1259/1355/1381 mg/L//TEST
2017191		2,850	No significance		NR	160			mg/L	
766856		1,301	Not reported		NR		80	100	NR	DNUM/8//DOSES/594.9/710.4/851.7/873.4/1011.6/1272.
2017212		2,900	No significance		NR	320			mg/L	
2017181		1,300	No significance		NR	80			mg/L	
2017171		595	No significance		NR	40			mg/L	
18153		15,996	Not applicable		NA					
18148		20,040	Not applicable		NA					
766364		1,502	Not applicable		NA	94			mg/L CaCO3	LIFESTG/POSTERIOR MARGIN//CA/17.6 mg/L//MG/12.1 m
766706		2,590	Not applicable		NA	280			mg/L CaCO3	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/9//
766705		2,926	Not applicable		NA	269			mg/L CaCO3	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/8//
766363		2,078	Not applicable		NA	94			mg/L CaCO3	LIFESTG/POSTERIOR MARGIN//CA/17.6 mg/L//MG/12.1 m
766707		2,200	Not applicable		NA	93			mg/L CaCO3	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/10//
766703		2,186	Not applicable		NA	84			mg/L CaCO3	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/6//
766704		2,190	Not applicable		NA	193			mg/L CaCO3	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/7//
766708		2,650	Not applicable		NA	90			mg/L CaCO3	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//TESTID/11//
160500	>	1,970	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160498	>	1,910	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160497	>	1,940	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
767397		1,470	Not reported		NR		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767360		1,447	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767399		860	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767463		765	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767462		765	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767317		1,447	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
160499	>	1,970	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
759021		1,600	Not significant at all concentration		0.05		256	1468	mg/L CaCO3	CHAR/56% TO 71% SULFATE//SO4/160* mg/L//DNUM/6/
767483		1,470	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767467		1,470	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767469		860	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767484		1,470	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
759462		360	Not applicable		NA	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/1//CONC/ONLY CON
759465		360	Not applicable		NA	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/2//CONC/ONLY CON
2063748	>	56,000	Not applicable		NA					
2063749	>	56,000	Not applicable		NA					
2063750	>	56,000	Not applicable		NA					
196198		2,980	Not applicable		NA	10			mg/L CaCO3	
26240		2,980	Not applicable		NA					
160503	>	1,970	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160502	>	1,970	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
160501	>	1,970	Not applicable		NA		80	100	mg/L CaCO3	HARD/MODERATELYHARD//
767512		1,470	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
767515		1,470	Not applicable		NA		80	100	mg/L CaCO3	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3* mg/L//POT/2
67863		300	Not applicable		NA					
67862		300	Not applicable		NA					
761768	>	1,410	Not applicable		NA					DOSES/NA mg/L//TESTID/10//OEF/MICROTOX STUDY////
761769		1,410	Not applicable		NA					DOSES/NA mg/L//TESTID/10//OEF/MICROTOX STUDY////
2152811		2,316	Not applicable		NA		80	100	mg/L CaCO3	
2152812		2,590	Not applicable		NA		80	100	mg/L CaCO3	
2152813		3,047	Not applicable		NA		80	100	mg/L CaCO3	
2152815		3,960	Significant	<	0.01		80	100	mg/L CaCO3	
2152814		2,133	No significance	<	0.01		80	100	mg/L CaCO3	
201556		441	Significant	<	0.05	96.3			mg/L CaCO3	
201557		372	Not applicable		NA	96.3			mg/L CaCO3	
201555		314	No significance	<	0.05	96.3			mg/L CaCO3	
2164559		421	Not applicable		NA					
2152816		1,705	Not applicable		NA		80	100	mg/L CaCO3	
2152817		2,298	Not applicable		NA		80	100	mg/L CaCO3	
2152819		4,237	Significant	<	0.01		80	100	mg/L CaCO3	
2152818		2,210	No significance	<	0.01		80	100	mg/L CaCO3	
761548		1,360	Not applicable		NA					DOSES/NA g/L//TESTID/1//
761558		1,330	Not applicable		NA					DOSES/NA g/L//TESTID/6//
761565		1,730	Not applicable		NA					DOSES/NA g/L//TESTID/9//
761553		1,090	Not applicable		NA					DOSES/NA g/L//TESTID/3//
761566		940	Not applicable		NA					DOSES/NA g/L//TESTID/10//
761569		1,470	Not applicable		NA					DOSES/NA g/L//TESTID/11//
761561		1,020	Not applicable		NA					DOSES/NA g/L//TESTID/7//
761557		1,430	Not applicable		NA					DOSES/NA g/L//TESTID/5//
761551		1,610	Not applicable		NA					DOSES/NA g/L//TESTID/2//
761562		1,090	Not applicable		NA					DOSES/NA g/L//TESTID/8//
761554		1,930	Not applicable		NA					DOSES/NA g/L//TESTID/4//
761570		2,070	Not applicable		NA					DOSES/NA g/L//TESTID/12//
2152752		704	Not applicable		NA		80	100	mg/L CaCO3	
2152753		958	Not applicable		NA		80	100	mg/L CaCO3	
768151		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/50//
768129		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/45//
768092		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/37//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
768111		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/42//
768141		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/48//
768161		5,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/52//
768086		5,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/36//
768094		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/38//
768149		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/49//
768078		5,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/34//
768159		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/51//
768084		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/35//
768076		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/33//
768139		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/47//
2152755		1,058	Significant	<	0.01		80	100	mg/L CaCO3	
768070		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/32//
768068		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/31//
768119		5,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/43//
768109		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/41//
768102		2,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/40//
768131		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/46//
768121		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/44//
768100		5,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/39//
768060		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/29//
768062		10,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/30//
761764		1,000	Not applicable		NA					DOSES/NA mg/L//TESTID/8//OEF/MICROTOX STUDY////
741831		2,200	Significant at all concentrations		0.05		90	110	mg/L CaCO3	TIME/MEASURED DURING RECOVERY//DNUM/2//DOSES/
741780		1,140	Significant		0.05		90	110	mg/L CaCO3	TIME/MEASURED DURING RECOVERY//DNUM/3//DOSES/
761549		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/1//
761567		500	Not applicable		NA					DOSES/NA g/L//TESTID/10//
761560		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/7//
761555		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/4//
761550		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/2//
761564		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/9//
761552		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/3//
761568		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/11//
761556		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/5//
761563		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/8//
761571		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/12//
768152		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/50//
768130		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/45//
768093		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/37//
768112		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/42//
768142		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/48//
768162		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/52//
768087		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/36//
768095		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/38//
768150		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/49//
768079		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/34//
768160		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/51//
768085		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/35//
768077		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/33//
768140		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/47//
2152754		558	No significance	<	0.01		80	100	mg/L CaCO3	
768071		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/32//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
768069		250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/31//
768120		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/43//
768110		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/41//
761559		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/6//
768103		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/40//
768132		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/46//
768122		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/44//
768101		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/39//
768061		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/29//
768063		5,000	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/30//
14424		4,000	No significance		0.05		86	94	mg/L CaCO3	
42862		4,000	No significance		0.05		86	94	mg/L CaCO3	
14380		4,000	No significance		0.05		86	94	mg/L CaCO3	
42867		4,000	No significance		0.05		86	94	mg/L CaCO3	
96882		4,000	No significance		0.05		86	94	mg/L CaCO3	
108590		4,000	No significance		0.05		86	94	mg/L CaCO3	
761765		500	Not applicable		NA					DOSES/NA mg/L//TESTID/8//OEF/MICROTOX STUDY////
741815		860	No significance		0.05		90	110	mg/L CaCO3	TIME/MEASURED DURING RECOVERY//DNUM/3//DOSES/
742694		210	Not significant at all concentration		0.05		90	110	mg/L CaCO3	TIME/MEASURED DURING RECOVERY//DNUM/3//DOSES/
741814	TION///	2,000	Not significant at all concentration		0.05		90	110	mg/L CaCO3	DNUM/2//DOSES/2 g/L//TESTID/10//
765903	GHT/	1,500	Significant at all concentrations		0.016	92			mg/L CaCO3	DNUM/2//DOSES/1500 mg/L//TESTID/1//CONC/ONLY CO
765902		1,500	Significant at all concentrations		0.0187	92			mg/L CaCO3	DNUM/2//DOSES/1500 mg/L//TESTID/1//CONC/ONLY CO
765901		1,500	Not significant at all concentration		0.8333	92			mg/L CaCO3	DNUM/2//DOSES/1500 mg/L//TESTID/1//CONC/ONLY CO
765900		1,500	Not significant at all concentration		0.8352	92			mg/L CaCO3	DNUM/2//DOSES/1500 mg/L//TESTID/1//CONC/ONLY CO
761599	>	1,381	Not applicable		NA					DNUM/6//DOSES/854/1181/1259/1355/1381 mg/L//TEST
761762		220	Not applicable		NA					DOSES/NA mg/L//TESTID/7//OEF/MICROTOX STUDY////
766857		1,301	Not reported		NR		80	100	mg/L CaCO3	DNUM/8//DOSES/594.9/710.4/851.7/873.4/1011.6/1272.
761763	<	220	Not applicable		NA					DOSES/NA mg/L//TESTID/7//OEF/MICROTOX STUDY////
2152766		750	Not applicable		NA					TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152768		1,106	Significant		NR					TMETH/APHA, 1989//
2152767		638	No significance		NR					TMETH/APHA, 1989//
761756		305	Not applicable		NA					DOSES/NA mg/L//TESTID/4//OEF/MICROTOX STUDY////
761757	<	305	Not applicable		NA					DOSES/NA mg/L//TESTID/4//OEF/MICROTOX STUDY////
2152739		1,750	Not applicable		NA					TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152741		1,198	Significant		NR					TMETH/APHA, 1989//
2152740		668	No significance		NR					TMETH/APHA, 1989//
2152820		1,241	Not applicable		NA		80	100	mg/L CaCO3	
2152821		1,505	Not applicable		NA		80	100	mg/L CaCO3	
2152822		1,945	Not applicable		NA		80	100	mg/L CaCO3	
2152824		2,230	Significant	<	0.01		80	100	mg/L CaCO3	
2152823		1,120	No significance	<	0.01		80	100	mg/L CaCO3	
2152725		2,750	Not applicable		NA	98			mg/L CaCO3	TMETH/APHA, 1989// CONC1/FROM GRAPH//
741661		1,350	Not applicable		NA		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
207720		1,750	Not applicable		NA	102	94	104	mg/L CaCO3	CONC/FROM GRAPH//
741538	>	467	Not applicable		NA	101	100	103	mg/L CaCO3	
761580		1,060	Not applicable		NA					DOSES/NA g/L//TESTID/17//
761575		1,160	Not applicable		NA					DOSES/NA g/L//TESTID/14//
761587		1,170	Not applicable		NA					DOSES/NA g/L//TESTID/20//
761576		1,200	Not applicable		NA					DOSES/NA g/L//TESTID/15//
2148464		147	Not applicable		NA	44			mg/L	
2148480		340	Not applicable		NA	44			mg/L	
2148474		456	Not applicable		NA	93			mg/L	

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
761579		1,140	Not applicable		NA					DOSES/NA g/L//TESTID/16//
761588		1,070	Not applicable		NA					DOSES/NA g/L//TESTID/21//
761572		600	Not applicable		NA					DOSES/NA g/L//TESTID/13//
761584		670	Not applicable		NA					DOSES/NA g/L//TESTID/19//
761591		690	Not applicable		NA					DOSES/NA g/L//TESTID/22//
761583		520	Not applicable		NA					DOSES/NA g/L//TESTID/18//
761592		710	Not applicable		NA					DOSES/NA g/L//TESTID/23//
2153272		454	Not applicable		NA	80			mg/L CaCO3	
2152721		454	Not applicable		NA		80	100	mg/L CaCO3	
2152855		117	Not applicable		NA	10			mg/L CaCO3	
2153275		580	Not applicable		NA	160			mg/L CaCO3	
2153278		521	Not applicable		NA	320			mg/L CaCO3	
2153269		146	Not applicable		NA	40			mg/L CaCO3	
2152881		264	Not applicable		NA	20			mg/L CaCO3	
2148463		342	Not applicable		NA	44			mg/L	
2148479		563	Not applicable		NA	44			mg/L	
2148473		653	Not applicable		NA	93			mg/L	
120834		1,900	Not applicable		NA					TESTID/23//
120851		1,510	Not applicable		NA					TESTID/32//
120833		1,760	Not applicable		NA					TESTID/22//
120830		1,600	Not applicable		NA					TESTID/20//
120832		1,290	Not applicable		NA					TESTID/21//
120852		740	Not applicable		NA					TESTID/33//
120853		650	Not applicable		NA					TESTID/34//
120850		1,340	Not applicable		NA					TESTID/31//
120836		1,340	Not applicable		NA					TESTID/25//
120849		300	Not applicable		NA					TESTID/30//
120846	<	330	Not applicable		NA					TESTID/27//
120835		720	Not applicable		NA					TESTID/24//
120848		1,390	Not applicable		NA					TESTID/29//
120847		1,690	Not applicable		NA					TESTID/28//
120854		730	Not applicable		NA					TESTID/35//
120831	<	330	Not applicable		NA					TESTID/26//
761595		600	Not applicable		NA					DOSES/NA g/L//TESTID/24//
741679	DF ORGANIS	750	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/2//
741936	DF ORGANIS	1,100	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/4//
741950	DF ORGANIS	670	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/12//
742564	DF ORGANIS	1,130	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/1//
741951	DF ORGANIS	960	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/8//
741929	DF ORGANIS	920	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/3//
742894	DF ORGANIS	980	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/5//
742895	DF ORGANIS	610	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/7//
741958	DF ORGANIS	570	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/6//
741948	DF ORGANIS	720	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/11//
741943	DF ORGANIS	710	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/9//
742899	DF ORGANIS	680	Not applicable		NA		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/10//
2153273		697	Not applicable		NA	80			mg/L CaCO3	
2152731		697	Not applicable		NA		80	100	mg/L CaCO3	
2152873		161	Not applicable		NA	10			mg/L CaCO3	
2153276		895	Not applicable		NA	160			mg/L CaCO3	
2153279		700	Not applicable		NA	320			mg/L CaCO3	
2153270		481	Not applicable		NA	40			mg/L CaCO3	

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2153267		301	Not applicable		NA	20			mg/L CaCO3	
767971		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/25//
767883		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/15//
767957		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/22//
766860		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/3//
767901		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/20//
767860		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/10//
767868		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/12//
766868		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/5//
767874		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/13//
767893		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/18//
767876		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/14//
767858		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/9//
742568		850	Significant	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
767852		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/8//
767955		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/21//
767850		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/7//
766862		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/4//
767866		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/11//
766870		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/6//
767891		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/17//
767885		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/16//
767963		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/23//
767899		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/19//
767965		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/24//
767973		2,500	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/26//
251022		900	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251024		1,500	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251014		1,500	Significant		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251020		500	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251016		2,500	Significant		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251010		300	Significant		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251018		300	Significant		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251012		900	Significant		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
741947	OF ORGANIS	1,000	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/8//
741938	OF ORGANIS	1,000	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/5//
741952	OF ORGANIS	250	Significant at all con	<	0.5		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/9//
742900	OF ORGANIS	500	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/11//
741944	OF ORGANIS	500	Significant	<	0.5		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/10//
742892	OF ORGANIS	1,000	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/4//
741957	OF ORGANIS	1,000	Significant		NR		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/3//
741949	OF ORGANIS	1,000	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/12//
742563	OF ORGANIS	1,000	Significant		NR		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/1//
742565	OF ORGANIS	500	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/2//
741945	OF ORGANIS	250	Significant at all con	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/7//
741959	OF ORGANIS	500	Significant	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/6//
2152727		2,160	Significant		NR	98			mg/L CaCO3	TMETH/APHA, 1989//
767972		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/25//
767884		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/15//
767958		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/22//
766861		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/3//
767902		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/20//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
761582		500	Not applicable		NA					DOSES/NA g/L//TESTID/18//
767861		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/10//
767869		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/12//
766869		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/5//
767875		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/13//
767894		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/18//
767877		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/14//
767859		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/9//
741688		440	No significance	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
761594		500	Not applicable		NA					DOSES/NA g/L//TESTID/24//
761578		1,500	Not applicable		NA					DOSES/NA g/L//TESTID/16//
761586		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/20//
761574		1,000	Not applicable		NA					DOSES/NA g/L//TESTID/14//
761590		500	Not applicable		NA					DOSES/NA g/L//TESTID/22//
767853		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/8//
767956		130	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/21//
767851		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/7//
766863		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/4//
767867		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/11//
766871		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/6//
767892		310	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/17//
767886		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/16//
767964		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/23//
767900		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/19//
767966		620	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/24//
767974		1,250	Not reported		NR		80	100	mg/L CaCO3	DOSES/NA g/L//TESTID/26//
251019		300	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251023	ABS//	900	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251017	<	300	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
120856	<	300	No significance		NR					TESTID/36//COMPEP/3//
251013	ABS//	900	No significance		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251015	ABS//	1,500	No significance		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251011	ABS//	500	No significance		NR					TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
251021		500	No significance		NR					TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5 G/L//MSMT/
761585		500	Not applicable		NA					DOSES/NA g/L//TESTID/19//
761577		1,500	Not applicable		NA					DOSES/NA g/L//TESTID/15//
761589		500	Not applicable		NA					DOSES/NA g/L//TESTID/21//
761573		500	Not applicable		NA					DOSES/NA g/L//TESTID/13//
761593		500	Not applicable		NA					DOSES/NA g/L//TESTID/23//
761581		1,500	Not applicable		NA					DOSES/NA g/L//TESTID/17//
742896	OF ORGANIS	500	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/8//
741953	OF ORGANIS	250	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/11//
742898	OF ORGANIS	250	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/10//
741937	OF ORGANIS	500	No significance	<	0.5		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/4//
742891	OF ORGANIS	500	No significance		NR		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/3//
742893	OF ORGANIS	500	No significance	<	0.5		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/5//
742901	OF ORGANIS	500	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/12//
741648	OF ORGANIS	500	No significance		NR		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/1//
741649	OF ORGANIS	250	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/2//
741946	<	250	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/7//
741942	OF ORGANIS	250	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/6//
742897	<	250	No significance	<	0.05		40	48	mg/L CaCO3	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TESTID/9//

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2152726		1,296	No significance		NR	98			mg/L CaCO3	TMETH/APHA, 1989//
741566		467	Not significant at all concentration		0.05	101	100	103	mg/L CaCO3	
761752		1,650	Not applicable		NA					DOSES/NA mg/L//TESTID/2//OEF/MICROTOX STUDY////
761753		1,155	Not applicable		NA					DOSES/NA mg/L//TESTID/2//OEF/MICROTOX STUDY////
741654		650	Not applicable		NA		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
741696		850	Significant	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
741659		440	No significance	<	0.05		54	72	mg/L CaCO3	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2.2 g/L//TESTID
741530	>	467	Not applicable		NA	169	166	172	mg/L CaCO3	CL/<1 ug/L//DNUM/9//DOSES/13/22/36/61/101/168/280
2152713		*4,250*	Not applicable		NA	170			mg/L CaCO3	TMETH/APHA, 1989// CONC1/FROM GRAPH//
2152732		421	Not applicable		NA		80	100	mg/L CaCO3	
2152733		1,037	Not applicable		NA		80	100	mg/L CaCO3	
2164766		2,000	Significant	<	0.05	149.6			mg/L	
2164767		1,000	Significant	<	0.05	149.6			mg/L	
2164768		2,000	Significant	<	0.05	149.6			mg/L	
2164769		2,000	Significant	<	0.05	149.6			mg/L	
2164770		2,000	Significant	<	0.05	149.6			mg/L	
2164728		1,000	Significant	<	0.05	149.6			mg/L	
2152735		506	Significant	<	0.01		80	100	mg/L CaCO3	
2152715		2,160	Significant		NR	170			mg/L CaCO3	TMETH/APHA, 1989//
2164764		500	No significance	<	0.05	149.6			mg/L	
2164761		1,000	No significance	<	0.05	149.6			mg/L	
2164763		1,000	No significance	<	0.05	149.6			mg/L	
2164765		1,000	No significance	<	0.05	149.6			mg/L	
2164762		1,000	No significance	<	0.05	149.6			mg/L	
2164729		500	No significance	<	0.05	149.6			mg/L	
2152734	<	506	No significance	<	0.01		80	100	mg/L CaCO3	
741546		467	Not significant at all concentration		0.05	169	166	172	mg/L CaCO3	
2152714		1,296	No significance		NR	170			mg/L CaCO3	TMETH/APHA, 1989//
201548		441	Significant	<	0.05	96.3			mg/L CaCO3	
201551		441	Significant	<	0.05	96.3			mg/L CaCO3	
201549		372	Not applicable		NA	96.3			mg/L CaCO3	
201552		372	Not applicable		NA	96.3			mg/L CaCO3	
201547		314	No significance	<	0.05	96.3			mg/L CaCO3	
201550		314	No significance	<	0.05	96.3			mg/L CaCO3	
2152783		825	Not applicable		NA		80	100	mg/L CaCO3	
2152784		1,366	Not applicable		NA		80	100	mg/L CaCO3	
2152786		366	Significant	<	0.01		80	100	mg/L CaCO3	
2152785	<	366	No significance	<	0.01		80	100	mg/L CaCO3	
2152796		519	Not applicable		NA		80	100	mg/L CaCO3	
2152807		606	Not applicable		NA		80	100	mg/L CaCO3	
2152808		752	Not applicable		NA		80	100	mg/L CaCO3	
2152810		964	Significant	<	0.01		80	100	mg/L CaCO3	
2152809		462	No significance	<	0.01		80	100	mg/L CaCO3	
759472		360	Not significant at all concentration		0.05	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/6//CONC/ONLY CON
759471		360	Not significant at all concentration		0.05	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/5//CONC/ONLY CON
2017036		137	Not applicable		NA	40			mg/L	
2017047		622	Not applicable		NA	80			mg/L CaCO3	CONC1/CI - NC TO 813//
2017055		1,174	Not applicable		NA	160			mg/L	
2017064		420	Not applicable		NA	320			mg/L	
2017035		246	Not applicable		NA	40			mg/L	
2017046		855	Not applicable		NA	80			mg/L	
2017054		1,212	Not applicable		NA	160			mg/L	

Result Number	Conc 1 Mean Op	Mean (mg/L)	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Hardness Mean	Hardness Min	Hardness Max	Hardness Units	General Comments
2017063		542	Not applicable		NA	320			mg/L	
2017034		465	Not applicable		NA	40			mg/L	
766229		1,458	Not applicable		NA	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
766234		1,148	Not applicable		NA	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
2017053		1,257	Not applicable		NA	160			mg/L	
2017062		843	Not applicable		NA	320			mg/L	
2017045		1,129	Not applicable		NA	80			mg/L	
2148468		625	Not applicable		NA	44			mg/L	
2148476		496	Not applicable		NA	44			mg/L	
2148470		1,060	Not applicable		NA	93			mg/L	
761597	>	1,381	Not applicable		NA					DNUM/6//DOSES/854/1181/1259/1355/1381 mg/L//TEST
759076		1,267	Not applicable		NA					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
2148475		715	Not applicable		NA	44			mg/L	
2148469		1,252	Not applicable		NA	93			mg/L	
2148467		766	Not applicable		NA	44			mg/L	
759077		2,061	Not applicable		NA					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
2017032		150	Significant		NR	40			mg/L	
2017043		1,250	Significant		NR	80			mg/L	
766734		934	Not reported		NR		*80*	*100*	mg/L CaCO3	DNUM/7//DOSES/780/1011/1318/1727/2273/3000 mg/L
766737		1,195	Not reported		NR		*80*	*100*	mg/L CaCO3	DNUM/7//DOSES/7742/989/1299/1713/2264/3000 mg/L
766354		1,000	Significant at all con	<	0.05	92			mg/L CaCO3	DNUM/2//DOSES/1000 mg/L//TESTID/3//CONC/ONLY CO
766344		1,000	Significant at all con	<	0.05	92			mg/L CaCO3	DNUM/2//DOSES/1000 mg/L//TESTID/3//CONC/ONLY CO
766355		1,000	Significant at all con	<	0.05	92			mg/L CaCO3	DNUM/2//DOSES/1000 mg/L//TESTID/3//CONC/ONLY CO
766230		1,236	Significant	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
766351		1,000	Significant at all con	<	0.05	92			mg/L CaCO3	DNUM/2//DOSES/1000 mg/L//TESTID/3//CONC/ONLY CO
766356		1,000	Significant at all con	<	0.05	92			mg/L CaCO3	DNUM/2//DOSES/1000 mg/L//TESTID/3//CONC/ONLY CO
766232		899	Significant	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
2017051		1,300	Significant		NR	160			mg/L	
2017060		480	Significant		NR	320			mg/L	
759074		3,650	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
2017033	<	150	No significance		NR	40			mg/L	
2017044		645	No significance		NR	80			mg/L	
766735		780	Not reported		NR		*80*	*100*	mg/L CaCO3	DNUM/7//DOSES/780/1011/1318/1727/2273/3000 mg/L
766738		906	Not reported		NR		*80*	*100*	mg/L CaCO3	DNUM/7//DOSES/7742/989/1299/1713/2264/3000 mg/L
766855		1,301	Not reported		NR		*80*	*100*	mg/L CaCO3	DNUM/8//DOSES/594.9/710.4/851.7/873.4/1011.6/1272.
766231		*618*	No significance	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/2//DOSES
766233		*450*	No significance	<	0.05	92			mg/L CaCO3	DNUM/7//DOSES/>500 to <3500 mg/L//TESTID/1//DOSES
2017052		775	No significance		NR	160			mg/L	
2017061		420	No significance		NR	320			mg/L	
759075		1,060	Not reported		NR					DNUM/6//DOSES/200/500/1000/3000/6000 mg/L//TESTI
761750		2,220	Not applicable		NA					DOSES/NA mg/L//TESTID/1//OEF/MICROTOX STUDY////
761751	<	2,220	Not applicable		NA					DOSES/NA mg/L//TESTID/1//OEF/MICROTOX STUDY////
2017147		380	Not applicable		NA	80			mg/L	
2017148		1,056	Not applicable		NA	80			mg/L	
2017149	>	2,412	Not applicable		NA	80			mg/L	
2017151		2,412	Significant		NR	80			mg/L	
2017150		1,637	No significance		NR	80			mg/L	
759464	E OVER CO	360	Not significant at all concentration		0.05	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/2//CONC/ONLY CON
759022		1,600	Not significant at all concentration		0.05		256	1468	mg/L CaCO3	CHAR/56% TO 71% SULFATE//SO4/160* mg/L//DNUM/6/
759463	E OVER CO	360	Not significant at all concentration		0.05	170			mg/L CaCO3	DNUM/2//DOSES/360 mg/L//TESTID/1//CONC/ONLY CON
759484	E OVER CO	1,600	Not significant at all concentration		0.05		256	1468	mg/L CaCO3	DNUM/6//DOSES/240/300/420/740/1600 mg/L//TESTID/

Result Number	Reference Number	Author	Title	Source	Publication Year
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2152764	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
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160620	18272	Mount,D.R., D.D. Gulley, J.R. Hockett,	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
2152765	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
768180	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768284	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768182	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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768183	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768181	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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2152738	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
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18686	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18685	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18688	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18684	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18683	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18687	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
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32466	2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Sal	Proc. La. Acad. Sci.23:77-85	1961
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768457	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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768402	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768460	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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2153676	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740759	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740760	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740732	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153700	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153697	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
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741717	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153801	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
18693	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18691	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18690	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18692	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2153798	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740767	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
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99478	12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kano	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
61681	12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kano	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
99477	12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kano	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
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160624	18272	Mount,D.R., D.D. Gulley, J.R. Hockett,	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160625	18272	Mount,D.R., D.D. Gulley, J.R. Hockett,	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
742078	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
741718	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153836	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153835	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
768541	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768539	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
742032	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742060	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742031	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
740738	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
742933	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
740779	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740744	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153802	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740734	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
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160514	18272	Mount,D.R., D.D. Gulley, J.R. Hockett,	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768178	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768176	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768177	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768277	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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25474	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
25476	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965

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768393	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768501	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768451	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768390	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768392	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768395	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768456	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768503	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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22956	5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
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160518	18272	Mount,D.R., D.D. Gulley, J.R. Hockett,	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160519	18272	Mount,D.R., D.D. Gulley, J.R. Hockett,	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
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231579	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231581	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
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231571	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231567	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
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231572	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231563	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231566	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231570	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
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187903	19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
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187901	19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
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742918	106214	Khanna,N., C.P. Cressman III, C.P. Tata	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
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196799	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196831	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196814	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196791	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196776	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196783	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196795	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196828	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196816	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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196803	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196788	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196784	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196775	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196834	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196808	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196827	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196836	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196823	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196780	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196790	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196804	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196811	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196824	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196830	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196778	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196807	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196802	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196810	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196822	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196794	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196798	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196786	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196782	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196796	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196800	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976

Result Number	Reference Number	Author	Title	Source	Publication Year
196812	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196779	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196792	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196815	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196835	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196820	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196774	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196806	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196832	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196840	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196819	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196787	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196801	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196817	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196837	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
167863	5230	Adelman,I.R., L.L.,Jr. Smith, and G.D. S	Acute Toxicity of Sodium Chloride, Pentachl	J. Fish. Res. Board Can.33(2): 203-208	1976
196793	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196805	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196777	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196785	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196797	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196825	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196813	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196789	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196821	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196833	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196829	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196781	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196809	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
26112	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
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2152825	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2075467	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2153271	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153268	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2075442	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075434	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075468	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075410	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075471	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2153274	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152724	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
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2152874	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153277	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153280	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2075466	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075469	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075470	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2074934	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075402	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075426	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011

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2075418	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
120843	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120826	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120844	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120840	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120842	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
741547	106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
120829	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120845	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120837	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120827	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120841	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120824	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120839	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120828	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120825	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120838	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
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207716	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodap	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
207717	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodap	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
742567	71674	Harmon,S.M., W.L. Specht, and G.T. C	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
767903	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766864	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767897	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767961	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767879	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767895	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767872	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767959	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767870	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767967	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766872	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766866	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767889	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767856	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767969	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767846	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767953	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767887	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767881	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767975	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767864	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767862	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767848	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767854	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
251007	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251003	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251001	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
250999	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251009	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992

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250998	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251005	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
741687	71674	Harmon,S.M., W.L. Specht, and G.T. Cl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
767855	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767904	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766865	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767898	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767962	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767880	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767896	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767873	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767960	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767871	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767968	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766873	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766867	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767890	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767857	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767970	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767847	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767954	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767888	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767882	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767976	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767865	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767863	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767849	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
250997	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251000	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120855	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251004	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251002	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251008	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251006	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
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207721	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
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742530	106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
768266	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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2060211	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060213	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060214	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060221	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060222	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060223	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060225	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060237	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060228	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060247	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060254	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060259	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060168	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060161	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060198	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060191	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060190	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060189	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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741697	71674	Harmon,S.M., W.L. Specht, and G.T. C	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
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768475	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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768467	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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768500	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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2053814	157748	Sornom,P., V. Felten, V. Medoc, S. Sro	Effect of Gender on Physiological and Beha	Environ. Pollut.158:1288-1295	2010
2053819	157748	Sornom,P., V. Felten, V. Medoc, S. Sro	Effect of Gender on Physiological and Beha	Environ. Pollut.158:1288-1295	2010
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231536	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231534	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
2075474	158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. D	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
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2164548	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164547	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164549	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164550	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164551	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164553	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164552	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164554	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2152842	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2164556	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164558	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164555	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164557	163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, a	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
16496	6244	Hamilton,R.W., J.K. Buttner, and R.G. I	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
740725	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996

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740689	76054	Waller,D.L., S.W. Fisher, and H. Dabro	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2164711	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164646	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
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2164693	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164628	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164700	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
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2164699	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
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2164623	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
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2052780	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052782	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052786	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052784	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052781	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052783	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
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2052774	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052785	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
741584	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
803857	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
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2052771	157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
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803860	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
741594	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
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2224820	160209	Hazelton,P.D., W.G. Cope, T.J. Pandolf	Partial Life-Cycle and Acute Toxicity of Perfl	Environ. Toxicol. Chem.31(7): 1611-1620	2012
2224821	160209	Hazelton,P.D., W.G. Cope, T.J. Pandolf	Partial Life-Cycle and Acute Toxicity of Perfl	Environ. Toxicol. Chem.31(7): 1611-1620	2012
231519	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231583	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231522	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231584	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231582	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231521	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231518	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
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2060276	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060292	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060293	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060291	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060317	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060318	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060307	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060315	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060319	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060302	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2164592	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164600	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164609	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164603	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164595	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164605	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164587	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164591	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
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2164602	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164594	163450	Echols,B.S., R.J. Currie, D.S. Cherry, an	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
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802492	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
802504	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
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802491	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
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802497	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
802496	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
802502	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
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2060329	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060335	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060336	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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2060361	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060360	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060342	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
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196735	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196768	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196767	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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196711	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196737	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196712	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196764	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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196727	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196771	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196721	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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196747	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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196769	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196765	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196734	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196761	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196738	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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196773	2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
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24913	915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
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759078	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing d	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
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766607	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766556	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
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766560	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
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766581	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
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766586	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
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766555	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766566	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766718	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766570	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007

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766606	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766585	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766588	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766608	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766551	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766563	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
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766224	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
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759072	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing c	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
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766225	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766223	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
759073	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing c	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
2017049	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
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767505	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767494	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
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766712	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chroi	Third Quarterly Report, Submitted to U.S.EF	2005

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766624	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
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766443	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766442	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
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766664	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
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6213	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
41637	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gan	1973
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761769	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
2152811	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152812	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152813	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152815	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152814	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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2152817	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152819	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152818	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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761553	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761566	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761569	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
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761551	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
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761554	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761570	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
2152752	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152753	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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768129	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768092	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

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768161	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768086	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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768159	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768084	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768076	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768139	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152755	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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768102	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768131	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768121	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768100	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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768062	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
761764	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
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761555	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761550	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761564	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761552	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761568	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761556	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761563	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761571	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
768152	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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768093	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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768142	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768162	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768087	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768095	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768150	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768079	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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768085	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768077	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768140	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152754	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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768110	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
761559	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
768103	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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768122	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768101	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768061	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768063	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
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761765	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
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761762	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
766857	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
761763	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
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761756	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761757	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
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2152741	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152740	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152820	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bail	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152821	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bail	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152822	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bail	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152824	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bail	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152823	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bail	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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761584	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
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761583	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761592	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
2153272	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152721	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152855	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153275	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153278	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153269	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152881	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
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120853	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120850	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120836	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120849	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120846	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120835	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120848	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120847	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120854	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120831	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
761595	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741679	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741936	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741950	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742564	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741951	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741929	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742894	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742895	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741958	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741948	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741943	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742899	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differe	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
2153273	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152731	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152873	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153276	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153279	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153270	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011

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2153267	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767971	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767883	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767957	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766860	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767901	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767860	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767868	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766868	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767874	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767893	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767876	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767858	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
742568	71674	Harmon,S.M., W.L. Specht, and G.T. Cl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
767852	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767955	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767850	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766862	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767866	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766870	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767891	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767885	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767963	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767899	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767965	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767973	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
251022	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251024	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251014	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251020	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251016	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251010	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251018	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251012	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
741947	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741938	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741952	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742900	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741944	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742892	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741957	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741949	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742563	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742565	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741945	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741959	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
2152727	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Harc	Arch. Hydrobiol.122(1): 33-56	1991
767972	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767884	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767958	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766861	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767902	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

Result Number	Reference Number	Author	Title	Source	Publication Year
761582	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
767861	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767869	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766869	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767875	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767894	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767877	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767859	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
741688	71674	Harmon,S.M., W.L. Specht, and G.T. C	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
761594	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761578	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761586	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761574	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761590	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
767853	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767956	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767851	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766863	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767867	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766871	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767892	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767886	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767964	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767900	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767966	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767974	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
251019	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251023	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251017	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120856	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251013	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251015	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251011	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251021	11152	DeGraeve,G.M., J.D. Cooney, B.H. Mar	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
761585	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761577	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761589	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761573	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761593	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761581	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
742896	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741953	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742898	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741937	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742891	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742893	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742901	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741648	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741649	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741946	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741942	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742897	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003

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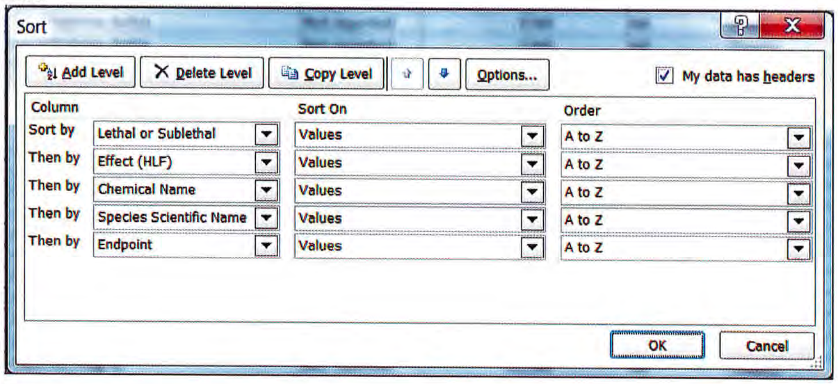
2152726	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Harc	Arch. Hydrobiol.122(1): 33-56	1991
741566	106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
761752	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761753	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
741654	71674	Harmon,S.M., W.L. Specht, and G.T. C	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741696	71674	Harmon,S.M., W.L. Specht, and G.T. C	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741659	71674	Harmon,S.M., W.L. Specht, and G.T. C	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741530	106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
2152713	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Harc	Arch. Hydrobiol.122(1): 33-56	1991
2152732	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152733	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2164766	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164767	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164768	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164769	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164770	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164728	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2152735	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152715	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Harc	Arch. Hydrobiol.122(1): 33-56	1991
2164764	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164761	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164763	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164765	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164762	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164729	163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2152734	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
741546	106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
2152714	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Harc	Arch. Hydrobiol.122(1): 33-56	1991
201548	45826	Birge,W.J., J.A. Black, A.G. Westerman	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201551	45826	Birge,W.J., J.A. Black, A.G. Westerman	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201549	45826	Birge,W.J., J.A. Black, A.G. Westerman	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201552	45826	Birge,W.J., J.A. Black, A.G. Westerman	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201547	45826	Birge,W.J., J.A. Black, A.G. Westerman	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201550	45826	Birge,W.J., J.A. Black, A.G. Westerman	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2152783	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152784	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152786	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152785	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152796	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152807	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152808	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152810	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152809	158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bai	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
759472	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759471	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
2017036	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017047	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017055	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017064	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017035	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017046	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017054	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011

Result Number	Reference Number	Author	Title	Source	Publication Year
2017063	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017034	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766229	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766234	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017053	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017062	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017045	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2148468	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148476	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148470	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
761597	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
759076	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
2148475	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148469	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148467	158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
759077	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
2017032	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017043	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766734	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766737	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766354	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766344	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766355	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766230	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766351	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766356	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766232	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017051	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017060	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
759074	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
2017033	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017044	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766735	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766738	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766855	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766231	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766233	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017052	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017061	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
759075	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
761750	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761751	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
2017147	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017148	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017149	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017151	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017150	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. (	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
759464	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759022	115903	E.G. and G. Bionomics	The Chronic Toxicity of Sulfate to the Water	Res.Rep.No.BN-79-10-546, Submitted to Sm	1979
759463	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759484	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984

Filter Criteria Used to Filter Raw Data from ECOTOX

1 Performed search using criteria in "Tolerance Value Search Criteria"
2 Rename tab as "as recd from ECOTOX"
3 Made copy of tab for filtering and sorting and named "sorted values"
4 Under "Species Family" column, filtered by "Salmonidae" and deleted all associated rows
5 Deleted species taxonomic information columns (columns G through P in "as recd" worksheet)
6 Under "Observed Duration Mean" column, filtered by all values less than 1 and deleted all associated rows
7 Under "Observed Duration Mean" column, filtered by "NR." Then filtered "Observed Duration Min" for values less than 1 and "NR." Deleted associated rows.
8 Filtered "Conc 2 Mean" and deselected "(Blanks)" and deleted all associated rows (to remove any study results that measured more than one chemical).
9 Deleted columns related to Conc 2 and Conc 3 (now completely blank after filtering out those with values).
10 Filtered "Conc 1 Units" to select all but ug/L and removed associated rows to another worksheet labeled "diff units"
11 Filtered "Conc 1 Type" and deselected "Total"; deleted associated rows ("Dissolved" and "Formulation").
12 Filtered "Species Group" column and deselected all but Amphibians and related groups; deleted associated rows.
13 Filtered "Chemical Name" column and deselected all chemicals not containing potassium; deleted associated rows. (Potassium associated with high toxicity.)
14 Removed entries that contained confounding factors in the "Experimental Design" column (e.g., use of K-medium, parasite infection).
15 Filled in hardness values as applicable (see table below)
16 Sort:



Water Type (Hardness) per EPA 2002:

TABLE 3. PREPARATION OF SYNTHETIC FRESHWATER USING REAGENT GRADE CHEMICALS[1]

Water Type	Reagent Added (mg/L)[2]				Approximate Final Water Quality		
	$NaHCO_3$	$CaSO_4 \cdot 2H_2O$	$MgSO_4$	KCl	pH[3]	Hardness[4]	Alkalinity[4]
Very soft	12.0	7.5	7.5	0.5	6.4-6.8	10-13	10-13
Soft	48.0	30.0	30.0	2.0	7.2-7.6	40-48	30-35
Moderately Hard	96.0	60.0	60.0	4.0	7.4-7.8	80-100	57-64
Hard	192.0	120.0	120.0	8.0	7.6-8.0	160-180	110-120
Very hard	384.0	240.0	240.0	16.0	8.0-8.4	280-320	225-245

1 Taken in part from Marking and Dawson (1973).
2 Add reagent grade chemicals to deionized water.
3 Approximate equilibrium pH after 24 h of aeration.
4 Expressed as mg $CaCO_3$/L.

	Hardness (mg/L CaCO3)
Very Soft	10-13
Soft	40-48
Moderately Hard	80-100
Hard	160-180
Very Hard	280-320

After separating out into sublethal and lethal:
Removed additional studies that included confounding factors
Removed species that are not found in the United States

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
793900	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	12	NR	NR	Day(s)	LOEL	Length
793901	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	12	NR	NR	Day(s)	NOEL	Length
2060109	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 5 TESTS	Whole organism	4	NR	NR	Day(s)	NOEC	Weight
2060110	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 5 TESTS	Whole organism	4	NR	NR	Day(s)	IC25	Weight
2060142	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 13 TESTS	Whole organism	4	NR	NR	Day(s)	IC25	Weight
2060141	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 13 TESTS	Whole organism	4	NR	NR	Day(s)	NOEC	Weight
718597	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	IC25	Weight
718595	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	NOEC	Weight
718596	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	IC25	Weight
728144	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	LOEC	Weight
96887	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	MATC	Growth, general
43171	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
96886	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
96891	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
96893	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Growth, general
761771	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Weight
761770	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Weight
96897	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
96894	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	MATC	Growth, general
96902	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
43166	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
729236	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	LOEC	Weight
718611	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	NOEC	Weight
718612	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Whole organism	7	NR	NR	Day(s)	IC25	Weight
2154061	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, CHRONIC TEST	Whole organism	NR	NR	NR	Until metamorp	LOEC	Weight
2154065	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, CHRONIC TEST	Whole organism	NR	NR	NR	Until metamorp	NOEC	Weight
759445	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	NOEC	Length
759439	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	NOEC	Length
759438	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	LOEC	Length
759418	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	NOEC	Length
759397	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Growth rate
759421	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
759437	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
759444	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	LOEC	Length
759436	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LOEC	Dry weight (AQUIRE or
2152812	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	20	NR	NR	Day(s)	IC25	Biomass
2152813	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	20	NR	NR	Day(s)	IC50	Biomass
2152815	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	20	NR	NR	Day(s)	LOEC	Biomass
2152811	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	20	NR	NR	Day(s)	IC10	Biomass
2152814	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	20	NR	NR	Day(s)	NOEC	Biomass
201556	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	LOEC	Length
2160501	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, SALINITY ACCLIMATION, CO	Whole organism	21	NR	NR	Day(s)	LOEC	Size
2160499	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, SALINITY ACCLIMATION, CO	Whole organism	21	NR	NR	Day(s)	NOEC	Size
201555	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Length
201557	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	MATC	Length
748411	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	TEST WATER CHEMISTRY SHOWS NITRITE 5.	Whole organism	7	NR	NR	Day(s)	NOEC	Length
773639	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	5 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Weight gain
773638	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	5 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Specific growth rate
2152819	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	LOEC	Biomass
2152817	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC50	Biomass
2152816	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC25	Biomass
2152818	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Biomass
2164559	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STANDA	Whole organism	28	NR	NR	Day(s)	EC25	Weight
2162413	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Whole organism	15	NR	NR	Day(s)	NOEC	Length
741641	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	DISSOCIATED EGGS	Not reported	5	NR	NR	Day(s) post-hat	NOEC	Weight
741652	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	UNDISSOCIATED EGGS	Not reported	5	NR	NR	Day(s) post-hat	NOEC	Weight gain
741651	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	UNDISSOCIATED EGGS	Not reported	5	NR	NR	Day(s) post-hat	LOEC	Weight gain
2165532	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Whole organism	300	NR	NR	Day(s)	LOEC	Length
2165533	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Whole organism	300	NR	NR	Day(s)	NOEC	Length
2060023	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	EMBRYOS TESTED IN THE LAB, LARVAE MO	Whole organism	58	NR	NR	Day(s)	NOEC	Length
2165525	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Whole organism	100	NR	NR	Day(s)	NOEC	Length
2154068	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, CHRONIC TEST	Whole organism	NR	NR	NR	Until metamorp	NOEC	Weight
2165524	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Whole organism	100	NR	NR	Day(s)	NOEC	Length
741597	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Whole organism	4	NR	NR	Day(s)	LOEL	Weight
741576	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Whole organism	4	NR	NR	Day(s)	NOEL	Weight
741623	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Whole organism	4	NR	NR	Day(s)	NOEL	Weight
202204	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	56	NR	NR	Day(s)	LOEC	Weight
741685	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Whole organism	14	NR	NR	Day(s)	NOEL	Weight
251448	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	90	NR	NR	Day(s)	NOEC	Weight
251447	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	56	NR	NR	Day(s)	LOEC	Weight
251464	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	NR	NR	NR	Until hatch	NOEC	Weight
251446	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	56	NR	NR	Day(s)	NOEC	Weight
2152749	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Whole organism	54	NR	NR	Day(s)	NOEC	Biomass
2152748	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Whole organism	54	NR	NR	Day(s)	IC50	Biomass
2152747	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Whole organism	54	NR	NR	Day(s)	IC25	Biomass
2152750	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Whole organism	54	NR	NR	Day(s)	LOEC	Biomass
202202	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	56	NR	NR	Day(s)	MATC	Weight
202203	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Whole organism	56	NR	NR	Day(s)	NOEC	Weight
2163091	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-4 REPLICATES	Whole organism	4	NR	NR	Day(s)	NOEC	Length
761549	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761548	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761567	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
784790	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	PARTIAL RENEWAL AT 48 HOUR	Whole organism	4	NR	NR	Day(s)	NOEC	Biomass
761560	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761555	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
761550	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761564	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
784789	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NOEC	Biomass
761558	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761565	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761553	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761552	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761568	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761556	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761566	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761569	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761561	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761563	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761557	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761551	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761562	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761571	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761554	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
761570	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
14424	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
42862	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
14380	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
42867	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
96882	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
108590	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Growth, general
768151	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768152	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768129	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768130	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768092	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768093	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768111	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768112	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768142	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768141	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768162	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768161	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768087	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768086	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768094	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768095	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768149	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768150	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768079	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768078	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768160	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768159	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768084	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768085	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768077	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768076	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768140	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768139	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
2152753	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	IC50	Biomass
2152752	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	IC25	Biomass
2152754	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	NOEC	Biomass
2152755	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES	Whole organism	33	NR	NR	Day(s)	LOEC	Biomass
768070	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768071	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768069	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768068	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768119	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768120	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768109	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768110	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
741831	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	96 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Biomass
741780	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Biomass
741815	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	NOEL	Biomass
742694	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 HOUR PULSE DURATION	Whole organism	7	NR	NR	Day(s)	NOEL	Biomass
741814	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	CONTINUOUS EXPOSURE	Whole organism	7	NR	NR	Day(s)	NOEL	Biomass
761559	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
761764	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Weight
761765	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Weight
2163911	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Weight
2163912	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Length
2163908	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Condition index
768103	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768102	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768131	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768132	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768122	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768121	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768101	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
768100	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768061	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
768060	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768062	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Biomass
768063	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
748412	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	TEST WATER CHEMISTRY SHOWS NITRITE 1(	Whole organism	7	NR	NR	Day(s)	NOEC	Length
747196	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	10	NR	NR	Day(s)	NOEC	Length
747204	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	10	NR	NR	Day(s)	NOEC	Weight
2058030	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	60.88	NR	NR	Day(s)	NOEC	Growth rate
2164834	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	GRADUATED EXPOSURE STUDY, DOSED WIT	Whole organism	4	NR	NR	Day(s)	LOEC	Wet weight (AQUIRE o
2164835	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	GRADUATED EXPOSURE STUDY, DOSED WIT	Whole organism	4	NR	NR	Day(s)	LOEC	Weight
84264	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NOEC	Growth, general
84263	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Head	14	NR	NR	Day(s)	NOEC	Growth, general
60460	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Head	14	NR	NR	Day(s)	LOEC	Growth, general
10560	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	LOEC	Growth, general
60461	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	LOEC	Growth, general
83065	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Head	14	NR	NR	Day(s)	NOEC	Growth, general
10559	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Head	14	NR	NR	Day(s)	LOEC	Growth, general
83066	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NOEC	Growth, general
759372	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	NOEC	Length
759371	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	LOEC	Length
759332	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Growth rate
759386	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LOEC	Dry weight (AQUIRE or
759387	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
759374	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	NOEC	Length
759373	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Carapace	80	NR	NR	Day(s)	NOEC	Length
759388	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
759385	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
765903	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	28	NR	NR	Day(s)	LOEC	Condition index
765901	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Shell	28	NR	NR	Day(s)	NOEC	Length
765902	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Soft tissue	28	NR	NR	Day(s)	LOEC	Dry weight (AQUIRE or
765900	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Shell	28	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
2163928	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Length
2163924	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Condition index
767596	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	IC25	Dry weight (AQUIRE or
2163927	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Weight
761763	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Weight
761599	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Biomass
767595	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	IC50	Dry weight (AQUIRE or
767597	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	LOEC	Dry weight (AQUIRE or
767598	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	NOEC	Dry weight (AQUIRE or
761762	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Weight
766857	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Biomass
2017310	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	EC25	Weight
2017309	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	EC50	Weight
2017307	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	LOEC	Weight
2017311	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	EC10	Weight
2017321	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	EC10	Weight
2017308	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Weight
2017320	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	EC25	Weight
2017319	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	EC50	Weight
2017317	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	LOEC	Weight
2017318	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Whole organism	21	NR	NR	Day(s)	NOEC	Weight
747209	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	10	NR	NR	Day(s)	NOEC	Length
747215	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	10	NR	NR	Day(s)	NOEC	Weight
759025	7778189	Sulfuric acid, Calcium salt (1:1)	Flow-through	Measured	Fresh water	Lab	TWO REPLICATES, CACL2 FOR HARDNESS C(	Not reported	NR	30	60	Day(s) post-hat(	NOEC	Growth, general
2173770	7786303	Magnesium chloride	Renewal	Unmeasured	Fresh water	Lab	FETAX	Whole organism	4	NR	NR	Day(s)	NOEC	Length
759026	10043524	Calcium chloride (CaCl2)	Flow-through	Unmeasured	Fresh water	Lab	TWO REPLICATES, NO CONTROL DATA AFTE	Not reported	NR	30	60	Day(s) post-hat(	NOEC	Growth, general
761769	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Weight
761768	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Weight
2084608	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2084613	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
116971	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2084590	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
15729	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50*	Mortality
23442	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
24311	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50*	Mortality
2745	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
15730	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
15731	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
764342	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764344	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764560	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764348	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764346	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764556	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764558	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
187927	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM, FED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
187925	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187921	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	RECON WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality
187923	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MINERAL WATER, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187920	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	RECON WATER, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187919	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	RECON WATER	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2148456	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	4	NR	NR	Day(s)	LOEL	Mortality
2148457	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	1	NR	NR	Day(s)	NOEL	Mortality
2148455	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	1	NR	NR	Day(s)	LOEL	Mortality
2148462	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	4	NR	NR	Day(s)	NOEL	Mortality

Raw Data from ECOTOX (Unfiltered)

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2148461	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	1	NR	NR	Day(s)	NOEL	Mortality
2148458	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	4	NR	NR	Day(s)	NOEL	Mortality
187922	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MINERAL WATER	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2148459	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	4	NR	NR	Day(s)	LOEL	Mortality
2148460	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	1	NR	NR	Day(s)	LOEL	Mortality
187926	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187924	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	MINERAL WATER, FED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
768170	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160280	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
793899	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
793902	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	12	NR	NR	Day(s)	LOEL	Lifespan
768254	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2060131	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	12 TESTS	Not reported	7	NR	NR	Day(s)	LC50	Mortality
2060128	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	12 TESTS	Not reported	7	NR	NR	Day(s)	NOEC	Survival
160281	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768261	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768319	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768351	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768315	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768353	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768312	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768357	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768251	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768257	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
727030	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
762358	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2056433	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
165611	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165609	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165610	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165622	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165615	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165614	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165621	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165613	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165616	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165620	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165612	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165617	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165608	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165619	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165607	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165623	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165618	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2152543	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES, MAY 1999 TRIAL	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2152542	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES, FEBRUARY 1999 TRIAL	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2152541	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES, AUGUST 1998 TRIAL	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2146823	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
15436	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
16498	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
2146826	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768484	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768515	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768422	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768419	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
233426	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
233425	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
727031	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2060108	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 5 TESTS	Not reported	4	NR	NR	Day(s)	NOEC	Survival
2060111	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 5 TESTS	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060143	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 13 TESTS	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060140	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, 13 TESTS	Not reported	4	NR	NR	Day(s)	NOEC	Survival
119482	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
31878	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50*	Mortality
18170	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
18166	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality
18167	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18169	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
18168	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768482	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768483	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
759474	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
767301	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality
759477	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
767309	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767300	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality
160282	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
768506	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768494	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768485	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160283	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768513	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768508	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
768421	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
793895	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	TEST 3, 4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
793894	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	TEST 2, 4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Mortality
793893	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	TEST 1, 4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Mortality
2084612	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2084609	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2084591	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
762369	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2153704	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153706	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality
114855	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181632	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181627	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181631	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
183876	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181630	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181637	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181620	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181625	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181636	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181624	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181621	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181635	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181634	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181626	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181622	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
8825	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2153767	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153705	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
181628	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181623	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181629	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
13892	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
181633	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181619	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2084619	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2064060	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064050	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2064059	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
168350	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	REFORULATED MODERATELY HARD RECONS	Not reported	4	NR	NR	Day(s)	LC50	Mortality
221427	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165600	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165601	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165602	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165598	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
168351	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	LABLINE-SUPER-Q WATER	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2056432	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
165603	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165599	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
221426	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	STARVED	Not reported	4	NR	NR	Day(s)	LC50	Mortality
165604	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165605	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165606	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
165597	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
168352	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	25% DILUTE MINERAL WATER (DMW)	Not reported	4	NR	NR	Day(s)	LC50	Mortality
221428	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	COLD SHOCKED PRIOR TO EXPOSURE	Not reported	4	NR	NR	Day(s)	LC50	Mortality
221422	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	FED	Not reported	3	NR	NR	Day(s)	LC50	Mortality
221425	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	STARVED	Not reported	3	NR	NR	Day(s)	LC50	Mortality
221423	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	FED	Not reported	4	NR	NR	Day(s)	LC50	Mortality
221429	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	SIEVED	Not reported	4	NR	NR	Day(s)	LC50	Mortality
221424	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	STARVED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
221421	7447407	Potassium chloride (KCl)	Flow-through	Unmeasured	Fresh water	Lab	FED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
15437	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
16499	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
2153843	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2153875	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
2153891	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
64914	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2153890	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
181639	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2153877	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
234000	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
40518	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	COMPOSITION OF WATER REPORTED	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
2153878	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
2153893	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
2153845	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
18171	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196201	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
40519	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	COMPOSITION OF WATER REPORTED	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
13462	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	8 PARAMETERS, SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
2153879	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
2153894	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
18172	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18174	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
18173	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18175	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2084610	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2271245	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2271240	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2271247	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2264909	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2271238	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2271239	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
762359	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
181641	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
181645	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
193880	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
193908	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LC50	Mortality
193897	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
193921	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
193898	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
193891	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
193924	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	19	NR	NR	Day(s)	LC50	Mortality
193913	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	19	NR	NR	Day(s)	LC50	Mortality
193920	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	LC50	Mortality
193881	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
193877	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
193896	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	13	NR	NR	Day(s)	LC50	Mortality
193904	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	16	NR	NR	Day(s)	LC50	Mortality
193889	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
193909	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	LC50	Mortality
193910	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
193899	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
193879	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
193922	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	13	NR	NR	Day(s)	LC50	Mortality
193894	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	11	NR	NR	Day(s)	LC50	Mortality
193919	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
193886	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
193928	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	42	NR	NR	Day(s)	MATC	Mortality
193882	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
193903	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	13	NR	NR	Day(s)	LC50	Mortality
193933	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	14	28	Day(s)	NOEC	Mortality
193887	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	13	NR	NR	Day(s)	LC50	Mortality
193923	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	16	NR	NR	Day(s)	LC50	Mortality
193890	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
193934	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	14	28	Day(s)	LOEC	Mortality
193925	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	23	NR	NR	Day(s)	LC50	Mortality
193911	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	13	NR	NR	Day(s)	LC50	Mortality
193884	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
193918	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
193893	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
193907	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
193878	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
193901	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	LC50	Mortality
193900	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
193895	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	12.2083	NR	NR	Day(s)	LC50	Mortality
193912	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	16	NR	NR	Day(s)	LC50	Mortality
193902	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
193916	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	29	NR	NR	Day(s)	LC50	Mortality
193915	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	25	NR	NR	Day(s)	LC50	Mortality
193892	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LC50	Mortality
193883	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
193888	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
193929	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	42	NR	NR	Day(s)	NOEC	Mortality
193906	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
193930	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	42	NR	NR	Day(s)	LOEC	Mortality
193932	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	14	28	Day(s)	MATC	Mortality
193885	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	LC50	Mortality
193926	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	27	NR	NR	Day(s)	LC50	Mortality
193917	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
193914	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	22	NR	NR	Day(s)	LC50	Mortality
193905	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2081278	7447407	Potassium chloride (KCl)	Flow-through	Measured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	LC50	Mortality
2081284	7447407	Potassium chloride (KCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2081280	7447407	Potassium chloride (KCl)	Flow-through	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2081282	7447407	Potassium chloride (KCl)	Flow-through	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
16497	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
15435	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
181642	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
141012	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
181640	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
718593	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Not reported	7	NR	NR	Day(s)	NOEC	Survival
2153840	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
718598	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Not reported	7	NR	NR	Day(s)	LC50	Mortality
718594	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Not reported	7	NR	NR	Day(s)	LC50	Mortality
36690	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2153841	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2153867	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
15733	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
2746	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50*	Mortality
24099	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
15728	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
15732	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50*	Mortality
2747	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
2084611	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2153898	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
2153897	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
196202	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
13426	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab	8 PARAMETERS, SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
2316118	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
96900	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
160285	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
181638	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
96905	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
160286	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
96896	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
96890	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
2153866	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2153882	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
2153899	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
2153883	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
96889	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
2153865	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160284	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
43169	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
43165	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
43170	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
768557	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
43174	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
768549	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
96901	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
96908	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
43164	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
768554	7447407	Potassium chloride (KCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2084588	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2084620	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2153839	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2153887	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
727826	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Not reported	7	NR	NR	Day(s)	LOEC	Survival
718609	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Not reported	7	NR	NR	Day(s)	NOEC	Survival
718610	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	AUTHOR TESTS GROWTH AND MORTALITY,	Not reported	7	NR	NR	Day(s)	LC50	Mortality
2153884	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-ZERO	Mortality
2153837	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
181644	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2153853	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153880	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-ZERO	Mortality
2153847	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
181643	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767040	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
234001	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
759169	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	28	NR	NR	Day(s)	NR-ZERO	Mortality
764615	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767364	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767366	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767346	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767410	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160288	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767362	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767348	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767347	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767402	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160287	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767405	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767461	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767465	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767365	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767407	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764850	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	0.1667	NR	NR	Day(s)	NR-ZERO	Mortality
759182	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767488	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767485	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160289	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767471	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160290	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767487	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767490	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
759473	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
759470	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
24910	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
24907	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
24908	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
24906	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
24909	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064012	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2064016	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064015	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
763381	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LOEC	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days)	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
763382	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NOEC	Mortality
763506	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	0.1667	NR	NR	Day(s)	NOEC	Mortality
763384	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NOEC	Mortality
763505	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	0.1667	NR	NR	Day(s)	LOEC	Mortality
763383	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LOEC	Mortality
220044	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NOEC	Mortality
24911	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
24914	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
24912	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
24913	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
24915	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2153117	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	THREE REPLICATES	Not reported	4	NR	NR	Day(s)	LC05	Mortality
2153118	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	THREE REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2153181	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TWO-FOUR REPLICATES, 9 MG:1 CA RATIO	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2153180	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TWO-FOUR REPLICATES, 9 MG:1 CA RATIO	Not reported	4	NR	NR	Day(s)	LC05	Mortality
89658	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
61287	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
61288	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
61289	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
89662	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
89660	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
160291	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
759181	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
767519	7487889	Sulfuric acid magnesium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED W	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
160292	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160293	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
97577	7487889	Sulfuric acid magnesium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2061006	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2055980	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	6	NR	NR	Day(s)	NR-ZERO	Mortality
741747	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741782	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741753	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
741540	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
741556	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
742902	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
742923	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
798968	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
741577	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
742533	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741572	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
742535	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-ZERO	Mortality
742696	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741545	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741548	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
741573	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
742534	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741580	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741539	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
741578	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741571	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
741544	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741543	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
741555	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741554	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
742532	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	NR	NR	Emergence	LD50	Mortality
741741	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741740	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741787	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060991	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2154070	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, EMBRYO TOXICITY TEST	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
2059519	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES, BOILED POND WATER	Not reported	NR	NR	NR	Until hatch	NOEC	Survival
2059522	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES, BOILED POND WATER	Not reported	NR	NR	NR	Until hatch	LOEC	Survival
2061032	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2014049	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	PARASITICALLY INFECTED	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
148555	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	INFECTED BY PSEUDODACTYLOGYRUS SP	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2455	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
12210	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231580	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231578	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231574	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231577	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231575	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231576	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231579	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231581	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
2162899	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	5 REPLICATES	Not reported	9	NR	NR	Day(s)	NOEC	Hatch
2162871	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.6667	NR	NR	Day(s)	NR-ZERO	Mortality
741874	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4.5417	NR	NR	Day(s)	NOEL	Time to 100% mortalit
231569	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LC50	Mortality
231568	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
231571	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231567	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
231573	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231572	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231563	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
231566	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231570	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231565	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231564	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2060990	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2164637	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NOEC	Mortality
764333	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764325	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764330	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764326	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764329	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060979	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2060983	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.125	NR	NR	Day(s)	NR-LETH	Mortality
2152847	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
741752	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
764481	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060992	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
742917	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	4	NR	NR	Day(s)	NOEL	Mortality
742918	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	1	NR	NR	Day(s)	NOEL	Mortality
742037	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	1	NR	NR	Day(s)	NOEL	Mortality
742036	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	1	NR	NR	Day(s)	LOEL	Mortality
742919	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	4	NR	NR	Day(s)	NOEL	Mortality
742006	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	1	NR	NR	Day(s)	LOEL	Mortality
187909	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM, FED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
187905	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MINERAL WATER, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187907	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187903	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECON WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality
187902	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECON WATER, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187908	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM, FED	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187901	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECON WATER	Not reported	1	NR	NR	Day(s)	LC50	Mortality
187906	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MINERAL WATER, FED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
187904	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MINERAL WATER	Not reported	1	NR	NR	Day(s)	LC50	Mortality
742038	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MEDIUM HARD RECONSTITUTED WATER (M	Not reported	4	NR	NR	Day(s)	LOEL	Mortality
742016	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	K-MEDIUM	Not reported	4	NR	NR	Day(s)	LOEL	Mortality
196818	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196801	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196817	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LETC	Mortality
196799	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196831	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196814	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196791	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196837	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196776	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196783	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196795	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196828	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196816	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196838	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	0.5	NR	NR	Day(s)	LC50	Mortality
167864	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
167863	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
75451	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
196826	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196803	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196841	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	UNHEALTHY	Not reported	1	NR	NR	Day(s)	LC50	Mortality
196788	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196784	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196793	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196805	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196842	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	UNHEALTHY	Not reported	1	NR	NR	Day(s)	LC50	Mortality
196846	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	UNHEALTHY	Not reported	NR	4	5	Day(s)	LETC	Mortality
196775	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196834	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196808	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196827	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196836	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196845	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	UNHEALTHY	Not reported	4	NR	NR	Day(s)	LETC	Mortality
196777	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196823	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196780	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196790	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196804	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196785	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196811	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196797	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196825	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LETC	Mortality
196824	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196830	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196844	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	UNHEALTHY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
196778	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196807	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196802	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196810	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196813	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196822	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196789	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
196794	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196798	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196786	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196821	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196782	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196796	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196800	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196812	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196833	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196779	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196792	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196815	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196835	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196829	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196843	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	UNHEALTHY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
196820	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196774	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196806	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196832	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196781	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
196840	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
196819	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196787	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196809	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
26112	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
759442	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC50	Mortality
759441	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC50	Mortality
759395	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LOEC	Mortality
759417	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC50	Mortality
759449	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC01	Mortality
759396	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Mortality
741761	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
759448	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC05	Mortality
2060993	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
741687	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NOEC	Survival
742567	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	LOEC	Survival
207718	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
741686	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	ACUTE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
207719	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	NR-ZERO	Mortality
207716	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Survival
741695	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	ACUTE	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2146816	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Survival
2146817	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	NR-LETH	Mortality
2146815	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Survival
741660	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NR-ZERO	Mortality
207721	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	NR-ZERO	Mortality
741699	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NR-LETH	Mortality
207717	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	LC50	Survival
767855	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2152825	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767904	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767903	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2075467	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
766865	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
766864	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2153271	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 40 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
767897	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767898	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767961	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767962	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2153268	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 20 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
767879	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767880	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767896	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767895	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2075442	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2075434	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767873	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767872	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2075468	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767959	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767960	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767871	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767870	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767968	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767967	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2075410	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2075471	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2153274	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 80 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
766873	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
766872	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
766866	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
766867	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767889	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767890	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2152724	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	LC50	Mortality
2152722	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	NR-ZERO	Mortality
2152723	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767856	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767857	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767969	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767970	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767847	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767846	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2152874	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 10 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
767953	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767954	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767887	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767888	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2153277	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 160 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
2153280	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 320 MG/L CACO3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
767881	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767882	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767975	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767976	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2075466	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2075469	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2075470	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2074934	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2075402	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767864	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767865	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2075426	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767863	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767862	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2075418	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
741671	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NR-LETH	Mortality
767849	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767848	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
767854	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
251007	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Survival
250997	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Survival
120843	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB H, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
251000	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Survival
120826	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120844	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB H, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
251003	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Survival
120840	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB F, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
251001	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Survival
250999	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Survival
251009	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Survival
120842	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
742530	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	NR-ZERO	Mortality
741547	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	LC50	Mortality
120829	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB J, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120855	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Survival
251004	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Survival
251002	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Survival
120845	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB I, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120837	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB B, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
251008	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Survival
120827	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 2, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120841	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120824	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB A, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality
250998	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Survival
120839	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB D, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120828	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB H, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120825	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB D, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LC50	Mortality
120838	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB D, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LC50	Mortality
251006	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Survival
251005	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Survival
160319	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
768266	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768264	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768272	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768175	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768340	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768268	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768173	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160320	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
741288	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	REFERENCE TOXICANT TEST, VALUE DETERN	Not reported	2	NR	NR	Day(s)	LC50	Mortality
741435	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2060999	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
741635	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
741678	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
155066	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	RACEWAY	Not reported	0.5	NR	NR	Day(s)	NR-ZERO	Mortality
157997	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	RACEWAY	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
2152838	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060247	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2060217	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC60	Survival

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2060213	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC20	Survival
2060209	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC01	Survival
2060237	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	MATC	Survival
2060223	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC95	Survival
2060221	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC85	Survival
2060216	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC40	Survival
2060210	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC05	Survival
2060201	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2060275	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2060220	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC80	Survival
2060259	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2060254	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2060211	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC10	Survival
2060236	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LOEC	Survival
2060225	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC99	Survival
2060214	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC25	Survival
2060270	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2060228	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	NOEC	Survival
2060212	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC15	Survival
2060222	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC90	Survival
2060218	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	EC75	Survival
2211037	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	SAND AND SILICA SEDIMENT, 2 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2060996	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
741489	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FIBERGLASS TANKS FILLED WITH 20L OF TES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2162289	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2162290	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2211025	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
2211024	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
16495	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
26114	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
26113	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
764830	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.1667	NR	NR	Day(s)	NR-ZERO	Mortality
2152592	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	11	NR	NR	Day(s)	NR-LETH	Mortality
2152588	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	11	NR	NR	Day(s)	LD99	Mortality
2152587	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	11	NR	NR	Day(s)	LD50	Mortality
742887	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	25	NR	NR	Day(s)	NR-LETH	Mortality
2060198	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060148	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060190	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060157	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060168	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060189	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060161	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060191	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
741331	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	WATER SOURCE FROM SAN MARCOS RIVER	Egg	0.0417	NR	NR	Day(s)	LOEL	Hatch
741388	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	WATER SOURCE FROM SAN MARCOS RIVER	Egg	0.0417	NR	NR	Day(s)	NOEL	Hatch
76295	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	NR	0.1667	2	Day(s)	EC50	Mortality
2057566	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
742566	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	ACUTE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
741698	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	NOEC	Survival
741697	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	LOEC	Survival
741610	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18462	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality
18463	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18461	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2.0833	NR	NR	Day(s)	LC50	Mortality
18464	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2152826	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
759179	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2164732	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
2164727	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	EC50	Survival
2164731	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NR-LETH	Mortality
2152707	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality
2152709	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
2152708	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
119469	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
31699	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50*	Mortality
84498	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
144221	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
144220	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
144218	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
144219	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
144222	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768428	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768533	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768500	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160322	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768426	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768527	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768431	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768498	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
741531	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality
742529	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	LC50	Mortality
768489	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768475	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768531	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
768450	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768496	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768523	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768530	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2210504	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	DEFINITIVE ACUTE, 4 REPLICATES	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768520	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768445	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768499	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768488	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768467	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768526	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160321	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
768521	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768486	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2210505	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RANGEFINDING ACUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
742069	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
742931	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
742926	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767302	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality
772103	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality
742068	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
742927	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767308	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality
742008	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
742019	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18460	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality
201545	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Survival
2055828	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES, 24 HOUR ADULT FATHEAD	Not reported	2	NR	NR	Day(s)	LC50	Mortality
201558	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
741434	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality
201566	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	NATURAL DILUTION WATER	Not reported	2	NR	NR	Day(s)	LC50	Survival
2055812	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2055826	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES, LARGEMOUTH BASS PRED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2055829	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES,BLUEGILL PREDATORY CUE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2055827	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES, ADULT FATHEAD MINNOW	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2160493	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, SALINITY ACCLIMATION, CO	Not reported	21	NR	NR	Day(s)	LOEC	Survival
2160450	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	LOEC	Survival
2160469	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITH FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	NOEC	Survival
2160475	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITH FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	LOEC	Survival
2160472	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITH FISH KAIROMONE	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2160470	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITH FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	NOEC	Survival
2160473	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITH FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2160471	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITH FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	LOEC	Survival
2160484	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	21	NR	NR	Day(s)	LOEC	Survival
2160481	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	21	NR	NR	Day(s)	NOEC	Survival
2160489	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, WITH FISH KAIROMONE	Not reported	21	NR	NR	Day(s)	NOEC	Survival
2160490	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, WITH FISH KAIROMONE	Not reported	21	NR	NR	Day(s)	LOEC	Survival
2160465	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2160464	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	LOEC	Survival
2160460	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	NOEC	Survival
2160468	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES, WITHOUT FISH KAIROMONE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2060988	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2061001	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
740690	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality
740662	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality
2060989	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.125	NR	NR	Day(s)	NR-LETH	Mortality
741563	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	EC50	Survival
803856	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052775	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	EC50	Survival
231524	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231523	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231527	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
231525	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231526	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060997	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2060994	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2060995	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.125	NR	NR	Day(s)	NR-LETH	Mortality
2060998	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
741834	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WATER CHANGED AT 192 HOURS	Not reported	10	NR	NR	Day(s)	LC50	Mortality
2062416	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	7 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2062417	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	7 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
2064155	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2064156	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064154	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
773637	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	5 REPLICATES	Not reported	5	NR	NR	Day(s)	NOEC	Survival
118481	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2061031	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2061000	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0833	NR	NR	Day(s)	NR-LETH	Mortality
741789	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
742663	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2053816	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2053813	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2053818	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2053814	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2053819	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2061002	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.125	NR	NR	Day(s)	NR-LETH	Mortality
2053817	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2061005	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2061007	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2061010	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2061034	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.125	NR	NR	Day(s)	NR-LETH	Mortality
231537	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
231535	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231533	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231536	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231534	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2075474	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2075475	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
763487	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NOEC	Mortality
763489	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NOEC	Mortality
763488	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LOEC	Mortality
763486	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LOEC	Mortality
2152842	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2164556	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	14	NR	NR	Day(s)	LC50	Mortality
2164551	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	7	NR	NR	Day(s)	LC25	Mortality
2164548	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	14	NR	NR	Day(s)	LC10	Mortality
2164558	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	28	NR	NR	Day(s)	LC50	Mortality
2164547	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	7	NR	NR	Day(s)	LC10	Mortality
2164553	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	21	NR	NR	Day(s)	LC25	Mortality
2164549	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	21	NR	NR	Day(s)	LC10	Mortality
2164555	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	7	NR	NR	Day(s)	LC50	Mortality
2164557	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	21	NR	NR	Day(s)	LC50	Mortality
2164550	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	28	NR	NR	Day(s)	LC10	Mortality
2164552	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	14	NR	NR	Day(s)	LC25	Mortality
2164554	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 TO 6 REPLICATES, CONDUCTED IN STAND	Not reported	28	NR	NR	Day(s)	LC25	Mortality
2061030	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
738141	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	POSITIVE CONTROLS OF BIOASSAY BATTERY	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
16496	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
2076800	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	25	NR	NR	Gosner stage	LC50	Mortality
2162414	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	15	NR	NR	Day(s)	NOEC	Mortality
741673	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	UNDISSOCIATED EGGS	Not reported	7	NR	NR	Day(s) post-hat	NOEC	Survival
740725	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality
741674	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	DISSOCIATED EGGS	Not reported	0.25	NR	NR	Day(s) post-hat	NOEC	Hatch
741642	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	DISSOCIATED EGGS	Not reported	0.25	NR	NR	Day(s) post-hat	LOEC	Hatch
742661	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 1	Not reported	52	NR	NR	Day(s)	NR-ZERO	Mortality
741737	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 2	Not reported	25	NR	NR	Day(s)	NR-ZERO	Mortality
742662	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 10	Not reported	25	NR	NR	Day(s)	NR-ZERO	Mortality
741772	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 7	Not reported	32	NR	NR	Day(s)	NR-ZERO	Mortality
741735	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 6	Not reported	38	NR	NR	Day(s)	NR-ZERO	Mortality
741774	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 11	Not reported	37	NR	NR	Day(s)	NR-ZERO	Mortality
741738	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 3	Not reported	28	NR	NR	Day(s)	NR-ZERO	Mortality
741773	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	FISH IN TANKS, EXPERIMENT 8	Not reported	20	NR	NR	Day(s)	NR-ZERO	Mortality
741650	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	UNDISSOCIATED EGGS	Not reported	7	NR	NR	Day(s) post-hat	LOEC	Survival
741710	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
740689	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2152606	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES, BUCKEYE LAKE WATER	Not reported	0.0833	NR	NR	Day(s)	NR-LETH	Mortality
2055947	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	BALLASTED TANKS ON TRANSOCEANIC COM	Not reported	1.0417	NR	NR	Day(s)	NR-LETH	Mortality
2055953	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TANKS WITH RESIDUAL BALLAST ON TRANS	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2164711	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164613	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164645	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SPRING	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164646	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SPRING	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164618	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164696	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SUMMER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164695	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SUMMER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164692	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SPRING	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164693	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SPRING	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164628	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164699	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164700	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164640	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164641	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164627	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164710	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164623	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164625	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2052772	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052780	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	GRAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Survival
2052781	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	SYDENHAM RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052782	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	SYDENHAM RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Survival
2052783	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MAITLAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Survival
741564	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	EC50	Survival
2052773	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2008	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052774	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052786	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	THAMES RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Survival
2052785	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	THAMES RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Survival
741584	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	EC50	Survival
803857	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	EC50	Survival
2052779	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	GRAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052784	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	MAITLAND RIVER WATER	Not reported	1	NR	NR	Day(s)	EC20	Survival

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days)	Duration Max (Days)	Observed Duration	Endpoint	Effect Measurement
2224815	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	EC50	Survival
2052777	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052778	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052770	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2008	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052776	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Survival
2052771	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	RECONSTITUTED WATER, 2009	Not reported	1	NR	NR	Day(s)	EC50	Survival
741568	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	EC50	Survival
803860	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	EC50	Survival
741594	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	EC50	Survival
2224806	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Survival
2164655	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	0.0278	NR	NR	Day(s)	LC90	Mortality
2164658	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	0.0694	NR	NR	Day(s)	LC90	Mortality
2164654	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	0.0694	NR	NR	Day(s)	LOEC	Mortality
2164657	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	0.0556	NR	NR	Day(s)	LC90	Mortality
2164656	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	LC90	Mortality
196203	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
2210845	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
18184	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
40512	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	COMPOSITION OF WATER RPTD	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
201540	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
13417	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	8 PARAMETERS, SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
740684	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
740724	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
220765	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	1.7611	NR	NR	Day(s)	NR-LETH	Mortality
2224820	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	2	NR	NR	Day(s)	EC50	Survival
2224821	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	EC50	Survival
231519	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231583	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LC50	Mortality
231522	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
231584	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	10.875	NR	NR	Day(s)	LC50	Mortality
231582	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
231521	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231518	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231520	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
203677	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
203678	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
2154076	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, EMBRYO TOXICITY TEST	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
2165531	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	300	NR	NR	Day(s)	NOEC	Survival
2060018	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	EMBRYOS TESTED IN THE LAB, LARVAE MO\	Not reported	NR	NR	NR	Until hatch	LOEC	Survival
2060020	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	EMBRYOS TESTED IN THE LAB, LARVAE MO\	Not reported	58	NR	NR	Day(s)	NOEC	Survival
2059995	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	EMBRYOS TESTED IN THE LAB, LARVAE MO\	Not reported	NR	NR	NR	Until hatch	NOEC	Survival
2059533	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	5 REPLICATES, BOILED POND WATER	Not reported	NR	NR	NR	Until hatch	NOEC	Survival
2076801	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	25	NR	NR	Gosner stage	LC50	Mortality
741963	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	SE AND INDOOR LIGHTING APPROXIMATED	Not reported	4	NR	NR	Day(s)	LC50	Mortality
741964	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	SE AND INDOOR LIGHTING APPROXIMATED	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2165523	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	100	NR	NR	Day(s)	NOEC	Survival
2152829	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060317	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060288	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060318	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060291	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Survival
2060289	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060315	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060319	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2060292	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Survival
2060307	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060302	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality
2060309	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality
2060290	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060276	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060293	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	MATC	Survival
2060306	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
18185	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
764505	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
18186	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
741739	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2164605	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164606	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164588	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164587	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164592	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164591	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164600	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164599	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164608	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164609	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	FALL	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164603	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SPRING	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
2164602	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	SPRING	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164594	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	NOEC	Survivorship
2164595	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	WINTER	Not reported	14	NR	NR	Day(s)	LOEC	Survivorship
741589	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
741627	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
741624	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	4	NR	NR	Day(s)	LOEC	Mortality
742550	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	4	NR	NR	Day(s)	LOEC	Mortality
741596	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
742551	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
742549	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	A SEMI-STATIC SYSTEM WITH 50% OF DAILY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
141462	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2271253	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2271251	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2271252	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
2271250	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
141461	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
742574	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
6172	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
802494	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality
802495	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality
6170	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
6174	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
802493	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality
6169	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
6173	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
802503	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality
802499	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality
802492	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality
6167	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
802504	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality
802500	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality
802501	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality
802490	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality
802497	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality
6171	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
802505	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality
802496	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality
6168	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
802502	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality
802506	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality
802491	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality
2075478	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
16494	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
2061004	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2061033	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
2060335	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Survival
2060352	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
2060360	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality
2060336	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	MATC	Survival
2060333	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Survival
2060327	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060350	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
2060361	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-LETH	Mortality
2060325	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060342	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality
2060326	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060329	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060354	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality
2061036	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
205755	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	56	NR	NR	Day(s)	NOEC	Survival
202197	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
740665	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
251449	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	90	NR	NR	Day(s)	NR-LETH	Mortality
741684	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
741683	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
205757	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	90	NR	NR	Day(s)	NOEC	Survival
205758	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	90	NR	NR	Day(s)	LOEC	Survival
205754	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
205753	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	REP 2	Not reported	4	NR	NR	Day(s)	LC50	Mortality
759632	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NR-ZERO	Mortality
205752	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	REP 1	Not reported	4	NR	NR	Day(s)	LC50	Mortality
740723	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
205756	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	56	NR	NR	Day(s)	LOEC	Survival
740663	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
203282	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
202198	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	56	NR	NR	Day(s)	NOEC	Survival
202199	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	56	NR	NR	Day(s)	LOEC	Survival
2152827	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
202205	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	REPLICATE 1	Not reported	4	NR	NR	Day(s)	LC50	Mortality
202206	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	REPLICATE 2	Not reported	4	NR	NR	Day(s)	LC50	Mortality
202200	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	56	NR	NR	Day(s)	NR-ZERO	Mortality
202201	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	56	NR	NR	Day(s)	NR-LETH	Mortality
205759	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	2 REPLICATES	Not reported	90	NR	NR	Day(s)	MATC	Survival
2061009	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.5	NR	NR	Day(s)	NR-LETH	Mortality
2163188	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	NOT INFECTED WITH BACTERIAL PARASITE	Not reported	0.25	NR	NR	Day(s)	NR-LETH	Mortality
2163192	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	INFECTED WITH BACTERIAL PARASITE	Not reported	0.25	NR	NR	Day(s)	NR-LETH	Mortality
2163194	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	INFECTED WITH BACTERIAL PARASITE	Not reported	0.25	NR	NR	Day(s)	NR-LETH	Mortality
2163190	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	NOT INFECTED WITH BACTERIAL PARASITE	Not reported	0.25	NR	NR	Day(s)	NR-LETH	Mortality
2163088	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2163089	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
2163090	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality
2163087	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC20	Mortality
2162431	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Hatch

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days)	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2163112	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-3 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality
2163110	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2163109	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC20	Mortality
2163111	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	2-3 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
740693	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
741709	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
201543	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
201542	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
231546	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
231545	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231550	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231549	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231554	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231544	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231553	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231547	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231542	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231551	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231548	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231540	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231543	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231539	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231538	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231552	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231541	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
741736	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
196750	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196772	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196755	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196735	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196726	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196768	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196767	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196736	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196713	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196744	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196769	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196724	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196765	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196763	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
740694	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
759180	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
740696	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
740697	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality
196745	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196714	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196748	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196728	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196741	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196756	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196734	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196729	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196760	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196759	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196761	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196731	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196738	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196839	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
196770	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196720	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196718	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196753	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LETC	Mortality
196766	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196757	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196723	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196732	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196740	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768104	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768105	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
201560	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	33	NR	NR	Day(s)	NOEC	Survival
768072	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768073	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2152828	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
768158	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768157	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
201562	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	33	NR	NR	Day(s)	MATC	Survival
768067	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768066	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768059	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768058	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768096	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768097	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
201537	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
768128	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768127	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
196716	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196749	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196722	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196751	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196711	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196737	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196712	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196764	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196742	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196746	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196733	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196758	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196773	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196725	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196752	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196715	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196730	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LETC	Mortality
196727	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196771	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196721	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196739	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196754	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196717	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196747	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
196743	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196762	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
196719	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
768144	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768143	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768090	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768091	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2055548	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES, ADULT FATHEAD MINNOV	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2055549	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES, LARGEMOUTH BASS PRED	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2055550	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES, LARGEMOUTH BASS AND	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2055542	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4-10 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
741400	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	CONTINUOUS EXPOSURE	Not reported	7	NR	NR	Day(s)	NOEL	Survival
741744	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	24 HOUR PULSE DURATION	Not reported	4	NR	NR	Day(s)	LOEL	Survival
742666	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	24 HOUR PULSE DURATION	Not reported	4	NR	NR	Day(s)	NOEL	Survival
2163907	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Survival
2163914	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Hatch
768089	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768088	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768124	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768123	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768163	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768164	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768153	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768154	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768098	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768099	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768074	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768075	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767563	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LC50	Mortality
768080	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768081	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
742059	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742029	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742057	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742070	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
784793	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	PRELIMINARY TEST	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742077	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742932	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742058	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
160325	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
160324	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
68599	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
42865	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
167862	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LETC	Mortality
167861	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
14383	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
96885	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
42866	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
768114	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768113	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768108	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768107	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
201538	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	NR-LETH	Mortality
768083	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768082	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768138	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768137	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768147	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768148	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768064	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768065	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
768134	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
768133	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768117	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
768118	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
201561	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab		Not reported	33	NR	NR	Day(s)	LOEC	Survival
767566	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LC50	Mortality
96881	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
768559	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
69057	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
160323	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
42423	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
96906	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
96907	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
14389	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
2210509	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	DEFINITIVE CHRONIC, 4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Survival
768558	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
68598	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Mortality
742691	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Survival
741410	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	96 HOUR PULSE DURATION	Not reported	7	NR	NR	Day(s)	LOEL	Survival
742027	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742030	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
742026	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
231532	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	5	NR	NR	Day(s)	LC50	Mortality
231528	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231531	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231530	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231529	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
26115	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality
26116	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2060321	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060324	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060323	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2061003	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
747953	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality
741586	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.5	NR	NR	Day(s)	NOEC	Hatch
741559	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.5	NR	NR	Day(s)	NOEC	Hatch
742665	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741795	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
742664	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741756	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
741783	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741751	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
2060370	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060369	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060365	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2060367	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060362	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2060368	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2060371	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2058029	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	60.88	NR	NR	Day(s)	NOEC	Survival
2061008	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0833	NR	NR	Day(s)	NR-LETH	Mortality
2170552	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	NR-ZERO	Mortality
740692	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
740691	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
41933	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0071	NR	NR	Day(s)	NR-LETH	Mortality
41934	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.375	NR	NR	Day(s)	NR-LETH	Mortality
740686	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
740685	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2061035	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.125	NR	NR	Day(s)	NR-LETH	Mortality
2075473	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2075472	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231556	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231560	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
231561	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231559	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
231557	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
231558	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231562	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
231555	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
741781	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
84265	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NOEC	Mortality
83067	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	LOEC	Mortality
10561	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	LOEC	Mortality
84260	7647145	Sodium chloride (NaCl)	Renewal	Not Reported	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NOEC	Mortality
2061027	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	0.0417	NR	NR	Day(s)	NR-LETH	Mortality
741743	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL B	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
741788	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	ACUTE STUDY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
741742	7647145	Sodium chloride (NaCl)	Flow-through	Unmeasured	Fresh water	Lab	TRIAL A	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
161742	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	RACEWAY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
161744	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	RACEWAY	Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality
2075476	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2075477	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2152833	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
803853	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	EC50	Survival
741562	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	EC50	Survival

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days)	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
741561	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	EC50	Survival
741583	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	EC50	Survival
803850	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	EC50	Survival
2064226	7664939	Sulfuric acid	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064225	7664939	Sulfuric acid	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2064223	7664939	Sulfuric acid	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
211034	7664939	Sulfuric acid	Flow-through	Unmeasured	Fresh water	Lab	CANNULATED	Not reported	3	NR	NR	Day(s)	NR-ZERO	Mortality
67863	7681381	Sulfuric acid, Monosodium salt	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
67862	7681381	Sulfuric acid, Monosodium salt	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18178	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
18176	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18177	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18179	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
764340	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
764585	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
759286	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Mortality
759285	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LOEC	Mortality
759267	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC50	Mortality
759268	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC05	Mortality
759266	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC50	Mortality
759265	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LC50	Mortality
766604	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766435	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
766426	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767351	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
766436	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 TO 3 GENERATIONS PRE-EXPOSED TO 500	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2017050	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2017049	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017048	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Survival
2017057	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Survival
2017059	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2017058	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017040	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Survival
2017042	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
2017041	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017029	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Survival
2017030	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017031	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Survival
766228	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766227	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766225	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	7	NR	NR	Day(s)	NOEC	Mortality
766224	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	7	NR	NR	Day(s)	LOEC	Mortality
766221	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LC50	Mortality
766222	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LOEC	Mortality
766223	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	NOEC	Mortality
766226	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	7	NR	NR	Day(s)	LC50	Mortality
759078	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	LC50	Mortality
759072	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	LOEC	Mortality
759073	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	NOEC	Mortality
761596	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
767459	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
766432	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767457	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
766427	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
160330	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767456	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767412	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767375	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
766430	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767380	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767353	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
766418	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766433	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
767350	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
766428	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767411	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
766419	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	2	NR	NR	Day(s)	LC10	Mortality
766437	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 TO 3 GENERATIONS PRE-EXPOSED TO 100	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766431	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
766215	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160331	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
766429	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
766434	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767454	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
766216	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
767376	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
766576	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766609	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766554	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766567	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766580	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766565	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766607	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766556	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766720	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
766574	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766740	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD RECO	Not reported	7	NR	NR	Day(s)	NOEC	Survival
766739	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD RECO	Not reported	7	NR	NR	Day(s)	LOEC	Survival
766717	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766577	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766560	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766603	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766575	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766581	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766722	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766573	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766730	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD RECONSTITUTED WATE	Not reported	7	NR	NR	Day(s)	LOEC	Survival
766731	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD RECONSTITUTED WATE	Not reported	7	NR	NR	Day(s)	NOEC	Survival
766578	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766595	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766586	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766610	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766745	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD RECO	Not reported	7	NR	NR	Day(s)	LC50	Survival
766555	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766566	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766718	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766570	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766723	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766605	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766591	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 5.4	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766724	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766572	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766548	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766606	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766585	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766588	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 5.4	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766608	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766551	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766563	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767585	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	LOEC	Mortality
767586	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	NOEC	Mortality
767587	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	LC50	Mortality
766854	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
766592	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766726	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766748	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD RECONSTITUTED WATE	Not reported	2	NR	NR	Day(s)	LC50	Survival
766587	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766612	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766561	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766590	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 5.4	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766593	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766594	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766571	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766584	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766217	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
766218	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC10	Mortality
18144	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18145	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
84497	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767473	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
759175	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767575	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	2	NR	NR	Day(s)	NOEC	Mortality
767574	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	2	NR	NR	Day(s)	LOEC	Mortality
119467	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
767294	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767307	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767306	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 7.0	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767296	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767303	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767295	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767298	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767576	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	2	NR	NR	Day(s)	LC50	Mortality
18452	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
18147	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18453	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
18454	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
18451	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18450	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18146	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
759091	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NOEC	Mortality
759090	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LOEC	Mortality
759092	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767297	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767305	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 1.8	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767299	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 0.7	Not reported	2	NR	NR	Day(s)	LC50	Mortality
767496	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767494	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767475	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160332	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767491	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
160333	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767505	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767507	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
31684	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50*	Mortality
2064207	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	6	NR	NR	Day(s)	LC50	Mortality
2064204	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2064206	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064205	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
764940	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
764943	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
764942	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
764936	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
766638	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766642	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766639	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766712	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766716	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766618	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766713	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766641	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766616	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766625	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766633	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766631	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766640	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766644	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766627	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766617	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766624	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766619	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766714	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766715	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766629	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766710	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766623	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2017143	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	EC25	Survival
2017146	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Survival
2017113	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	EC10	Survival
2017144	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	EC50	Survival
766643	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766630	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766635	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766711	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766637	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766622	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
767601	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	4	NR	NR	Day(s)	LC50	Survival
766709	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766628	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766626	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766636	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766632	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766634	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766621	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2017145	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Survival
764945	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
764947	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
767290	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
767310	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 7.0	Not reported	4	NR	NR	Day(s)	LC50	Mortality
767293	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
767291	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
767311	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 1.8	Not reported	4	NR	NR	Day(s)	LC50	Mortality
767312	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	CA:MG MOLAR RATIO 0.7	Not reported	4	NR	NR	Day(s)	LC50	Mortality
767289	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
767599	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	4	NR	NR	Day(s)	LOEC	Survival
767600	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	4	NR	NR	Day(s)	NOEC	Survival
759093	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
759094	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LOEC	Mortality
759095	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NOEC	Mortality
767292	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
766440	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
766446	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LOEC	Survival
766416	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	4	NR	NR	Day(s)	LC10	Mortality
766367	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC10	Mortality
766441	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LOEC	Survival
766438	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LOEC	Survival
766365	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
766439	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LOEC	Survival
766444	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NOEC	Survival
766443	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LOEC	Survival
766442	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LOEC	Survival
766415	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766445	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	NOEC	Survival
766659	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766663	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766664	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
766658	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766666	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766662	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766657	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766656	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766665	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	2	NR	NR	Day(s)	LC50	Mortality
766661	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	2	NR	NR	Day(s)	LC50	Mortality
200196	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
40509	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	COMPOSITION OF WATER REPORTED	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
40508	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	COMPOSITION OF WATER REPORTED	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
18180	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
13415	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	8 PARAMETERS, SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
126071	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
126072	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
126070	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
764588	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
18150	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18151	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
18152	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
18149	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
6211	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
41636	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
802675	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality
802668	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality
41641	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
802670	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality
802671	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC100	Mortality
6217	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
41642	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
802677	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality
802667	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality
41640	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
802664	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC0	Mortality
802665	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality
6214	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
802678	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality
6216	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
802669	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality
6215	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
41635	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
6212	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
802672	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	2	NR	NR	Day(s)	LC100	Mortality
6213	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
802663	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	1	NR	NR	Day(s)	LC0	Mortality
41637	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
802674	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC100	Mortality
802676	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC0	Mortality
41638	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
802673	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	3	NR	NR	Day(s)	LC100	Mortality
41639	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
6218	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
802666	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	2 REPLICATES	Not reported	4	NR	NR	Day(s)	LC0	Mortality
759029	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	14	NR	NR	Day(s)	NR-LETH	Mortality
2017191	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Survival
766856	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Survival
761598	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Mortality
2017213	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Survival
2017209	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Survival
2017210	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Survival
2017212	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017211	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Survival
764930	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
764935	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
764929	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2017182	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Survival
2017178	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Survival
2017181	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017180	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Survival
2017179	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Survival
764932	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2017190	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Survival
2017188	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Survival
2017189	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Survival
767594	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	LC50	Survival
759176	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
767593	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017168	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC10	Survival
2017172	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Survival
2017171	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Survival
2017170	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC50	Survival
2017169	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	EC25	Survival
764934	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2163930	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Hatch
2163923	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Survival
160335	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
160334	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
160336	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
764928	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2017192	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	3 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Survival
767592	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	LOEC	Survival
18153	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18148	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2017315	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Survival
2017301	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	EC10	Survival
2017306	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	LOEC	Survival
2017304	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	EC50	Survival
2017313	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	EC25	Survival
2017316	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	LOEC	Survival
2017314	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	EC50	Survival
2017312	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	EC10	Survival
747208	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality
2017303	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	EC25	Survival
2017305	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Survival
766706	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 2.33	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766705	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766363	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
766707	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 5.4	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766364	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC10	Mortality
766703	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766704	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality
766708	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	CA:MG RATIO 1.46	Not reported	4	NR	NR	Day(s)	LC50	Mortality
161740	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	RACEWAY	Not reported	0.5	NR	NR	Day(s)	NR-ZERO	Mortality
161739	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	RACEWAY	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2052622	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab	FISH EXPOSED IN PLASTIC BAGS DURING TR	Not reported	0.1667	NR	NR	Day(s)	NR-ZERO	Mortality
160500	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767397	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767360	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767399	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	NR	1	2	Day(s)	NR-ZERO	Mortality
767463	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160498	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767462	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767317	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160497	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2148118	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, TEST SOLUTION RENEWED E	Not reported	60	NR	NR	Day(s)	NOEC	Survival
2148117	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, TEST SOLUTION RENEWED E	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
2148116	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, TEST SOLUTION RENEWED E	Not reported	60	NR	NR	Day(s)	NOEC	Survival
2148115	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	4 REPLICATES, TEST SOLUTION RENEWED E	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
759021	7778189	Sulfuric acid, Calcium salt (1:1)	Flow-through	Measured	Fresh water	Lab	CACL2 FOR HARDNESS CONTROL	Not reported	42	NR	NR	Day(s)	NOEC	Survival
767483	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767467	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160499	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767469	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767484	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
759462	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
759465	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
2063748	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2063749	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2063750	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
196198	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
26240	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab	8 PARAMETERS,SEE PAPER	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
759023	7778189	Sulfuric acid, Calcium salt (1:1)	Flow-through	Measured	Fresh water	Lab	TWO REPLICATES, CACL2 FOR HARDNESS C	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
759024	7778189	Sulfuric acid, Calcium salt (1:1)	Flow-through	Measured	Fresh water	Lab	TWO REPLICATES, CACL2 FOR HARDNESS C	Not reported	NR	30	60	Day(s) post-hat	NOEC	Survival
160503	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
160502	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767512	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
767515	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
160501	7778189	Sulfuric acid, Calcium salt (1:1)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
749018	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
748589	7778805	Sulfuric acid dipotassium salt	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	213.08	NR	NR	Day(s)	NR-LETH	Mortality
748332	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC90	Mortality
767446	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767354	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
767421	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767385	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767443	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767357	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767427	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767390	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160505	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160504	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767387	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767437	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767432	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUTE	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767382	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
2147175	7778805	Sulfuric acid dipotassium salt	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
759765	7778805	Sulfuric acid dipotassium salt	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
2147174	7778805	Sulfuric acid dipotassium salt	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
767501	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767482	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767477	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
767508	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767480	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
767479	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160506	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
767503	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
767510	7778805	Sulfuric acid dipotassium salt	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160507	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
114033	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
759759	7778805	Sulfuric acid dipotassium salt	Renewal	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
40514	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab	WATER COMPOSITION RPTD, AERATION	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
160510	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
160509	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160508	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
748333	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC90	Mortality
748588	7778805	Sulfuric acid dipotassium salt	Static	Unmeasured	Fresh water	Lab	3 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
22954	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
22953	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
22952	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50*	Mortality
167635	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
160513	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
768177	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768178	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768277	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160514	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768176	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
22960	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	CA, MG, NA+K, SULPHATE, CL2	Not reported	2	NR	NR	Day(s)	LC50	Mortality
160516	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
25475	7786303	Magnesium chloride	Static	Not Reported	Fresh water	Lab		Not reported	2.0833	NR	NR	Day(s)	LC50	Mortality
25474	7786303	Magnesium chloride	Static	Not Reported	Fresh water	Lab		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality
25476	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality
768454	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768393	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768501	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768392	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768395	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768451	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160515	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
768390	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768456	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768503	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2064007	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2064009	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
2064004	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2054796	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2054792	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality
2054794	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2054791	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
2054795	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2054793	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
121880	7786303	Magnesium chloride	Renewal	Unmeasured	Fresh water	Lab		Not reported	28	NR	NR	Day(s)	LC50	Mortality
22955	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50*	Mortality
22957	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
22956	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	30	NR	NR	Day(s)	LC50*	Mortality
160517	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
160518	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160519	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
740705	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NOEC	Hatch
740706	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NOEC	Hatch
741940	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	3.5	NR	NR	Day(s)	NOEC	Survival
741939	7786303	Magnesium chloride	Static	Measured	Fresh water	Lab		Not reported	3.5	NR	NR	Day(s)	NOEC	Survival
2163065	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Not reported	0.4167	NR	NR	Day(s)	NR-ZERO	Mortality
2064918	7786303	Magnesium chloride	Renewal	Unmeasured	Fresh water	Lab	DEIONIZED WATER	Not reported	14	NR	NR	Day(s)	NR-ZERO	Mortality
2173768	7786303	Magnesium chloride	Renewal	Unmeasured	Fresh water	Lab	FETAX	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
2173772	7786303	Magnesium chloride	Renewal	Unmeasured	Fresh water	Lab	FETAX	Not reported	4	NR	NR	Day(s)	NR-ZERO	Mortality
741341	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CULTURE MEDIUM APPLICATION	Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741319	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CULTURE MEDIUM APPLICATION	Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741323	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CULTURE MEDIUM APPLICATION	Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741305	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CULTURE MEDIUM APPLICATION	Not reported	NR	NR	NR	Emergence	NR-ZERO	Mortality
742028	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CULTURE MEDIUM APPLICATION	Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
741324	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CULTURE MEDIUM APPLICATION	Not reported	NR	NR	NR	Emergence	NR-LETH	Mortality
2147187	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NR-ZERO	Mortality
167631	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2152764	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
767342	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160619	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
160620	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768180	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768283	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768183	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUT	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2152765	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	LC50	Mortality
768284	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768181	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768182	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUT	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768286	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	UNFED, MODERATELY HARD RECONSTITUT	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
742988	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2057502	10043524	Calcium chloride (CaCl2)	Flow-through	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NR-ZERO	Mortality
44241	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	CA, MG, NA+K, SO4, CL2	Not reported	2	NR	NR	Day(s)	LC50	Mortality
768399	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160622	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768396	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768462	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
2152738	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LC50	Mortality
2152737	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2152736	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	NR-ZERO	Mortality
18686	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18685	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18688	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4.2	NR	NR	Day(s)	LC50	Mortality
18684	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2.0833	NR	NR	Day(s)	LC50	Mortality
18683	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.0417	NR	NR	Day(s)	LC50	Mortality
18687	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
742079	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
768457	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768402	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768460	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
768398	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
160621	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
32466	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50*	Mortality
119478	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50*	Mortality
2153763	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153676	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.25	NR	NR	Day(s)	NR-LETH	Mortality
740759	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality
740760	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
740732	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153700	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153697	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-LETH	Mortality
740761	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-LETH	Mortality
2063733	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
2063726	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2063735	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
740765	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
740777	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
740778	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
19522	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	WATER CHEM PARAMETERS RPTD	Not reported	5	NR	NR	Day(s)	LC50*	Mortality
741717	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality
196145	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Survival
40507	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	COMPOSITION WATER CHEM RPTD	Not reported	4	NR	NR	Day(s)	LC50*	Mortality
2153801	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality
126054	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
126052	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
126053	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
18689	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
2054808	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LC50	Mortality
2054805	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	1	NR	NR	Day(s)	LC50	Mortality
2054806	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	2	NR	NR	Day(s)	LC50	Mortality
2054807	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	3	NR	NR	Day(s)	LC50	Mortality
2054803	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	NOEC	Mortality
2054804	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	4 REPLICATES	Not reported	4	NR	NR	Day(s)	LOEC	Mortality
18693	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
18691	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
18690	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
18692	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	LC50	Mortality
2153798	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality
740767	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
184730	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	RECIRCULATING	Not reported	42	NR	NR	Day(s)	NR-ZERO	Mortality
2152710	10043524	Calcium chloride (CaCl2)	Flow-through	Measured	Fresh water	Lab		Not reported	5.4167	NR	NR	Day(s)	NR-ZERO	Mortality
759027	10043524	Calcium chloride (CaCl2)	Flow-through	Unmeasured	Fresh water	Lab	TWO REPLICATES, NO CONTROL DATA AFTE	Not reported	NR	NR	NR	Until hatch	NOEC	Hatch
759028	10043524	Calcium chloride (CaCl2)	Flow-through	Unmeasured	Fresh water	Lab	TWO REPLICATES, NO CONTROL DATA AFTE	Not reported	NR	30	60	Day(s) post-hat	NOEC	Survival
99472	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
99476	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
99478	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
61681	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
99477	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
61680	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160623	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	LC50	Mortality
741718	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
2153836	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality
2153835	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality
768541	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
768539	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab	FED, MODERATELY HARD RECONSTITUTED \	Not reported	1	NR	NR	Day(s)	NR-LETH	Mortality
160624	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	LC50	Mortality
160625	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
742032	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
742060	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	REP 3	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
742031	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	REP 7	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
740738	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-LETH	Mortality
742933	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	REP 10	Not reported	4	NR	NR	Day(s)	NR-LETH	Mortality
742078	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	4	NR	NR	Day(s)	LC50	Mortality
742890	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab		Not reported	3.5	NR	NR	Day(s)	LOEC	Survival
741711	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab		Not reported	3.5	NR	NR	Day(s)	LOEC	Survival
741932	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NOEC	Hatch

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
740701	10043524	Calcium chloride (CaCl2)	Static	Measured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	LOEC	Hatch
740730	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	2	NR	NR	Day(s)	NR-ZERO	Mortality
55003	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0138	NR	NR	Day(s)	NR-LETH	Mortality
740744	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality
2153802	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.5	NR	NR	Day(s)	NR-ZERO	Mortality
740734	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1	NR	NR	Day(s)	NR-ZERO	Mortality
740779	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	1.125	NR	NR	Day(s)	NR-LETH	Mortality
2064902	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab	DEIONIZED WATER	Not reported	14	NR	NR	Day(s)	NR-ZERO	Mortality
2060129	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	12 TESTS	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2060130	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	12 TESTS	Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
793903	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	12	NR	NR	Day(s)	LOEL	Fecundity
761758	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Fecundity
761759	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Fecundity
17106	7447407	Potassium chloride (KCl)	Renewal	Measured	Fresh water	Lab	SEE PAPER	Not reported	21	NR	NR	Day(s)	EC50*	Reproduction, general
13816	7447407	Potassium chloride (KCl)	Renewal	Measured	Fresh water	Lab	SEE PAPER	Not reported	21	NR	NR	Day(s)	EC50*	Reproduction, general
759476	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	LOEC	Progeny counts/numb
759475	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	LOEC	Progeny counts/numb
2254703	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Linearity
2254689	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	LOEC	Motility
2254694	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	LOEC	Motility
2254764	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Beat/Cross frequency
2254701	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Velocity
2254763	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Maximum amplitude o
2254782	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Motility
2254746	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0003	NR	NR	Day(s)	LOEC	Maximum amplitude o
2255473	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0003	NR	NR	Day(s)	NOEC	Velocity
2254766	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Beat/Cross frequency
2254699	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Velocity
2254707	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0003	NR	NR	Day(s)	NOEC	Linearity
2254702	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Velocity
2254695	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0003	NR	NR	Day(s)	NOEC	Motility
2254762	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Maximum amplitude o
2254700	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Velocity
2254684	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Motility
2254691	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Motility
2254690	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Motility
2254759	7447407	Potassium chloride (KCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0003	NR	NR	Day(s)	NOEC	Maximum amplitude o
767230	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALARIA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	NOEC	Progeny counts/numb
767232	7447407	Potassium chloride (KCl)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALARIA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	NOEC	Progeny counts/numb
2153175	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TWO-FOUR REPLICATES, 9 MG:1 CA RATIO	Not reported	4	NR	NR	Day(s)	IC50	Progeny counts/numb
2153081	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	THREE REPLICATES	Not reported	4	NR	NR	Day(s)	IC10	Progeny counts/numb
2153082	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	THREE REPLICATES	Not reported	4	NR	NR	Day(s)	IC50	Progeny counts/numb
2153174	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TWO-FOUR REPLICATES, 9 MG:1 CA RATIO	Not reported	4	NR	NR	Day(s)	IC10	Progeny counts/numb
759472	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
759471	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2153176	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TWO-FOUR REPLICATES, 9 MG:1 CA RATIO	Not reported	NR	5	6	Day(s)	IC10	Progeny counts/numb
2153177	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TWO-FOUR REPLICATES, 9 MG:1 CA RATIO	Not reported	NR	5	6	Day(s)	IC50	Progeny counts/numb
2153102	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TEN REPLICATES	Not reported	NR	5	6	Day(s)	IC50	Progeny counts/numb
2153101	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Measured	Fresh water	Lab	TEN REPLICATES	Not reported	NR	5	6	Day(s)	IC10	Progeny counts/numb
767204	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALARIA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	LOEC	Progeny counts/numb
767205	7487889	Sulfuric acid magnesium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALARIA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	NOEC	Progeny counts/numb
741875	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	4.5417	NR	NR	Day(s)	NOEL	Progeny counts/numb
2152821	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	8 REPLICATES	Not reported	2	NR	NR	Day(s)	IC25	Reproduction, general
2152822	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	8 REPLICATES	Not reported	2	NR	NR	Day(s)	IC50	Reproduction, general
2152820	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	8 REPLICATES	Not reported	2	NR	NR	Day(s)	IC10	Reproduction, general
2152823	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	8 REPLICATES	Not reported	2	NR	NR	Day(s)	NOEC	Reproduction, general
2152824	7647145	Sodium chloride (NaCl)	Static	Measured	Fresh water	Lab	8 REPLICATES	Not reported	2	NR	NR	Day(s)	LOEC	Reproduction, general
759400	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	LOEC	Pregnant, Paris or Gra
759401	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Pregnant, Paris or Gra
759403	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Gamete production
767972	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767971	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767883	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767884	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767957	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767958	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766861	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766860	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767901	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767902	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767553	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	IC50	Progeny counts/numb
742896	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 4	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
741947	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 4	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
741679	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 3	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
761582	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
741938	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 6	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
767860	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767861	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767868	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767869	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766869	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766868	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
2153272	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 80 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
2153273	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 80 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
767875	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
767874	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
2152726	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	NOEL	Progeny counts/numb
2152725	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	EC50	Progeny counts/numb
2152727	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	LOEL	Progeny counts/numb
767893	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767894	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2152721	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
2152731	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
767877	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767876	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767858	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767859	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2152855	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 10 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
2152873	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 10 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
767552	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	3	NR	NR	Day(s)	IC50	Progeny counts/numb
2153276	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 160 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
2153275	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 160 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
2153278	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 320 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
2153279	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 320 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
741688	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
742568	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
741661	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
207720	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	8	NR	NR	Day(s)	EC50	Progeny counts/numb
2146818	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2146819	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
741952	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 7	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
761594	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
741936	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 5	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
761578	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761586	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
741950	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 12	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
761580	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
742564	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 1	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
741953	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 11	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
742900	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 11	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
741944	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 8	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
742898	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 8	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
741951	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 4	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
741929	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 2	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
761575	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761574	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761587	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
741937	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 5	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
742892	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 5	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
742894	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 6	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
742895	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 10	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
741957	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 2	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
742891	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 2	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
761576	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761590	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2148464	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Progeny counts/numb
2148463	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Progeny counts/numb
2148479	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Progeny counts/numb
2148480	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Progeny counts/numb
2148473	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Progeny counts/numb
2148474	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Progeny counts/numb
767853	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767852	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767956	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767955	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767850	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767851	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766862	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
766863	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767866	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767867	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766870	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
766871	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767892	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767891	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767885	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767886	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767963	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767964	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2153269	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 40 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
2153270	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 40 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
767899	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767900	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767965	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767966	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2153267	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 20 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC50	Reproduction, general
2152881	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	HARDNESS OF 20 MG/L CACO3	Not reported	7	NR	NR	Day(s)	IC25	Reproduction, general
767974	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767973	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
251022	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
251024	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
120834	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 2, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120851	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120833	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
251019	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
251014	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
741538	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	EC50	Progeny counts/numb
741566	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	9	NR	NR	Day(s)	NOEL	Progeny counts/numb
120830	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB A, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120832	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB D, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120852	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB H, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120853	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB H, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120850	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB G, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
251020	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
120836	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB J, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
251023	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
251017	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
120856	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
120849	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB F, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
251016	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
251013	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
120846	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB B, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120835	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB H, TEST 1, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120848	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB D, TEST 2, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
251010	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
251015	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
251011	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
251021	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
120847	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB D, TEST 1, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120854	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB I, TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
120831	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	LAB B, TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
251018	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 3	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
251012	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	TEST MATERIAL 1	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
742893	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 6	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
741958	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 9	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
761585	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761579	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
741948	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 11	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
761577	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761588	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761589	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761572	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761573	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
742901	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 12	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
741949	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 12	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
761584	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761591	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761595	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
741943	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 7	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
741648	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 1	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
742563	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 1	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
761583	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
761593	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761581	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
761592	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
742899	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 8	Not reported	7	NR	NR	Day(s)	IC50	Reproducing organism
742565	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 3	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
741649	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 3	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
741945	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 10	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
741946	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 10	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
741959	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 9	Not reported	7	NR	NR	Day(s)	LOEC	Reproducing organism
741942	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 9	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
742897	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab	TEST 7	Not reported	7	NR	NR	Day(s)	NOEC	Reproducing organism
761753	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Fecundity
761752	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Fecundity
741696	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	LOEC	Progeny counts/numb
741654	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	EC50	Progeny counts/numb
741659	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	CHRONIC -3 BROOD STDY	Not reported	10	NR	NR	Day(s)	NOEC	Progeny counts/numb
741546	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	NOEL	Progeny counts/numb
741530	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	THREE BROOD TEST	Not reported	10	NR	NR	Day(s)	EC50	Progeny counts/numb
2164764	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	5	NR	NR	Brood or litter	NOEC	Fecundity
2164766	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	6	NR	NR	Brood or litter	LOEC	Fecundity
2164761	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	2	NR	NR	Brood or litter	NOEC	Fecundity
2164763	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	4	NR	NR	Brood or litter	NOEC	Fecundity
2164765	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	6	NR	NR	Brood or litter	NOEC	Fecundity
2164767	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	5	NR	NR	Brood or litter	LOEC	Fecundity
2164768	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	4	NR	NR	Brood or litter	LOEC	Fecundity
2164769	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	3	NR	NR	Brood or litter	LOEC	Fecundity
2164770	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	2	NR	NR	Brood or litter	LOEC	Fecundity
2164762	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	3	NR	NR	Brood or litter	NOEC	Fecundity
2152714	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	NOEL	Progeny counts/numb
2152713	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	EC50	Progeny counts/numb
2152715	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LOEL	Progeny counts/numb
2152734	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Reproduction, general
2152733	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	IC50	Reproduction, general

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
2152735	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	LOEC	Reproduction, general
2152732	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	IC25	Reproduction, general
2164729	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Fecundity
2164728	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	21	NR	NR	Day(s)	LOEC	Fecundity
201550	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
201552	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	MATC	Progeny counts/numb
201549	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	MATC	Fecundity
201548	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	LOEC	Fecundity
201547	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Fecundity
201551	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	LOEC	Progeny counts/numb
2160498	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	10 REPLICATES, SALINITY ACCLIMATION, CO	Egg	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
773634	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	5 REPLICATES	Egg	56	NR	NR	Day(s)	NOEC	Biomass
773635	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	5 REPLICATES	Not reported	56	NR	NR	Day(s)	NOEC	Fecundity
2152784	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC50	Reproduction, general
2152783	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC25	Reproduction, general
2152786	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	LOEC	Reproduction, general
2152785	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Reproduction, general
2163917	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2163920	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2163918	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	NR	1	21	Day(s)	NOEC	Progeny counts/numb
2163919	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2163916	7647145	Sodium chloride (NaCl)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Spawning frequency
2254781	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Motility
2254792	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Linearity
2254801	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Velocity
2254784	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Motility
2254788	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	LOEC	Motility
2254793	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Linearity
2254797	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	LOEC	Velocity
2254804	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Maximum amplitude o
2254803	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Maximum amplitude o
2254798	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Velocity
2254785	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Motility
2254805	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Maximum amplitude o
2254789	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Motility
2254802	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Maximum amplitude o
2254800	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Velocity
2254810	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Beat/Cross frequency
2254813	7647145	Sodium chloride (NaCl)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Beat/Cross frequency
767224	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALARIA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	NOEC	Progeny counts/numb
767225	7647145	Sodium chloride (NaCl)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALARIA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	LOEC	Progeny counts/numb
2152796	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC10	Reproduction, general
2152810	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	LOEC	Reproduction, general
2152808	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC50	Reproduction, general
2152807	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	IC25	Reproduction, general
2152809	7647145	Sodium chloride (NaCl)	Renewal	Measured	Fresh water	Lab	4 REPLICATES	Not reported	28	NR	NR	Day(s)	NOEC	Reproduction, general
2153137	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TWO REPLICATES	Not reported	4	NR	NR	Day(s)	IC10	Progeny counts/numb
759367	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	80	NR	NR	Day(s)	NOEC	Gamete production
2148468	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Progeny counts/numb
2148476	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Progeny counts/numb
2148475	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Progeny counts/numb
2148470	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC25	Progeny counts/numb
2148469	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Progeny counts/numb
759076	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	IC25	Reproductive success (
759077	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	IC50	Reproductive success (
759074	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	LOEC	Reproductive success (
759075	7757826	Sulfuric acid sodium salt (1:2)	Static	Measured	Fresh water	Lab		Not reported	3	NR	NR	Brood or litter	NOEC	Reproductive success (
2017032	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
761597	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
2148467	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	10 REPLICATES	Not reported	NR	6	7	Day(s)	IC50	Progeny counts/numb
2017033	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2017036	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC10	Progeny counts/numb
2017034	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
2017035	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC25	Progeny counts/numb
2017043	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
2017044	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2017047	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC10	Progeny counts/numb
2017046	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC25	Progeny counts/numb
766735	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD RECONSTITUTED WATE	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766734	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	MODERATELY HARD RECONSTITUTED WATE	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
766738	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD RECO	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766737	7757826	Sulfuric acid sodium salt (1:2)	Static	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD RECO	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
766855	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
767589	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	IC25	Progeny counts/numb
767588	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	IC50	Progeny counts/numb
767590	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
767591	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766354	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	3	NR	NR	Generation	LOEC	Progeny counts/numb
766229	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
766344	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	8	NR	NR	Day(s)	LOEC	Progeny counts/numb
766355	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	4	NR	NR	Generation	LOEC	Progeny counts/numb
766230	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
766231	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	REFORMULATED MODERATELY HARD WATE	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766351	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	2	NR	NR	Generation	LOEC	Progeny counts/numb
766356	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	5	NR	NR	Generation	LOEC	Progeny counts/numb

Result Number	CAS Number	Chemical Name	Exposure Type	Chemical Analysis	Media Type	Test Location	Experimental Design	Response Site	Duration Mean	Duration Min (Days	Duration Max (Days)	Observed Durat	Endpoint	Effect Measurement
766232	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
766233	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
766234	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	MODERATELY HARD WATER	Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
2017051	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
2017054	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC25	Progeny counts/numb
2017053	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
2017055	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC10	Progeny counts/numb
2017052	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2017061	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Progeny counts/numb
2017063	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC25	Progeny counts/numb
2017064	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC10	Progeny counts/numb
2017062	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
2017060	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Progeny counts/numb
2017045	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Progeny counts/numb
761751	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Fecundity
761750	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Fecundity
786725	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
786731	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
786730	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
786726	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
786727	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
786729	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Time to first progeny
786728	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Unmeasured	Fresh water	Lab	FED ALGAE, ANKISTRODESMUS CONVOLUTI	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2017147	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	EC10	Progeny counts/numb
2017150	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	NOEC	Progeny counts/numb
2017151	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	LOEC	Progeny counts/numb
2017148	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	EC25	Progeny counts/numb
2017149	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	4 REPLICATES, SEDIMENT	Not reported	14	NR	NR	Day(s)	EC50	Progeny counts/numb
767570	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Viability
767571	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Viability
767573	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK WATER	Not reported	7	NR	NR	Day(s)	EC50	Viability
767572	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab	TREPANIER CREEK DILUTION WATER	Not reported	7	NR	NR	Day(s)	EC25	Viability
759086	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Viability
759088	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC25	Viability
759089	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	EC50	Viability
759087	7757826	Sulfuric acid sodium salt (1:2)	Renewal	Measured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Viability
2163934	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	NR	1	21	Day(s)	NOEC	Progeny counts/numb
2163936	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2163933	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2163935	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
2163932	7757826	Sulfuric acid sodium salt (1:2)	Flow-through	Measured	Fresh water	Lab	3 REPLICATES	Not reported	21	NR	NR	Day(s)	NOEC	Spawning frequency
759464	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
759022	7778189	Sulfuric acid, Calcium salt (1:1)	Flow-through	Measured	Fresh water	Lab	CACL2 FOR HARDNESS CONTROL	Not reported	42	NR	NR	Day(s)	NOEC	Progeny counts/numb
759463	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
759484	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Measured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	NOEC	Progeny counts/numb
767210	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALAREA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	NOEC	Progeny counts/numb
767211	7778189	Sulfuric acid, Calcium salt (1:1)	Renewal	Unmeasured	Fresh water	Lab	BIOMPHALAREA ALEXANDRINA PRE-EXPOSE	Not reported	98	NR	NR	Day(s)	LOEC	Progeny counts/numb
2153133	7786303	Magnesium chloride	Renewal	Measured	Fresh water	Lab	TWO REPLICATES	Not reported	4	NR	NR	Day(s)	IC10	Progeny counts/numb
22951	7786303	Magnesium chloride	Renewal	Measured	Fresh water	Lab	SEE PAPER	Not reported	21	NR	NR	Day(s)	EC50*	Reproduction, general
2148185	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Sperm	0	NR	NR	Day(s)	LOEC	Motility
2148186	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Sperm	0.0417	NR	NR	Day(s)	NOEC	Motility
2148187	7786303	Magnesium chloride	Static	Unmeasured	Fresh water	Lab		Sperm	0	NR	NR	Day(s)	NOEC	Motility
2152768	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	LOEL	Progeny counts/numb
2152767	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	NOEL	Progeny counts/numb
2152766	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	9	NR	NR	Day(s)	EC50	Progeny counts/numb
761756	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	LOEC	Fecundity
761757	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	7	NR	NR	Day(s)	NOEC	Fecundity
2148354	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab	3 REPLICATES OF DOSED, 2 REPLICATES OF (	Not reported	NR	7	42	Day(s)	LOEC	Progeny counts/numb
48480	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	21	NR	NR	Day(s)	EC50*	Reproduction, genera
2152741	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	LOEL	Progeny counts/numb
2152740	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	NOEL	Progeny counts/numb
2152739	10043524	Calcium chloride (CaCl2)	Renewal	Unmeasured	Fresh water	Lab		Not reported	10	NR	NR	Day(s)	EC50	Progeny counts/numb
2148178	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Sperm	0.0417	NR	NR	Day(s)	LOEC	Motility
2148142	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Sperm	0.0417	NR	NR	Day(s)	NOEC	Motility
2148177	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Sperm	0	NR	NR	Day(s)	LOEC	Motility
2148149	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	BUFFERED TAP WATER	Sperm	0.0417	NR	NR	Day(s)	NOEC	Motility
2148148	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab	BUFFERED TAP WATER	Sperm	0.0417	NR	NR	Day(s)	LOEC	Motility
2148139	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Sperm	0	NR	NR	Day(s)	LOEC	Motility
2148141	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Sperm	0.0417	NR	NR	Day(s)	LOEC	Motility
2148137	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Sperm	0	NR	NR	Day(s)	NOEC	Motility
2254841	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Linearity
2254825	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Motility
2254852	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Velocity
2254826	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0003	NR	NR	Day(s)	NOEC	Motility
2254842	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Velocity
2254853	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Velocity
2254861	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0002	NR	NR	Day(s)	NOEC	Beat/Cross frequency
2254847	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Velocity
2254814	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Motility
2254817	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	LOEC	Motility
2254859	10043524	Calcium chloride (CaCl2)	Static	Unmeasured	Fresh water	Lab		Not reported	0.0001	NR	NR	Day(s)	NOEC	Beat/Cross frequency

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
793900		Total		800000		NR		NR	ug/L					
793901		Total		690000		NR		NR	ug/L					
2060109		Total		500000		NR		NR	ug/L					
2060110		Total		NR		593000		625000	ug/L					
2060142		Total		NR		440000		625000	ug/L					
2060141		Total		NR		250000		500000	ug/L					
718597	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		700000		1200000	ug/L					
718595	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		500000		2000000	ug/L					
718596	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		1131000		2381000	ug/L					
728144	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		1000000		4000000	ug/L					
96887	MSMT/SUBCHRONIC VALUE, AVE FINAL DRY	Total		707000		NR		NR	ug/L					
43171	MSMT/AVE FINAL DRY WT///	Total		500000		NR		NR	ug/L					
96886	MSMT/AVE FINAL DRY WT///	Total		500000		NR		NR	ug/L					
96891	MSMT/AVE FINAL DRY WT///	Total		250000		NR		NR	ug/L					
96893	MSMT/AVE FINAL DRY WT///	Total		500000		NR		NR	ug/L					
761771		Total		300000		NR		NR	ug/L					
761770		Total		1000000		NR		NR	ug/L					
96897	MSMT/AVE FINAL DRY WT///	Total		500000		NR		NR	ug/L					
96894	MSMT/SUBCHRONIC VALUE, AVE FINAL DRY	Total		353000		NR		NR	ug/L					
96902	MSMT/AVE FINAL DRY WT///	Total		500000		NR		NR	ug/L					
43166	MSMT/AVE FINAL DRY WT///	Total		500000		NR		NR	ug/L					
729236		Formulation		4000000		NR		NR	ug/L					
718611		Formulation		2000000		NR		NR	ug/L					
718612	MSMT/RVALUE/RANGED DATA AS AUTHOR	Formulation		NR		2409000		2582000	ug/L					
2154061		Total		300000		NR		NR	ug/L					
2154065		Total		900000		NR		NR	ug/L					
759445		Total		1900000		NR		NR	ug/L					
759439		Total		2500000		NR		NR	ug/L					
759438		Total		2700000		NR		NR	ug/L					
759418		Total		16000000		NR		NR	ug/L					
759397	MSMT/COMBINED THREE TESTS/	Total		16000000		NR		NR	ug/L					
759421	ly)	Total		16000000		NR		NR	ug/L					
759437	MSMT/REPLICATE 2///	Total		1300000		NR		NR	ug/L					
759444		Total		2200000		NR		NR	ug/L					
759436	MSMT/REPLICATE 2///	Total		1900000		NR		NR	ug/L					
2152812		Total		2590000		2118000		2590000	ug/L					
2152813		Total		3047000		2732000		3047000	ug/L					
2152815		Total		3960000		NR		NR	ug/L					
2152811		Total		2316000		NR		NR	ug/L					
2152814		Total		2133000		NR		NR	ug/L					
201556		Total		441000		NR		NR	ug/L					
2160501	MSMT/BODY WIDTH TO BODY LENGTH RAT	Total		600000		NR		NR	ug/L					
2160499	MSMT/BODY WIDTH TO BODY LENGTH RAT	Total		400000		NR		NR	ug/L					
201555		Total		314000		NR		NR	ug/L					
201557	MSMT/CHRONIC VALUE///	Total		372000		NR		NR	ug/L					
748411		Total		108000		NR		NR	ug/L					
773639		Formulation		100000		NR		NR	ug/L					
773638		Formulation		100000		NR		NR	ug/L					
2152819		Total		4237000		NR		NR	ug/L					
2152817		Total		2298000		1852000		2937000	ug/L					
2152816		Total		1705000		440000		1907000	ug/L					
2152818		Total		2210000		NR		NR	ug/L					
2164559	MSMT/DRY WEIGHT/	Total		421000		217000		818000	ug/L					
2162413		Total		2000000		400000		2000000	ug/L					
741641	MSMT/INITIAL WET WEIGHT /	Total		4		NR		NR	ug/L					
741652	MSMT/WET WEIGHT GAIN, STATISTICALLY S	Total		2		NR		NR	ug/L					
741651	MSMT/WET WEIGHT GAIN, STATISTICALLY S	Total		4		NR		NR	ug/L					
2165532		Total		48000		NR		NR	ug/L					
2165533		Total		750000		NR		NR	ug/L					
2060023		Total		945000		NR		NR	ug/L					
2165525		Total		750000		NR		NR	ug/L					
2154068		Total		900000		NR		NR	ug/L					
2165524		Total		750000		NR		NR	ug/L					
741597		Total		10000000		NR		NR	ug/L					
741576		Total		5000000		NR		NR	ug/L					
741623	MSMT/EFFECTS FOR DOSES >= 15 G/L NOT	Total		10000000		NR		NR	ug/L					
202204	MSMT/HIGHEST CONC NOT ANALYZED DUE	Total		1924000		NR		NR	ug/L					
741685	MSMT/ALSO REPORTED, LENGTH/	Total		4560000		NR		NR	ug/L					
251448	MSMT/HIGHEST CONC NOT ANALYZED DUE	Active ingredient		1324000		NR		NR	ug/L					
251447	MSMT/SWIM UP, HIGHEST CONC NOT ANA	Active ingredient		1324000		NR		NR	ug/L					
251464		Total		3917000		NR		NR	ug/L					
251446	MSMT/SWIM UP, HIGHEST CONC NOT ANA	Active ingredient		643000		NR		NR	ug/L					
2152749		Total		1104000		NR		NR	ug/L					
2152748		Total		1559000		1362000		1679000	ug/L					
2152747		Total		1174000		733000		1344000	ug/L					
2152750		Total		2327000		NR		NR	ug/L					
202202		Total		1356000		NR		NR	ug/L					
202203	MSMT/HIGHEST CONC NOT ANALYZED DUE	Total		955000		NR		NR	ug/L					
2163091		Total		4500000		NR		NR	ug/L					
761549		Total		1000000		NR		NR	ug/L					
761548		Total		1360000		NR		NR	ug/L					
761567		Total		500000		NR		NR	ug/L					
784790		Total		0.4		NR		NR	%					
761560		Total		1000000		NR		NR	ug/L					
761555		Total		1000000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean(	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
761550		Total		1000000		NR		NR	ug/L					
761564		Total		1000000		NR		NR	ug/L					
784789		Total		0.4		NR		NR	%					
761558		Total		1330000		NR		NR	ug/L					
761565		Total		1730000		NR		NR	ug/L					
761553		Total		1090000		NR		NR	ug/L					
761552		Total		1000000		NR		NR	ug/L					
761568		Total		1000000		NR		NR	ug/L					
761556		Total		1000000		NR		NR	ug/L					
761566		Total		940000		NR		NR	ug/L					
761569		Total		1470000		NR		NR	ug/L					
761561		Total		1020000		NR		NR	ug/L					
761563		Total		1000000		NR		NR	ug/L					
761557		Total		1430000		NR		NR	ug/L					
761551		Total		1610000		NR		NR	ug/L					
761562		Total		1090000		NR		NR	ug/L					
761571		Total		1000000		NR		NR	ug/L					
761554		Total		1930000		NR		NR	ug/L					
761570		Total		2070000		NR		NR	ug/L					
14424	MSMT/AVE FINAL DRY WT///	Total		4000000		NR		NR	ug/L					
42862	MSMT/AVE FINAL DRY WT///	Total		4000000		NR		NR	ug/L					
14380	MSMT/AVE FINAL DRY WT///	Total		4000000		NR		NR	ug/L					
42867	MSMT/AVE FINAL DRY WT///	Total		4000000		NR		NR	ug/L					
96882	MSMT/AVE FINAL DRY WT///	Total		4000000		NR		NR	ug/L					
108590	MSMT/AVE FINAL DRY WT///	Total		4000000		NR		NR	ug/L					
768151		Total		2500000		NR		NR	ug/L					
768152		Total		1250000		NR		NR	ug/L					
768129		Total		2500000		NR		NR	ug/L					
768130		Total		1250000		NR		NR	ug/L					
768092		Total		2500000		NR		NR	ug/L					
768093		Total		1250000		NR		NR	ug/L					
768111		Total		2500000		NR		NR	ug/L					
768112		Total		1250000		NR		NR	ug/L					
768142		Total		1250000		NR		NR	ug/L					
768141		Total		2500000		NR		NR	ug/L					
768162		Total		2500000		NR		NR	ug/L					
768161		Total		5000000		NR		NR	ug/L					
768087		Total		2500000		NR		NR	ug/L					
768086		Total		5000000		NR		NR	ug/L					
768094		Total		2500000		NR		NR	ug/L					
768095		Total		1250000		NR		NR	ug/L					
768149		Total		2500000		NR		NR	ug/L					
768150		Total		1250000		NR		NR	ug/L					
768079		Total		2500000		NR		NR	ug/L					
768078		Total		5000000		NR		NR	ug/L					
768160		Total		1250000		NR		NR	ug/L					
768159		Total		2500000		NR		NR	ug/L					
768084		Total		2500000		NR		NR	ug/L					
768085		Total		1250000		NR		NR	ug/L					
768077		Total		1250000		NR		NR	ug/L					
768076		Total		2500000		NR		NR	ug/L					
768140		Total		1250000		NR		NR	ug/L					
768139		Total		2500000		NR		NR	ug/L					
2152753		Total		958000		700000		1582000	ug/L					
2152752		Total		704000		486000		973000	ug/L					
2152754		Total		558000		NR		NR	ug/L					
2152755		Total		1058000		NR		NR	ug/L					
768070		Total		2500000		NR		NR	ug/L					
768071		Total		1250000		NR		NR	ug/L					
768069		Total		250000		NR		NR	ug/L					
768068		Total		2500000		NR		NR	ug/L					
768119		Total		5000000		NR		NR	ug/L					
768120		Total		2500000		NR		NR	ug/L					
768109		Total		2500000		NR		NR	ug/L					
768110		Total		1250000		NR		NR	ug/L					
741831		Total		2200000		NR		NR	ug/L					
741780		Total		1140000		NR		NR	ug/L					
741815		Total		860000		NR		NR	ug/L					
742694		Total		210000		NR		NR	ug/L					
741814	MSMT/CONC/ AVERAGE 7 DAY CONCENTRA	Total		2000000		NR		NR	ug/L					
761559		Total		1000000		NR		NR	ug/L					
761764		Total		1000000		NR		NR	ug/L					
761765		Total		500000		NR		NR	ug/L					
2163911		Dissolved		25430		NR		NR	ug/L					
2163912	MSMT/FORK LENGTH/	Dissolved		25430		NR		NR	ug/L					
2163908		Dissolved		25430		NR		NR	ug/L					
768103		Total		1250000		NR		NR	ug/L					
768102		Total		2250000		NR		NR	ug/L					
768131		Total		2500000		NR		NR	ug/L					
768132		Total		1250000		NR		NR	ug/L					
768122		Total		1250000		NR		NR	ug/L					
768121		Total		2500000		NR		NR	ug/L					
768101		Total		2500000		NR		NR	ug/L					
768100		Total		5000000		NR		NR	ug/L					
768061		Total		1250000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (Sta	Conc 2 Units (Standa	Application Rate	Application Rate Units
768060		Total		2500000		NR		NR	ug/L					
768062		Total		10000000		NR		NR	ug/L					
768063		Total		5000000		NR		NR	ug/L					
748412		Total		108000		NR		NR	ug/L					
747196		Total		284000		NR		NR	ug/L					
747204		Total		284000		NR		NR	ug/L					
2058030		Total		1500000		NR		NR	ug/L					
2164834	nly)	Total		NR		2130000		8540000	ug/L					
2164835		Total		NR		2130000		8540000	ug/L					
84264	MSMT/LENGTH///	Total	>	7000		NR		NR	ug/L					
84263	MSMT/WIDTH///	Total		2700		NR		NR	ug/L					
60460	MSMT/WIDTH///	Total		7000		NR		NR	ug/L					
10560	MSMT/LENGTH///	Total	>	7000		NR		NR	ug/L					
60461	MSMT/LENGTH///	Total	>	7000		NR		NR	ug/L					
83065	MSMT/WIDTH///	Total		4000		NR		NR	ug/L					
10559	MSMT/WIDTH///	Total		3500		NR		NR	ug/L					
83066	MSMT/LENGTH///	Total	>	7000		NR		NR	ug/L					
759372		Total		1070000		NR		NR	ug/L					
759371		Total		1400000		NR		NR	ug/L					
759332	MSMT/COMBINED THREE TESTS/	Total		6000000		NR		NR	ug/L					
759386	MSMT/REPLICATE 2///	Total		2530000		NR		NR	ug/L					
759387	MSMT/REPLICATE 2///	Total		1900000		NR		NR	ug/L					
759374		Total		6000000		NR		NR	ug/L					
759373		Total		6000000		NR		NR	ug/L					
759388	ly)	Total		6000000		NR		NR	ug/L					
759385	ly)	Total		6000000		NR		NR	ug/L					
765903	MSMT/SOFT TISSUE WEIGHT TO SHELL WEI	Total		1500000		NR		NR	ug/L					
765901		Total		1500000		NR		NR	ug/L					
765902	ly)	Total		1500000		NR		NR	ug/L					
765900	ly)	Total		1500000		NR		NR	ug/L					
2163928	MSMT/FORK LENGTH/	Dissolved		101370		NR		NR	ug/L					
2163924		Dissolved		101370		NR		NR	ug/L					
767596	ly)	Total		2254900		2010720		2677820	ug/L					
2163927		Dissolved		101370		NR		NR	ug/L					
761763		Total	<	220000		NR		NR	ug/L					
761599		Total	>	1381000		NR		NR	ug/L					
767595	ly)	Total		3449810		NR		NR	ug/L					
767597	ly)	Total		3650000		NR		NR	ug/L					
767598	ly)	Total		1060000		NR		NR	ug/L					
761762		Total		220000		NR		NR	ug/L					
766857		Total		1300900		NR		NR	ug/L					
2017310		Total		1560000		NR		NR	ug/L					
2017309		Total		1853000		1646000		2082000	ug/L					
2017307		Total		1950000		NR		NR	ug/L					
2017311		Total		1342000		NR		NR	ug/L					
2017321		Total		1252000		NR		NR	ug/L					
2017308		Total		978000		NR		NR	ug/L					
2017320		Total		1348000		NR		NR	ug/L					
2017319		Total		1510000		1217000		2167000	ug/L					
2017317		Total		1925000		NR		NR	ug/L					
2017318		Total		1075000		NR		NR	ug/L					
747209		Total		343000		NR		NR	ug/L					
747215		Total		343000		NR		NR	ug/L					
759025		Total		732000		NR		NR	ug/L					
2173770		Total		6200		NR		NR	umol/L					
759026		Total		850000		NR		NR	ug/L					
761769		Total		1410000		NR		NR	ug/L					
761768		Total	>	1410000		NR		NR	ug/L					
2084608		Total		662000		587000		740000	ug/L					
2084613		Total		1534000		1400000		1661000	ug/L					
116971		Total		76000		54000		112000	ug/L					
2084590		Total		355000		NR		NR	ug/L					
15729		Total		390000		NR		NR	ug/L					
23442		Total		188000*		NR		NR	ug/L					
24311		Total		350000*		NR		NR	ug/L					
2745		Total		251000*		NR		NR	ug/L					
15730		Total		210000		NR		NR	ug/L					
15731		Total		280000		NR		NR	ug/L					
764342		Total		2600000		NR		NR	ug/L					
764344		Total		2000000		NR		NR	ug/L					
764560		Total		1800000		NR		NR	ug/L					
764348		Total		1000000		NR		NR	ug/L					
764346		Total		1200000		NR		NR	ug/L					
764556		Total		2000000		NR		NR	ug/L					
764558		Total		1200000		NR		NR	ug/L					
187927		Total		29960000		NR		NR	ug/L					
187925		Total		29839000		NR		NR	ug/L					
187921		Total		41560000		NR		NR	ug/L					
187923		Total		40830000		NR		NR	ug/L					
187920		Total		43609000		NR		NR	ug/L					
187919		Total		41200000		NR		NR	ug/L					
2148456		Total		18950000		NR		NR	ug/L					
2148457		Total		18850000		NR		NR	ug/L					
2148455		Total		18900000		NR		NR	ug/L					
2148462		Total		11510000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2148461		Total		11510000		NR		NR	ug/L					
2148458		Total		18900000		NR		NR	ug/L					
187922		Total		42049000		NR		NR	ug/L					
2148459		Total		11560000		NR		NR	ug/L					
2148460		Total		11560000		NR		NR	ug/L					
187926		Total		29854000		NR		NR	ug/L					
187924		Total		39130000		NR		NR	ug/L					
768170		Total		299090		NR		NR	ug/L					
160280		Total		630000		580000		630000	ug/L					
793899		Total		800000		NR		NR	ug/L					
793902		Total		690000		NR		NR	ug/L					
768254		Total		150490		NR		NR	ug/L					
2060131		Total		NR		379000		707000	ug/L					
2060128		Total		NR		250000		500000	ug/L					
160281		Total		630000		580000		670000	ug/L					
768261		Total		150490		NR		NR	ug/L					
768319		Total		76080		NR		NR	ug/L					
768351		Total		394640		NR		NR	ug/L					
768315		Total		150490		NR		NR	ug/L					
768353		Total		241540		NR		NR	ug/L					
768312		Total		596280		NR		NR	ug/L					
768357		Total		251540		NR		NR	ug/L					
768251		Total		596280		NR		NR	ug/L					
768257		Total		596280		NR		NR	ug/L					
727030		Total		21110		NR		NR	ug/L					
762358		Total		21100		NR		NR	ug/L					
2056433		Total		3394000		NR		NR	ug/L					
165611		Total		2000000		NR		NR	ug/L					
165609		Total		5000000		4160000		6010000	ug/L					
165610		Total		3170000		2290000		4400000	ug/L					
165622		Total		5300000		4330000		6520000	ug/L					
165615		Total		6600000		6010000		7240000	ug/L					
165614		Total		2890000		2390000		3500000	ug/L					
165621		Total		5360000		4430000		6490000	ug/L					
165613		Total		6280000		5260000		7500000	ug/L					
165616		Total		1770000		590000		5260000	ug/L					
165620		Total		3610000		2950000		4420000	ug/L					
165612		Total		1250000		NR		NR	ug/L					
165617		Total		6650000		NR		NR	ug/L					
165608		Total		6830000		6380000		7310000	ug/L					
165619		Total		5110000		4180000		6240000	ug/L					
165607		Total		6190000		5370000		7130000	ug/L					
165623		Total		6200000		4800000		7890000	ug/L					
165618		Total		5300000		4330000		6500000	ug/L					
2152543		Total		4260		3830		4730	ug/L					
2152542		Total		3850		3390		4380	ug/L					
2152541		Total		4160		3630		4780	ug/L					
2146823		Total		4440000		NR		NR	ug/L					
15436		Total		1406000*		NR		NR	ug/L					
16498		Total		1567000*		NR		NR	ug/L					
2146826		Total		76500		NR		NR	ug/L					
768484		Total		596280		NR		NR	ug/L					
768515		Total		192100		NR		NR	ug/L					
768422		Total		299090		NR		NR	ug/L					
768419		Total		596280		NR		NR	ug/L					
233426		Total		415000		321400		497100	ug/L					
233425		Total		405000		346200		480700	ug/L					
727031		Total		418870		NR		NR	ug/L					
2060108		Total		500000		NR		NR	ug/L					
2060111		Total		NR		652000		707000	ug/L					
2060143		Total		NR		517000		707000	ug/L					
2060140		Total		NR		250000		500000	ug/L					
119482		Total		357000		NR		NR	ug/L					
31878		Total		343000		NR		NR	ug/L					
18170	MSMT/TLM///	Total		29000		NR		NR	ug/L					
18166	MSMT/TLM///	Total		679000		NR		NR	ug/L					
18167	MSMT/TLM///	Total		343000		NR		NR	ug/L					
18169	MSMT/TLM///	Total		117000		NR		NR	ug/L					
18168	MSMT/TLM///	Total		337000		NR		NR	ug/L					
768482		Total		596280		NR		NR	ug/L					
768483		Total		299090		NR		NR	ug/L					
759474	MSMT/REPLICATE A///	Total		24000		NR		NR	ug/L					
767301		Total		968000		NR		NR	ug/L					
759477	MSMT/REPLICATE B///	Total		24000		NR		NR	ug/L					
767309		Total		986000		NR		NR	ug/L					
767300		Total		994000		NR		NR	ug/L					
160282		Total		740000		580000		880000	ug/L					
768506		Total		2557100		NR		NR	ug/L					
768494		Total		596280		NR		NR	ug/L					
768485		Total		299090		NR		NR	ug/L					
160283		Total		660000		440000		880000	ug/L					
768513		Total		382300		NR		NR	ug/L					
768508		Total		1279500		NR		NR	ug/L					
768421		Total		596280		NR		NR	ug/L					
793895		Total		1080000		1000000		1160000	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
793894		Total		690000		660000		730000	ug/L					
793893		Total		1190000		1110000		1280000	ug/L					
2084612		Total		1026000		963000		1081000	ug/L					
2084609		Total		698000		597000		824000	ug/L					
2084591		Total		577000		430000		740000	ug/L					
762369		Total		16500		NR		NR	ug/L					
2153704		Total		2500000		NR		NR	ug/L					
2153706		Total		10000000		NR		NR	ug/L					
114855		Total		138000		123000		161000	ug/L					
181632		Total		910000		444000		6477000	ug/L					
181627		Total		116000		92000		146000	ug/L					
181631		Total		56000		45000		94000	ug/L					
183876		Total		90000		67000		122000	ug/L					
181630		Total		87000		71000		104000	ug/L					
181637		Total		86000		60000		123000	ug/L					
181620		Total		138000		120000		159000	ug/L					
181625		Total		82000		63000		106000	ug/L					
181636		Total		150000		118000		191000	ug/L					
181624		Total		88000		61000		125000	ug/L					
181621		Total		281000		195000		404000	ug/L					
181635		Total		964000		535000		4203000	ug/L					
181634		Total		119000		89000		159000	ug/L					
181626		Total		639000		429000		1518000	ug/L					
181622		Total		88000		61000		126000	ug/L					
8825		Total		150000		129000		175000	ug/L					
2153767		Total		2500000		NR		NR	ug/L					
2153705		Total		2500000		NR		NR	ug/L					
181628		Total		55000		46000		66000	ug/L					
181623		Total		377000		144000		826000	ug/L					
181629		Total		587000		396000		1211000	ug/L					
13892		Total		147000		132000		163000	ug/L					
181633		Total		98000		76000		126000	ug/L					
181619		Total		102000		81000		129000	ug/L					
2084619		Total		1932000		1585000		2188000	ug/L					
2064060	ENDPT/TLM/	Total		920000		NR		NR	ug/L					
2064050	ENDPT/TLM/	Total		10000000		NR		NR	ug/L					
2064059	ENDPT/TLM/	Total		4200000		NR		NR	ug/L					
168350		Formulation		320000		NR		NR	ug/L					
221427		Total		460000		390000		550000	ug/L					
165600		Total		324600		281700		374200	ug/L					
165601		Total		275600		240200		316300	ug/L					
165602		Total		297300		267300		330700	ug/L					
165598		Total		320600		293800		350000	ug/L					
168351		Formulation		216000		NR		NR	ug/L					
2056432		Total		542000		NR		NR	ug/L					
165603		Total		335600		316500		356000	ug/L					
165599		Total		232000		205300		262200	ug/L					
221426		Total		630000		NR		NR	ug/L					
165604		Total		141900		100700		199800	ug/L					
165605		Total		337200		285500		398200	ug/L					
165606		Total		250000		221900		281600	ug/L					
165597		Total		372400		351200		394600	ug/L					
168352		Formulation		134000		NR		NR	ug/L					
221428		Total		410000		350000		490000	ug/L					
221422		Total		630000		NR		NR	ug/L					
221425		Total		660000		NR		NR	ug/L					
221423		Total		620000		NR		NR	ug/L					
221429		Total		540000		470000		610000	ug/L					
221424		Total		540000		NR		NR	ug/L					
221421		Total		620000		NR		NR	ug/L					
15437		Total		2077000*		NR		NR	ug/L					
16499		Total		2316000*		NR		NR	ug/L					
2153843		Total		2500000		NR		NR	ug/L					
2153875		Total		10000000		NR		NR	ug/L					
2153891		Total		10000000		NR		NR	ug/L					
64914		Total		720000		588000		882000	ug/L					
2153890		Total		10000000		NR		NR	ug/L					
181639		Total		7338000		6975000		7757000	ug/L					
2153877		Total		10000000		NR		NR	ug/L					
234000		Total	>	13500		NR		NR	ug/L					
40518		Total		1060000*		NR		NR	ug/L					
2153878		Total		10000000		NR		NR	ug/L					
2153893		Total		10000000		NR		NR	ug/L					
2153845		Total		2500000		NR		NR	ug/L					
18171	MSMT/TLM///	Total		5500000		NR		NR	ug/L					
196201		Total		2010000		NR		NR	ug/L					
40519		Total		951000*		NR		NR	ug/L					
13462		Total		2010000		NR		NR	ug/L					
2153879		Total		10000000		NR		NR	ug/L					
2153894		Total		10000000		NR		NR	ug/L					
18172	MSMT/TLM///	Total		1941000		NR		NR	ug/L					
18174	MSMT/TLM///	Total		1018000		NR		NR	ug/L					
18173	MSMT/TLM///	Total		1492000		NR		NR	ug/L					
18175	MSMT/TLM///	Total		1100000		NR		NR	ug/L					
2084610		Total		776000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2271245		Total		0.1593		0.1397		0.1817	%					
2271240		Total		0.1414		0.1312		0.1524	%					
2271247		Total		0.2539		0.2325		0.2773	%					
2264909		Total	>	0.5		NR		NR	%					
2271238		Total		0.3548		0.3233		0.3894	%					
2271239		Total		0.2732		0.2497		0.2989	%					
762359		Total		30100		NR		NR	ug/L					
181641		Total		3499000		2911000		4200000	ug/L					
181645		Total		508000		458000		565000	ug/L					
193880		Total		168000		119000		237000	ug/L					
193908		Total		980000		845000		1137000	ug/L					
193897		Total		3150000		NR		NR	ug/L					
193921		Total		840000		709000		996000	ug/L					
193898		Total		1960000		1574000		2440000	ug/L					
193891		Total		435000		292000		648000	ug/L					
193924		Total		440000		344000		563000	ug/L					
193913		Total		480000		403000		571000	ug/L					
193920		Total		1020000		894000		1164000	ug/L					
193881		Total		880000		707000		1094000	ug/L					
193877		Total		518000		310000		865000	ug/L					
193896		Total		250000		189000		330000	ug/L					
193904		Total		300000		261000		345000	ug/L					
193889		Total		1680000		960000		2940000	ug/L					
193909		Total		925000		784000		1092000	ug/L					
193910		Total		850000		708000		1020000	ug/L					
193899		Total		1000000		775000		1290000	ug/L					
193879		Total		185000		128000		268000	ug/L					
193922		Total		540000		406000		718000	ug/L					
193894		Total		250000		189000		330000	ug/L					
193919		Total		1180000		1009000		1381000	ug/L					
193886		Total		200000		156000		257000	ug/L					
193928		Total		NR		195000		275000	ug/L					
193882		Total		370000		293000		467000	ug/L					
193903		Total		310000		271000		355000	ug/L					
193933		Total		184000		NR		NR	ug/L					
193887		Total		200000		156000		257000	ug/L					
193923		Total		495000		410000		497000	ug/L					
193890		Total		520000		366000		738000	ug/L					
193934		Total		275000		NR		NR	ug/L					
193925		Total		400000		310000		516000	ug/L					
193911		Total		685000		543000		863000	ug/L					
193884		Total		228000		185000		281000	ug/L					
193918		Total		1825000		1313000		2537000	ug/L					
193893		Total		270000		213000		343000	ug/L					
193907		Total		1070000		931000		1231000	ug/L					
193878		Total		255000		175000		372000	ug/L					
193901		Total		350000		280000		437000	ug/L					
193900		Total		510000		419000		621000	ug/L					
193895		Total		250000		189000		330000	ug/L					
193912		Total		560000		475000		661000	ug/L					
193902		Total		320000		283000		362000	ug/L					
193916		Total		320000		260000		394000	ug/L					
193915		Total		320000		258000		397000	ug/L					
193892		Total		300000		225000		399000	ug/L					
193883		Total		280000		229000		342000	ug/L					
193888		Total		2700000		1753000		4158000	ug/L					
193929		Total		195000		NR		NR	ug/L					
193906		Total		1800000		1118000		2898000	ug/L					
193930		Total		275000		NR		NR	ug/L					
193932		Total		NR		184000		275000	ug/L					
193885		Total		212000		167000		270000	ug/L					
193926		Total		388000		301000		500000	ug/L					
193917		Total		2700000		2046000		3564000	ug/L					
193914		Total		407000		364000		430000	ug/L					
193905		Total		2500000		1678000		3725000	ug/L					
2081278		Total		490000		305000		787000	ug/L					
2081284		Total		128000		94000		174000	ug/L					
2081280		Total		418000		277000		630000	ug/L					
2081282		Total		172000		117000		253000	ug/L					
16497		Total		75000*		NR		NR	ug/L					
15435		Total		67000*		NR		NR	ug/L					
181642		Total		816000		715000		932000	ug/L					
141012		Total	>	2000000		NR		NR	ug/L					
181640		Total		1191000		923000		1536000	ug/L					
718593	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		1000000		2000000	ug/L					
2153840		Total		2500000		NR		NR	ug/L					
718598	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		700000		1200000	ug/L					
718594	MSMT/RVALUE/RANGED DATA AS AUTHOR	Total		NR		1586000		2828000	ug/L					
36690		Total		1610000		1223000		2119000	ug/L					
2153841		Total		2500000		NR		NR	ug/L					
2153867		Total		10000000		NR		NR	ug/L					
15733		Total		330000		NR		NR	ug/L					
2746		Total		574000*		NR		NR	ug/L					
24099		Total		404000*		NR		NR	ug/L					
15728		Total		450000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
15732		Total		640000		NR		NR	ug/L					
2747		Total		296000*		NR		NR	ug/L					
2084611		Total		1004000		647000		1253000	ug/L					
2153898		Total		10000000		NR		NR	ug/L					
2153897		Total		10000000		NR		NR	ug/L					
196202		Total		940000		NR		NR	ug/L					
13426		Total		940000		NR		NR	ug/L					
2316118		Total		1540000		1370000		1700000	ug/L					
96900		Total		500000		NR		NR	ug/L					
160285		Total		910000		750000		1090000	ug/L					
181638		Total		2465000		2133000		2850000	ug/L					
96905		Total		500000		NR		NR	ug/L					
160286		Total		880000		750000		1020000	ug/L					
96896		Total		1000000		NR		NR	ug/L					
96890		Total		1000000		NR		NR	ug/L					
2153866		Total		2500000		NR		NR	ug/L					
2153882		Total		10000000		NR		NR	ug/L					
2153899		Total		10000000		NR		NR	ug/L					
2153883		Total		10000000		NR		NR	ug/L					
96889		Total		500000		NR		NR	ug/L					
2153865		Total		2500000		NR		NR	ug/L					
160284		Total		950000		750000		1090000	ug/L					
43169		Total		500000		NR		NR	ug/L					
43165		Total		1000000		NR		NR	ug/L					
43170		Total		1000000		NR		NR	ug/L					
768557		Total		299100		NR		NR	ug/L					
43174		Total		500000		NR		NR	ug/L					
768549		Total		1190700		NR		NR	ug/L					
96901		Total		1000000		NR		NR	ug/L					
96908		Total		1000000		NR		NR	ug/L					
43164		Total		500000		NR		NR	ug/L					
768554		Total		299100		NR		NR	ug/L					
2084588		Total		285000		255000		321000	ug/L					
2084620		Total		2018000		NR		NR	ug/L					
2153839		Total		2500000		NR		NR	ug/L					
2153887		Total		10000000		NR		NR	ug/L					
727826		Formulation		4000000		NR		NR	ug/L					
718609		Formulation		2000000		NR		NR	ug/L					
718610	MSMT/RVALUE/RANGED DATA AS AUTHOR	Formulation		NR		2732000		3007000	ug/L					
2153884		Total		10000000		NR		NR	ug/L					
2153837		Total		2500000		NR		NR	ug/L					
181644		Total		500000		439000		544000	ug/L					
2153853		Total		2500000		NR		NR	ug/L					
2153880		Total		10000000		NR		NR	ug/L					
2153847		Total		2500000		NR		NR	ug/L					
181643		Total		724000		665000		788000	ug/L					
767040		Total		1250000		NR		NR	ug/L					
234001		Total		26000		NR		NR	ug/L					
759169		Total		1000000		NR		NR	ug/L					
764615		Total		4000000		NR		NR	ug/L					
767364		Total		1078900		NR		NR	ug/L					
767366		Total		1078900		NR		NR	ug/L					
767346		Total		2076400		NR		NR	ug/L					
767410		Total		580150		NR		NR	ug/L					
160288		Total		1770000		1770000		1770000	ug/L					
767362		Total		2076400		NR		NR	ug/L					
767348		Total		2076400		NR		NR	ug/L					
767347		Total		1078900		NR		NR	ug/L					
767402		Total		2076400		NR		NR	ug/L					
160287		Total		1770000		1770000		1770000	ug/L					
767405		Total		1078900		NR		NR	ug/L					
767461		Total		1036160		NR		NR	ug/L					
767465		Total		1394190		NR		NR	ug/L					
767365		Total		2076400		NR		NR	ug/L					
767407		Total		2076400		NR		NR	ug/L					
764850		Total	~	150		NR		NR	mM					
759182		Total		4300000		4100000		4570000	ug/L					
767488		Total		4071400		NR		NR	ug/L					
767485		Total		4071400		NR		NR	ug/L					
160289		Total		2360000		2180000		2500000	ug/L					
767471		Total		1078900		NR		NR	ug/L					
160290		Total		1820000		1540000		2330000	ug/L					
767487		Total		1078900		NR		NR	ug/L					
767490		Total		580150		NR		NR	ug/L					
759473	MSMT/REPLICATE B///	Total		360000		NR		NR	ug/L					
759470	MSMT/REPLICATE A///	Total		360000		NR		NR	ug/L					
24910	MSMT/TLM///	Total		3803000		NR		NR	ug/L					
24907	MSMT/TLM///	Total		929000		NR		NR	ug/L					
24908	MSMT/TLM///	Total		861000		NR		NR	ug/L					
24906	MSMT/TLM///	Total		963000		NR		NR	ug/L					
24909	MSMT/TLM///	Total		788000		NR		NR	ug/L					
2064012	ENDPT/TLM/	Total		15500000		NR		NR	ug/L					
2064016	ENDPT/TLM/	Total		15500000		NR		NR	ug/L					
2064015	ENDPT/TLM/	Total		15500000		NR		NR	ug/L					
763381		Total	~	300		NR		NR	mM					

Result Number	EE Comment	Conc 1 Typ	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
763382		Total	~	250		NR		NR	mM					
763506		Total	~	50		NR		NR	mM					
763384		Total	~	150		NR		NR	mM					
763505		Total		NR	>	50	<	75	mM					
763383		Total	~	200		NR		NR	mM					
220044	MSMT/CORRECTED FOR CONTROL///	Total		450000		NR		NR	ug/L					
24911	MSMT/TLM///	Total		19000000		NR		NR	ug/L					
24914	MSMT/TLM///	Total		6300000		NR		NR	ug/L					
24912	MSMT/TLM///	Total		10530000		NR		NR	ug/L					
24913	MSMT/TLM///	Total		6525000		NR		NR	ug/L					
24915	MSMT/TLM///	Total		6250000		NR		NR	ug/L					
2153117		Total		12000		100		20000	ug/L					
2153118		Total		40000		33000		50000	ug/L					
2153181		Total		4054000		4046000		4063000	ug/L					
2153180		Total		4008000		3850000		4025000	ug/L					
89658		Total	>	1000000		NR		NR	ug/L					
61287		Total	>	1000000		NR		NR	ug/L					
61288		Total	>	1000000		NR		NR	ug/L					
61289		Total	>	1000000		NR		NR	ug/L					
89662		Total	>	1000000		NR		NR	ug/L					
89660		Total	>	1000000		NR		NR	ug/L					
160291		Total		4630000		3180000		7070000	ug/L					
759181		Total		7900000		7690000		8150000	ug/L					
767519		Total		2076400		NR		NR	ug/L					
160292		Total		3510000		3000000		4350000	ug/L					
160293		Total		2820000		2610000		3080000	ug/L					
97577		Total		15.6		NR		NR	ug/L					
2061006		Total		30000000		NR		NR	ug/L					
2055980		Total		616000		NR		NR	ug/L					
741747		Total		10000000		NR		NR	ug/L					
741782		Total		10000000		NR		NR	ug/L					
741753		Total	>	10000000		NR		NR	ug/L					
741540		Total		3130000		NR		NR	ug/L					
741556		Total		6000000		NR		NR	ug/L					
742902		Total		1.7		NR		NR	%					
742923		Total		3.4		NR		NR	%					
798968		Total		3.4		NR		NR	%					
741577		Total		4538000		NR		NR	ug/L					
742533		Total		6000000		NR		NR	ug/L					
741572		Total		3422000		NR		NR	ug/L					
742535		Total		1000000		NR		NR	ug/L					
742696		Total		6000000		NR		NR	ug/L					
741545		Total		3000000		NR		NR	ug/L					
741548		Total		1458000		NR		NR	ug/L					
741573		Total		3130000		NR		NR	ug/L					
742534		Total		5000000		NR		NR	ug/L					
741580		Total		6000000		NR		NR	ug/L					
741539		Total		3000000		NR		NR	ug/L					
741578		Total		4000000		NR		NR	ug/L					
741571		Total		1315000		NR		NR	ug/L					
741544		Total		5000000		NR		NR	ug/L					
741543		Total		3600000		NR		NR	ug/L					
741555		Total		7000000		NR		NR	ug/L					
741554		Total		4536000		NR		NR	ug/L					
742532		Total		4083000		NR		NR	ug/L					
741741		Total		10000000		NR		NR	ug/L					
741740		Total		10000000		NR		NR	ug/L					
741787		Total	>	10000000		NR		NR	ug/L					
2060991		Total		30000000		NR		NR	ug/L					
2154070		Total		900000		NR		NR	ug/L					
2059519		Total		33000		NR		NR	ug/L					
2059522		Total		145000		NR		NR	ug/L					
2061032		Total		85000000		NR		NR	ug/L					
2014049		Total		10000000		NR		NR	ug/L					
148555		Total		20000000		NR		NR	ug/L					
2455		Total		17880000		10120000		26520000	ug/L					
12210		Total		21450000		0		27260000	ug/L					
231580	MSMT/TLM/	Total		26000000		NR		NR	ug/L					
231578	MSMT/TLM/	Total	>	32000000		NR		NR	ug/L					
231574	MSMT/TLM/	Total	>	32000000		NR		NR	ug/L					
231577	MSMT/TLM/	Total		24000000		NR		NR	ug/L					
231575	MSMT/TLM/	Total		26000000		NR		NR	ug/L					
231576	MSMT/TLM/	Total		24000000		NR		NR	ug/L					
231579	MSMT/TLM/	Total		32000000		NR		NR	ug/L					
231581	MSMT/TLM/	Total		23000000		NR		NR	ug/L					
2162899		Total		50000000		NR		NR	ug/L					
2162871		Total		20000000		NR		NR	ug/L					
741874	MSMT/NO CLEAR DOSE RESPONSE, LOWER	Total		500000		NR		NR	ug/L					
231569	MSMT/TLM/	Total		6150000		NR		NR	ug/L					
231568	MSMT/TLM/	Total		6800000		NR		NR	ug/L					
231571	MSMT/TLM/	Total	>	5600000		NR		NR	ug/L					
231567	MSMT/TLM/	Total		7200000		NR		NR	ug/L					
231573	MSMT/TLM/	Total		5100000		NR		NR	ug/L					
231572	MSMT/TLM/	Total		5100000		NR		NR	ug/L					
231563	MSMT/TLM/	Total	>	10000000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
231566	MSMT/TLM/	Total		8250000		NR		NR	ug/L					
231570	MSMT/TLM/	Total	>	5600000		NR		NR	ug/L					
231565	MSMT/TLM/	Total		8250000		NR		NR	ug/L					
231564	MSMT/TLM/	Total	>	10000000		NR		NR	ug/L					
2060990		Total		30000000		NR		NR	ug/L					
2164637		Total		15000000		NR		NR	ug/L					
764333		Total		3700000		NR		NR	ug/L					
764325		Total		4600000		NR		NR	ug/L					
764330		Total		3900000		NR		NR	ug/L					
764326		Total		4300000		NR		NR	ug/L					
764329		Total		4100000		NR		NR	ug/L					
2060979		Total		30000000		NR		NR	ug/L					
2060983		Total		30000000		NR		NR	ug/L					
2152847		Total		1645000		1588000		1703000	ug/L					
741752		Total		10000000		NR		NR	ug/L					
764481		Total		2600000		NR		NR	ug/L					
2060992		Total		30000000		NR		NR	ug/L					
742917		Total		15500000		NR		NR	ug/L					
742918		Total		20500000		NR		NR	ug/L					
742037		Total		15460000		NR		NR	ug/L					
742036		Total		15500000		NR		NR	ug/L					
742919		Total		20950000		NR		NR	ug/L					
742006		Total		20550000		NR		NR	ug/L					
187909		Total		14899000		NR		NR	ug/L					
187905		Total		23817000		NR		NR	ug/L					
187907		Total		17008000		NR		NR	ug/L					
187903		Total		24829000		NR		NR	ug/L					
187902		Total		25064000		NR		NR	ug/L					
187908		Total		16439000		NR		NR	ug/L					
187901		Total		25190000		NR		NR	ug/L					
187906		Total		22457000		NR		NR	ug/L					
187904		Total		25786000		NR		NR	ug/L					
742038		Total		21000000		NR		NR	ug/L					
742016		Total		15550000		NR		NR	ug/L					
196818		Total		10400000		NR		NR	ug/L					
196801		Total		7900000		NR		NR	ug/L					
196817		Total		7750000		NR		NR	ug/L					
196799		Total		8200000		NR		NR	ug/L					
196831		Total		7150000		NR		NR	ug/L					
196814		Total		10450000		NR		NR	ug/L					
196791		Total		7950000		NR		NR	ug/L					
196837		Total		6800000		NR		NR	ug/L					
196776		Total		7000000		NR		NR	ug/L					
196783		Total		7200000		NR		NR	ug/L					
196795		Total		7400000		NR		NR	ug/L					
196828		Total		7300000		NR		NR	ug/L					
196816		Total		7950000		NR		NR	ug/L					
196838		Total		8530000		NR		NR	ug/L					
167864		Total		7341000		NR		NR	ug/L					
167863		Total		7322000		NR		NR	ug/L					
75451		Total		4324000*		NR		NR	ug/L					
196826		Total		9600000		NR		NR	ug/L					
196803		Total		8400000		NR		NR	ug/L					
196841		Total		9270000		NR		NR	ug/L					
196788		Total		6800000		NR		NR	ug/L					
196784		Total		7050000		NR		NR	ug/L					
196793		Total		7600000		NR		NR	ug/L					
196805		Total		8050000		NR		NR	ug/L					
196842		Total		10270000		NR		NR	ug/L					
196846		Total		6180000		NR		NR	ug/L					
196775		Total		7550000		NR		NR	ug/L					
196834		Total		9950000		NR		NR	ug/L					
196808		Total		7200000		NR		NR	ug/L					
196827		Total		7850000		NR		NR	ug/L					
196836		Total		6800000		NR		NR	ug/L					
196845		Total		6170000		NR		NR	ug/L					
196777		Total		7000000		NR		NR	ug/L					
196823		Total		7900000		NR		NR	ug/L					
196780		Total		6950000		NR		NR	ug/L					
196790		Total		9850000		NR		NR	ug/L					
196804		Total		8050000		NR		NR	ug/L					
196785		Total		7050000		NR		NR	ug/L					
196811		Total		7400000		NR		NR	ug/L					
196797		Total		7200000		NR		NR	ug/L					
196825		Total		7550000		NR		NR	ug/L					
196824		Total		7650000		NR		NR	ug/L					
196830		Total		8800000		NR		NR	ug/L					
196844		Total		6180000		NR		NR	ug/L					
196778		Total		9750000		NR		NR	ug/L					
196807		Total		7900000		NR		NR	ug/L					
196802		Total		11050000		NR		NR	ug/L					
196810		Total		10200000		NR		NR	ug/L					
196813		Total		7050000		NR		NR	ug/L					
196822		Total		9980000		NR		NR	ug/L					
196789		Total		6800000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
196794		Total		10000000		NR		NR	ug/L					
196798		Total		11050000		NR		NR	ug/L					
196786		Total		8350000		NR		NR	ug/L					
196821		Total		7950000		NR		NR	ug/L					
196782		Total		9800000		NR		NR	ug/L					
196796		Total		7200000		NR		NR	ug/L					
196800		Total		7900000		NR		NR	ug/L					
196812		Total		7050000		NR		NR	ug/L					
196833		Total		7000000		NR		NR	ug/L					
196779		Total		7350000		NR		NR	ug/L					
196792		Total		7600000		NR		NR	ug/L					
196815		Total		8800000		NR		NR	ug/L					
196835		Total		6950000		NR		NR	ug/L					
196829		Total		7300000		NR		NR	ug/L					
196843		Total		6170000		NR		NR	ug/L					
196820		Total		7950000		NR		NR	ug/L					
196774		Total		9900000		NR		NR	ug/L					
196806		Total		10100000		NR		NR	ug/L					
196832		Total		7000000		NR		NR	ug/L					
196781		Total		6950000		NR		NR	ug/L					
196840		Total		7388000		NR		NR	ug/L					
196819		Total		8500000		NR		NR	ug/L					
196787		Total		6800000		NR		NR	ug/L					
196809		Total		7200000		NR		NR	ug/L					
26112	MSMT/TLM///	Total		13750000		NR		NR	ug/L					
759442		Total		2640000		2600000		2670000	ug/L					
759441		Total		2670000		NR		NR	ug/L					
759395	MSMT/COMBINED THREE TESTS/	Total		2700000		NR		NR	ug/L					
759417	MSMT/LOWER 95% CI=1.7/	Total		2420000		NR		NR	ug/L					
759449		Total		1900000		NR		NR	ug/L					
759396	MSMT/COMBINED THREE TESTS/	Total		1900000		NR		NR	ug/L					
741761		Total		16		14		18	mS/cm					
759448		Total		2480000		2370000		2540000	ug/L					
2060993		Total		30000000		NR		NR	ug/L					
741687		Total		1700000		NR		NR	ug/L					
742567		Total		2200000		NR		NR	ug/L					
207718		Total		NR	>	1000000	<	1500000	ug/L					
741686		Total		1590000		1520000		1670000	ug/L					
207719		Total		NR	>	1000000	<	1500000	ug/L					
207716		Total		NR	>	2000000	<	2500000	ug/L					
741695		Total		2260000		NR		NR	ug/L					
2146816		Total		2500		NR		NR	ug/L					
2146817		Total		2500		NR		NR	ug/L					
2146815		Total		1250		NR		NR	ug/L					
741660		Total		850000		NR		NR	ug/L					
207721	MSMT/NOEL///	Total		NR	>	1000000	<	1500000	ug/L					
741699		Total		2200000		NR		NR	ug/L					
207717		Total	~	2000000		NR		NR	ug/L					
767855		Total		1250000		NR		NR	ug/L					
2152825		Total		1068000		603000		1533000	ug/L					
767904		Total		1250000		NR		NR	ug/L					
767903		Total		2500000		NR		NR	ug/L					
2075467		Total		1489000		NR		NR	ug/L					
766865		Total		2500000		NR		NR	ug/L					
766864		Total		5000000		NR		NR	ug/L					
2153271		Total		540000		460000		633000	ug/L					
767897		Total		2500000		NR		NR	ug/L					
767898		Total		1250000		NR		NR	ug/L					
767961		Total		2500000		NR		NR	ug/L					
767962		Total		1250000		NR		NR	ug/L					
2153268		Total		316000		268000		373000	ug/L					
767879		Total		2500000		NR		NR	ug/L					
767880		Total		1250000		NR		NR	ug/L					
767896		Total		1250000		NR		NR	ug/L					
767895		Total		2500000		NR		NR	ug/L					
2075442		Total		1836000		NR		NR	ug/L					
2075434		Total		1779000		NR		NR	ug/L					
767873		Total		1250000		NR		NR	ug/L					
767872		Total		2500000		NR		NR	ug/L					
2075468		Total		1317000		NR		NR	ug/L					
767959		Total		2500000		NR		NR	ug/L					
767960		Total		1250000		NR		NR	ug/L					
767871		Total		1250000		NR		NR	ug/L					
767870		Total		2500000		NR		NR	ug/L					
767968		Total		1250000		NR		NR	ug/L					
767967		Total		2500000		NR		NR	ug/L					
2075410		Total		1249000		NR		NR	ug/L					
2075471		Total		1192000		NR		NR	ug/L					
2153274		Total		1134000		858000		1410000	ug/L					
766873		Total		1250000		NR		NR	ug/L					
766872		Total		2500000		NR		NR	ug/L					
766866		Total		2500000		NR		NR	ug/L					
766867		Total		1250000		NR		NR	ug/L					
767889		Total		2500000		NR		NR	ug/L					
767890		Total		1250000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Typ	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc 1 Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2152724		Total		NR	>	2500000	<	3000000	ug/L					
2152722		Total		467000		NR		NR	ug/L					
2152723		Total		NR	>	2500000	<	3000000	ug/L					
767856		Total		2500000		NR		NR	ug/L					
767857		Total		1250000		NR		NR	ug/L					
767969		Total		2500000		NR		NR	ug/L					
767970		Total		1250000		NR		NR	ug/L					
767847		Total		620000		NR		NR	ug/L					
767846		Total		2500000		NR		NR	ug/L					
2152874		Total		132000		107000		161000	ug/L					
767953		Total		2500000		NR		NR	ug/L					
767954		Total		1250000		NR		NR	ug/L					
767887		Total		2500000		NR		NR	ug/L					
767888		Total		1250000		NR		NR	ug/L					
2153277		Total		1240000		1025000		1501000	ug/L					
2153280		Total		1303000		1019000		1665000	ug/L					
767881		Total		2500000		NR		NR	ug/L					
767882		Total		1250000		NR		NR	ug/L					
767975		Total		2500000		NR		NR	ug/L					
767976		Total		1250000		NR		NR	ug/L					
2075466		Total		1356000		NR		NR	ug/L					
2075469		Total		1357000		NR		NR	ug/L					
2075470		Total		1154000		NR		NR	ug/L					
2074934		Total		977000		NR		NR	ug/L					
2075402		Total		861000		NR		NR	ug/L					
767864		Total		2500000		NR		NR	ug/L					
767865		Total		1250000		NR		NR	ug/L					
2075426		Total		1589000		NR		NR	ug/L					
767863		Total		1250000		NR		NR	ug/L					
767862		Total		2500000		NR		NR	ug/L					
2075418		Total		1402000		NR		NR	ug/L					
741671		Total		4500000		NR		NR	ug/L					
767849		Total		1250000		NR		NR	ug/L					
767848		Total		2500000		NR		NR	ug/L					
767854		Total		2500000		NR		NR	ug/L					
251007		Total		1500000		NR		NR	ug/L					
250997	MSMT/FOUND BETWEEN 10 AND 20% OF L	Total		500000		NR		NR	ug/L					
120843		Total		1170000		NR		NR	ug/L					
251000	MSMT/FOUND IN ~10% OF LABS///	Total	<	300000		NR		NR	ug/L					
120826		Total		1940000		NR		NR	ug/L					
120844		Total		910000		NR		NR	ug/L					
251003		Total		500000		NR		NR	ug/L					
120840		Total		280000		NR		NR	ug/L					
251001		Total		300000		NR		NR	ug/L					
250999		Total		2500000		NR		NR	ug/L					
251009		Total		2500000		NR		NR	ug/L					
120842		Total		1940000		NR		NR	ug/L					
742530		Total		467000		NR		NR	ug/L					
741547		Total	>	467000		NR		NR	ug/L					
120829		Total		1830000		NR		NR	ug/L					
120855	MSMT/FOUND BETWEEN 80 AND 90% OF L	Total		1500000		NR		NR	ug/L					
251004	MSMT/FOUND IN ~10% OF LABS///	Total		500000		NR		NR	ug/L					
251002	MSMT/FOUND IN ~10% OF LABS///	Total		300000		NR		NR	ug/L					
120845		Total		1430000		NR		NR	ug/L					
120837		Total	<	330000		NR		NR	ug/L					
251008	MSMT/FOUND BETWEEN 50 AND 60% OF L	Total		1500000		NR		NR	ug/L					
120827		Total		1830000		NR		NR	ug/L					
120841		Total		1940000		NR		NR	ug/L					
120824		Total		1740000		NR		NR	ug/L					
250998		Total		900000		NR		NR	ug/L					
120839		Total		1940000		NR		NR	ug/L					
120828		Total		1710000		NR		NR	ug/L					
120825		Total		1640000		NR		NR	ug/L					
120838		Total		1830000		NR		NR	ug/L					
251006	MSMT/FOUND IN ~10% OF LABS///	Total		900000		NR		NR	ug/L					
251005		Total		900000		NR		NR	ug/L					
160319		Total		3380000		3080000		3540000	ug/L					
768266		Total		760230		NR		NR	ug/L					
768264		Total		760230		NR		NR	ug/L					
768272		Total		1700550		NR		NR	ug/L					
768175		Total		871850		NR		NR	ug/L					
768340		Total		3035200		NR		NR	ug/L					
768268		Total		1700550		NR		NR	ug/L					
768173		Total		1700550		NR		NR	ug/L					
160320		Total		1960000		1770000		2330000	ug/L					
741288		Total		1042000		NR		NR	ug/L					
741435		Total		NR		1100000		1400000	ug/L					
2060999		Total		30000000		NR		NR	ug/L					
741635		Total	~	12000000		NR		NR	ug/L					
741678		Total		1200000		NR		NR	ug/L					
155066		Formulation		520000		NR		NR	ug/L					
157997		Formulation		5650000		NR		NR	ug/L					
2152838		Total		5867000		5452000		6313000	ug/L					
2060247	MSMT/REPLICATE A/	Total		11600000		NR		NR	ug/L					
2060217		Total		6280380		5588850		7096060	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (Sta	Conc 2 Units (Standa	Application Rate	Application Rate Units
2060213		Total		5274380		4334020		5881590	ug/L					
2060209		Total		4162650		2880720		4859620	ug/L					
2060237		Total		6211390		NR		NR	ug/L					
2060223		Total		7840290		6966630		9982920	ug/L					
2060221		Total		7115510		6394970		8507110	ug/L					
2060216		Total		5792990		5011970		6449180	ug/L					
2060210		Total		4640410		3849260		5282510	ug/L					
2060201		Total		6031760		5304280		6749940	ug/L					
2060275	MSMT/REPLICATE D/	Total		7810000		NR		NR	ug/L					
2060220		Total		6897910		6204290		8105430	ug/L					
2060259	MSMT/REPLICATE B/	Total		7810000		NR		NR	ug/L					
2060254	MSMT/REPLICATE B/	Total		7810000		NR		NR	ug/L					
2060211		Total		4917120		3855400		5535970	ug/L					
2060236		Total		7810000		NR		NR	ug/L					
2060225		Total		8740140		7596300		12054500	ug/L					
2060214		Total		5416800		4523890		6027980	ug/L					
2060270	MSMT/REPLICATE C/	Total		4940000		NR		NR	ug/L					
2060228		Total		4940000		NR		NR	ug/L					
2060212		Total		5113080		4117800		5722270	ug/L					
2060222		Total		7399080		6628470		9061030	ug/L					
2060218		Total		6716530		6036020		7787870	ug/L					
2211037		Total		10000000		NR		NR	ug/L					
2060996		Total		30000000		NR		NR	ug/L					
741489		Total		14040000		NR		NR	ug/L					
2162289		Total		610000		NR		NR	ug/L					
2162290		Total		700000		NR		NR	ug/L					
2211025		Total		10800000		NR		NR	ug/L					
2211024		Total		4850000		NR		NR	ug/L					
16495		Total		6221000		NR		NR	ug/L					
26114	MSMT/TLM///	Total		10200000		NR		NR	ug/L					
26113	MSMT/TLM///	Total		10500000		NR		NR	ug/L					
764830		Total	~	200		NR		NR	mM					
2152592		Total		13000000		NR		NR	ug/L					
2152588		Total		11000000		NR		NR	ug/L					
2152587		Total		4700000		NR		NR	ug/L					
742887		Total		0.01		NR		NR	M					
2060198	MSMT/REPLICATE 1/	Total		7810000		NR		NR	ug/L					
2060148	MSMT/TRIM LEVEL 0.0%/	Total		6069550		5802300		6349110	ug/L					
2060190	MSMT/REPLICATE 2/	Total		3100000		NR		NR	ug/L					
2060157	MSMT/TRIM LEVEL 5.0%/	Total		6136970		5987040		6290650	ug/L					
2060168	MSMT/TRIM LEVEL 20.0%/	Total		6136970		5987040		6290650	ug/L					
2060189	MSMT/REPLICATE 1/	Total		4940000		NR		NR	ug/L					
2060161	MSMT/TRIM LEVEL 10.0%/	Total		6136970		5987040		6290650	ug/L					
2060191	MSMT/REPLICATE 2/	Total		7810000		NR		NR	ug/L					
741331		Total		5000000		NR		NR	ug/L					
741388		Total		2500000		NR		NR	ug/L					
76295	MSMT/7 EFFECTS COMPARABLE TO LETHAL	Total		205.5		NR		NR	mmol/L					
2057566		Total		3137.3		NR		NR	uM					
742566		Total		2000000		1810000		2200000	ug/L					
741698		Total		440000		NR		NR	ug/L					
741697		Total		850000		NR		NR	ug/L					
741610		Total		4.5		3.8		5	mS/cm					
18462	MSMT/TLM///	Total		3114000		NR		NR	ug/L					
18463	MSMT/TLM///	Total		3412000		NR		NR	ug/L					
18461	MSMT/TLM///	Total		5874000		NR		NR	ug/L					
18464	MSMT/TLM///	Total		3310000		NR		NR	ug/L					
2152826		Total		3630000		3172000		4154000	ug/L					
759179		Total		6500000		6270000		6670000	ug/L					
2164732		Total		500000		NR		NR	ug/L					
2164727		Total		4040000		NR		NR	ug/L					
2164731		Total		8000000		NR		NR	ug/L					
2152707		Total		280000		NR		NR	ug/L					
2152709		Total	~	6000000		NR		NR	ug/L					
2152708		Total		NR	>	7000000	<	8000000	ug/L					
119469		Total		3318000		NR		NR	ug/L					
31699		Total		3412000		NR		NR	ug/L					
84498		Total		81.19799		NR		NR	mmol/L					
144221		Total		6027000		3200000		10000000	ug/L					
144220		Total		6027000		3200000		10000000	ug/L					
144218		Total		5600000		3200000		10000000	ug/L					
144219		Total		5020000		3200000		10000000	ug/L					
144222		Total		5600000		3200000		10000000	ug/L					
768428		Total		1518550		NR		NR	ug/L					
768533		Total		2766450		NR		NR	ug/L					
768500		Total		3457440		NR		NR	ug/L					
160322		Total		4770000		3790000		5740000	ug/L					
768426		Total		6068500		NR		NR	ug/L					
768527		Total		4321320		NR		NR	ug/L					
768431		Total		1518550		NR		NR	ug/L					
768498		Total		2766450		NR		NR	ug/L					
741531		Total		467000		NR		NR	ug/L					
742529		Total	>	467000		NR		NR	ug/L					
768489		Total		6068500		NR		NR	ug/L					
768475		Total		4321320		NR		NR	ug/L					
768531		Total		4321320		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
768450		Total		2766450		NR		NR	ug/L					
768496		Total		4321320		NR		NR	ug/L					
768523		Total		3466450		NR		NR	ug/L					
768530		Total		2766450		NR		NR	ug/L					
2210504		Total		1155000		NR		NR	ug/L					
768520		Total		2766450		NR		NR	ug/L					
768445		Total		4321320		NR		NR	ug/L					
768499		Total		4321320		NR		NR	ug/L					
768488		Total		1518550		NR		NR	ug/L					
768467		Total		4321320		NR		NR	ug/L					
768526		Total		2213180		NR		NR	ug/L					
160321		Total		6380000		6160000		6600000	ug/L					
768521		Total		4321320		NR		NR	ug/L					
768486		Total		6068500		NR		NR	ug/L					
2210505		Total		1155000		NR		NR	ug/L					
742069		Total		1770000		NR		NR	ug/L					
742931		Total		1770000		NR		NR	ug/L					
742926		Total		1770000		NR		NR	ug/L					
767302		Total		3222000		NR		NR	ug/L					
772103		Total		3136000		NR		NR	ug/L					
742068		Total		1770000		NR		NR	ug/L					
742927		Total		1770000		NR		NR	ug/L					
767308		Total		3137000		NR		NR	ug/L					
742008		Total		10000000		NR		NR	ug/L					
742019		Total		5480000		5070000		6020000	ug/L					
18460	MSMT/TLM///	Total		6447000		NR		NR	ug/L					
201545		Total		1470000		1380000		1570000	ug/L					
2055828		Total		2210000		NR		NR	ug/L					
201558		Total		441000		NR		NR	ug/L					
741434		Total		NR		1100000		1400000	ug/L					
201566		Total		3050000		2060000		5910000	ug/L					
2055812		Total		1760000		NR		NR	ug/L					
2055826		Total		1870000		NR		NR	ug/L					
2055829		Total		2480000		NR		NR	ug/L					
2055827		Total		1910000		NR		NR	ug/L					
2160493		Total		400000		NR		NR	ug/L					
2160450		Total		2000000		NR		NR	ug/L					
2160469		Total		2000000		NR		NR	ug/L					
2160475		Total		4000000		NR		NR	ug/L					
2160472		Total		5090000		4710000		5490000	ug/L					
2160470		Total		3500000		NR		NR	ug/L					
2160473		Total		4050000		3750000		4380000	ug/L					
2160471		Total		5000000		NR		NR	ug/L					
2160484		Total		800000		NR		NR	ug/L					
2160481		Total		400000		NR		NR	ug/L					
2160489		Total		400000		NR		NR	ug/L					
2160490		Total		800000		NR		NR	ug/L					
2160465		Total		4170000		3350000		5190000	ug/L					
2160464		Total		5000000		NR		NR	ug/L					
2160460		Total		3500000		NR		NR	ug/L					
2160468		Total		3320000		2650000		4170000	ug/L					
2060988		Total		30000000		NR		NR	ug/L					
2061001		Total		30000000		NR		NR	ug/L					
740690		Total		10000000		NR		NR	ug/L					
740662		Total		20000000		NR		NR	ug/L					
2060989		Total		30000000		NR		NR	ug/L					
741563		Total		2230000		2020000		2430000	ug/L					
803856		Total		2670000		2530000		2810000	ug/L					
2052775		Total		244000		230000		260000	ug/L					
231524	MSMT/TLM/	Total		7500000		NR		NR	ug/L					
231523	MSMT/TLM/	Total	>	10000000		NR		NR	ug/L					
231527	MSMT/TLM/	Total		7500000		NR		NR	ug/L					
231525	MSMT/TLM/	Total		7500000		NR		NR	ug/L					
231526	MSMT/TLM/	Total		7500000		NR		NR	ug/L					
2060997		Total		30000000		NR		NR	ug/L					
2060994		Total		30000000		NR		NR	ug/L					
2060995		Total		30000000		NR		NR	ug/L					
2060998		Total		30000000		NR		NR	ug/L					
741834		Total		7.7		6.8		8.9	mS/cm					
2062416		Total		16000000		NR		NR	ug/L					
2062417		Total		24000000		NR		NR	ug/L					
2064155	ENDPT/TLM/	Total		18100000		NR		NR	ug/L					
2064156	ENDPT/TLM/	Total		17550000		NR		NR	ug/L					
2064154	ENDPT/TLM/	Total		18100000		NR		NR	ug/L					
773637		Formulation		100000		NR		NR	ug/L					
118481		Total		11540000		11290000		11800000	ug/L					
2061031		Total		85000000		NR		NR	ug/L					
2061000		Total		30000000		NR		NR	ug/L					
741789		Total		7700000		6563000		9034000	ug/L					
742663		Total		10000000		NR		NR	ug/L					
2053816		Total		9260000		NR		NR	ug/L					
2053813		Total		10040000		NR		NR	ug/L					
2053818		Total		8530000		NR		NR	ug/L					
2053814		Total		12110000		NR		NR	ug/L					
2053819		Total		12000000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2061002		Total		30000000		NR		NR	ug/L					
2053817		Total		12600000		NR		NR	ug/L					
2061005		Total		30000000		NR		NR	ug/L					
2061007		Total		30000000		NR		NR	ug/L					
2061010		Total		60000000		NR		NR	ug/L					
2061034		Total		85000000		NR		NR	ug/L					
231537	MSMT/TLM/	Total		3200000		NR		NR	ug/L					
231535	MSMT/TLM/	Total		3700000		NR		NR	ug/L					
231533	MSMT/TLM/	Total	>	10000000		NR		NR	ug/L					
231536	MSMT/TLM/	Total		3200000		NR		NR	ug/L					
231534	MSMT/TLM/	Total	>	10000000		NR		NR	ug/L					
2075474		Total		3078000		2771000		3418000	ug/L					
2075475		Total		3009000		2728000		3318000	ug/L					
763487		Total	~	200		NR		NR	mM					
763489		Total	~	200		NR		NR	mM					
763488		Total	~	300		NR		NR	mM					
763486		Total	~	300		NR		NR	mM					
2152842		Total		1382000		1276000		1496000	ug/L					
2164556		Total		1280000		1200000		1370000	ug/L					
2164551		Total		1140000		954000		1360000	ug/L					
2164548		Total		842000		736000		963000	ug/L					
2164558		Total		1200000		1090000		1320000	ug/L					
2164547		Total		831000		647000		1070000	ug/L					
2164553		Total		998000		890000		1120000	ug/L					
2164549		Total		781000		663000		919000	ug/L					
2164555		Total		1510000		1330000		1710000	ug/L					
2164557		Total		1240000		1150000		1340000	ug/L					
2164550		Total		733000		593000		907000	ug/L					
2164552		Total		1050000		958000		1160000	ug/L					
2164554		Total		954000		822000		1110000	ug/L					
2061030		Total		85000000		NR		NR	ug/L					
738141	MSMT/MEAN OF 6 BIOASSAY BATTERY TEST	Total		0.1		NR		NR	%					
16496		Total		6621000		NR		NR	ug/L					
2076800		Total		1855000		1556000		2154000	ug/L					
2162414		Total		2000000		NR		NR	ug/L					
741673		Total		2		NR		NR	ug/L					
740725		Total		20000000		NR		NR	ug/L					
741674	MSMT/STATISTICALLY BENEFICIAL INCREASE	Total		1		NR		NR	ug/L					
741642	MSMT/STATISTICALLY BENEFICIAL INCREASE	Total		2		NR		NR	ug/L					
742661		Total		0.5		NR		NR	%					
741737		Total		0.17		NR		NR	%					
742662		Total		0.17		NR		NR	%					
741772		Total		0.17		NR		NR	%					
741735		Total		0.17		NR		NR	%					
741774		Total		0.17		NR		NR	%					
741738		Total		0.17		NR		NR	%					
741773		Total		0.085		NR		NR	%					
741650		Total		4		NR		NR	ug/L					
741710		Total		10000000		NR		NR	ug/L					
740689		Total		10000000		NR		NR	ug/L					
2152606		Total		20000000		NR		NR	ug/L					
2055947		Total		45000000		NR		NR	ug/L					
2055953		Total		115000000		NR		NR	ug/L					
2164711		Total		4000000		NR		NR	ug/L					
2164613		Total		8000000		NR		NR	ug/L					
2164645		Total		1000000		NR		NR	ug/L					
2164646		Total		2000000		NR		NR	ug/L					
2164618		Total		8000000		NR		NR	ug/L					
2164696		Total		4000000		NR		NR	ug/L					
2164695		Total		2000000		NR		NR	ug/L					
2164692		Total		2000000		NR		NR	ug/L					
2164693		Total		4000000		NR		NR	ug/L					
2164628		Total		2000000		NR		NR	ug/L					
2164699		Total		500000		NR		NR	ug/L					
2164700		Total		1000000		NR		NR	ug/L					
2164640		Total		2000000		NR		NR	ug/L					
2164641		Total		4000000		NR		NR	ug/L					
2164627		Total		1000000		NR		NR	ug/L					
2164710		Total		2000000		NR		NR	ug/L					
2164623		Total		2000000		NR		NR	ug/L					
2164625		Total		2000000		NR		NR	ug/L					
2052772		Total		817000		770000		869000	ug/L					
2052780		Total		432000		365000		496000	ug/L					
2052781		Total		1559000		1338000		1824000	ug/L					
2052782		Total		403000		155000		617000	ug/L					
2052783		Total		1391000		1308000		1481000	ug/L					
741564		Total		1740000		1580000		1910000	ug/L					
2052773		Total		113000		63000		163000	ug/L					
2052774		Total		285000		163000		451000	ug/L					
2052786		Total		153000		34000		258000	ug/L					
2052785		Total		1265000		1167000		1372000	ug/L					
741584		Total		3980000		2750000		5210000	ug/L					
803857		Total		1840000		1690000		2000000	ug/L					
2052779		Total		1313000		1239000		1394000	ug/L					
2052784		Total		261000		174000		342000	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc 1 Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2224815	MSMT/BASED ON FOOT MOVEMENT/	Total		2630000		1870000		3690000	ug/L					
2052777		Total		1962000		1447000		2953000	ug/L					
2052778		Total		1870000		1595000		2225000	ug/L					
2052770		Total		168000		135000		189000	ug/L					
2052776		Total		763000		523000		1214000	ug/L					
2052771		Total		1430000		1350000		2953000	ug/L					
741568		Total		550000		520000		580000	ug/L					
803860		Total		560000		540000		590000	ug/L					
741594		Total		4560000		3920000		5200000	ug/L					
2224806	MSMT/BASED ON FOOT MOVEMENT/	Total		3570000		2300000		5550000	ug/L					
2164655		Total		23100000		10000000		73800000	ug/L					
2164658		Total		5300000		2300000		16000000	ug/L					
2164654	MSMT/OTHER DURATIONS REPORTED AS G	Total		500000		NR		NR	ug/L					
2164657		Total		8700000		3800000		26700000	ug/L					
2164656		Total		13900000		6100000		42900000	ug/L					
196203		Total		12946000		NR		NR	ug/L					
2210845		Total		5220000		NR		NR	ug/L					
18184	MSMT/TLM///	Total		14125000		NR		NR	ug/L					
40512		Total		1294600		NR		NR	ug/L					
201540		Total		5840000		5560000		6080000	ug/L					
13417		Total		12946000		NR		NR	ug/L					
740684		Total		10000000		NR		NR	ug/L					
740724		Total		10000000		NR		NR	ug/L					
220765		Total		9103000		NR		NR	ug/L					
2224820	MSMT/BASED ON FOOT MOVEMENT/	Total		3750000		2380000		5900000	ug/L					
2224821	MSMT/BASED ON FOOT MOVEMENT/	Total		2510000		1840000		3430000	ug/L					
231519	MSMT/TLM/	Total		6950000		NR		NR	ug/L					
231583	MSMT/TLM/	Total		5800000		NR		NR	ug/L					
231522	MSMT/TLM/	Total		6200000		NR		NR	ug/L					
231584	MSMT/TLM/	Total		5800000		NR		NR	ug/L					
231582	MSMT/TLM/	Total		5800000		NR		NR	ug/L					
231521	MSMT/TLM/	Total		6200000		NR		NR	ug/L					
231518	MSMT/TLM/	Total	>	7500000		NR		NR	ug/L					
231520	MSMT/TLM/	Total		6800000		NR		NR	ug/L					
203677		Total		2970000		2770000		3160000	ug/L					
203678		Total		4580000		NR		NR	ug/L					
2154076		Total		900000		NR		NR	ug/L					
2165531		Total		750000		NR		NR	ug/L					
2060018		Total		945000		NR		NR	ug/L					
2060020		Total		945000		NR		NR	ug/L					
2059995		Total		465000		NR		NR	ug/L					
2059533		Total		945000		NR		NR	ug/L					
2076801		Total		2479000		2134000		2823000	ug/L					
741963	MSMT/CALCULATED BY SPEARMAN KARBER	Total		2636500		2532820		2744400	ug/L					
741964	MSMT/CALCULATED BY PROBIT ANALYSIS/	Total		5109200		2445470		6933460	ug/L					
2165523		Total		750000		NR		NR	ug/L					
2152829		Total		3100000		2759000		3483000	ug/L					
2060317	MSMT/REPLICATE C/	Total		7810000		NR		NR	ug/L					
2060288	MSMT/TRIM LEVEL 5.0%/	Total		5457680		4906760		6070450	ug/L					
2060318	MSMT/REPLICATE D/	Total		7810000		NR		NR	ug/L					
2060291		Total		3100000		NR		NR	ug/L					
2060289	MSMT/TRIM LEVEL 10.0%/	Total		5505580		4864550		6231080	ug/L					
2060315	MSMT/REPLICATE C/	Total		3100000		NR		NR	ug/L					
2060319	MSMT/REPLICATE D/	Total		4940000		NR		NR	ug/L					
2060292		Total		4940000		NR		NR	ug/L					
2060307	MSMT/REPLICATE B/	Total		7810000		NR		NR	ug/L					
2060302	MSMT/REPLICATE A/	Total		4940000		NR		NR	ug/L					
2060309	MSMT/REPLICATE B/	Total		4940000		NR		NR	ug/L					
2060290	MSMT/TRIM LEVEL 20.0%/	Total		5588680		4636490		6736420	ug/L					
2060276	MSMT/TRIM LEVEL 0.0%/	Total		5407490		4918990		5944500	ug/L					
2060293		Total		3913310		NR		NR	ug/L					
2060306	MSMT/REPLICATE A/	Total		7810000		NR		NR	ug/L					
18185	MSMT/TLM///	Total		3412000		NR		NR	ug/L					
764505		Total		2600000		NR		NR	ug/L					
18186	MSMT/TLM///	Total		3388000		NR		NR	ug/L					
741739		Total		10000000		NR		NR	ug/L					
2164605		Total		500000		NR		NR	ug/L					
2164606		Total		1000000		NR		NR	ug/L					
2164588		Total		8000000		NR		NR	ug/L					
2164587		Total		4000000		NR		NR	ug/L					
2164592		Total		10000000		NR		NR	ug/L					
2164591		Total		8000000		NR		NR	ug/L					
2164600		Total		4000000		NR		NR	ug/L					
2164599		Total		2000000		NR		NR	ug/L					
2164608		Total		2000000		NR		NR	ug/L					
2164609		Total		4000000		NR		NR	ug/L					
2164603		Total		2000000		NR		NR	ug/L					
2164602		Total		1000000		NR		NR	ug/L					
2164594		Total		2000000		NR		NR	ug/L					
2164595		Total		4000000		NR		NR	ug/L					
741589		Total		10800000		9700000		12100000	ug/L					
741627	MSMT/ENDPOINTS REPORTED AS NOAEC A	Total		5000000		NR		NR	ug/L					
741624	MSMT/ENDPOINTS REPORTED AS NOAEC A	Total		10000000		NR		NR	ug/L					
742550	MSMT/ENDPOINTS REPORTED AS NOAEC A	Total		10000000		NR		NR	ug/L					
741596		Total		15000000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Typ	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
742551	MSMT/ENDPOINTS REPORTED AS NOAEC A	Total		5000000		NR		NR	ug/L					
742549		Total		10500000		9400000		11800000	ug/L					
141462		Total		0.6929		0.6014		0.7985	%					
2271253		Total		0.2711		0.2493		0.2947	%					
2271251		Total		0.5604		0.5335		0.5887	%					
2271252		Total		0.4222		0.3931		0.4535	%					
2271250		Total		0.6482		0.6226		0.6748	%					
141461		Total		0.5027		0.4623		0.5466	%					
742574		Total		11		8.9		13	mS/cm					
6172		Total		5000000		NR		NR	ug/L					
802494		Total		2000000		NR		NR	ug/L					
802495		Total		2000000		NR		NR	ug/L					
6170		Total		1000000		NR		NR	ug/L					
6174		Total		5000000		NR		NR	ug/L					
802493		Total	<	1000000		NR		NR	ug/L					
6169		Total		1000000		NR		NR	ug/L					
6173		Total		5000000		NR		NR	ug/L					
802503		Total		4000000		NR		NR	ug/L					
802499		Total	>	7000000		NR		NR	ug/L					
802492		Total	<	1000000		NR		NR	ug/L					
6167		Total		3000000		NR		NR	ug/L					
802504		Total		4000000		NR		NR	ug/L					
802500		Total		6000000		NR		NR	ug/L					
802501		Total		6000000		NR		NR	ug/L					
802490		Total		1000000		NR		NR	ug/L					
802497		Total		4000000		NR		NR	ug/L					
6171		Total	>	7000000		NR		NR	ug/L					
802505		Total		4000000		NR		NR	ug/L					
802496		Total		2000000		NR		NR	ug/L					
6168		Total		1500000		NR		NR	ug/L					
802502		Total		6000000		NR		NR	ug/L					
802506		Total		7000000		NR		NR	ug/L					
802491		Total	<	1000000		NR		NR	ug/L					
2075478		Total		1930000		1655000		2251000	ug/L					
16494		Total		2569000		NR		NR	ug/L					
2061004		Total		30000000		NR		NR	ug/L					
2061033		Total		85000000		NR		NR	ug/L					
2060335		Total		5340000		NR		NR	ug/L					
2060352	MSMT/REPLICATE B/	Total		5340000		NR		NR	ug/L					
2060360	MSMT/REPLICATE C/	Total		5340000		NR		NR	ug/L					
2060336		Total		4210560		NR		NR	ug/L					
2060333		Total		3320000		NR		NR	ug/L					
2060327	MSMT/TRIM LEVEL 10.0%/	Total		4269830		4148750		4394440	ug/L					
2060350	MSMT/REPLICATE A/	Total		5340000		NR		NR	ug/L					
2060361	MSMT/REPLICATE C/	Total		7720000		NR		NR	ug/L					
2060325	MSMT/TRIM LEVEL 0.0%/	Total		4310420		4118450		4511340	ug/L					
2060342	MSMT/REPLICATE A/	Total		5340000		NR		NR	ug/L					
2060326	MSMT/TRIM LEVEL 5.0%/	Total		4270280		4132520		4412630	ug/L					
2060329	MSMT/TRIM LEVEL 20.0%/	Total		4269830		4148750		4394440	ug/L					
2060354	MSMT/REPLICATE B/	Total		5340000		NR		NR	ug/L					
2061036		Total		85000000		NR		NR	ug/L					
205755	MSMT/SWIM UP///	Total		1324000		NR		NR	ug/L					
202197		Total		3917000		NR		NR	ug/L					
740665		Total		10000000		NR		NR	ug/L					
251449		Active ingredient		2740000		NR		NR	ug/L					
741684		Total		18000000		NR		NR	ug/L					
741683		Total		20380000		19300000		20880000	ug/L					
205757		Total		643000		NR		NR	ug/L					
205758		Total		1324000		NR		NR	ug/L					
205754		Total		2740000		NR		NR	ug/L					
205753		Total		6094000		4747000		7824000	ug/L					
759632		Total		6500000		NR		NR	ug/L					
205752		Total		7461000		6112000		9108000	ug/L					
740723		Total		10000000		NR		NR	ug/L					
205756	MSMT/SWIM UP///	Total		2740000		NR		NR	ug/L					
740663		Total		10000000		NR		NR	ug/L					
203282	MSMT/TLM///	Total		175		NR		NR	mOsm					
202198		Total		1924000		NR		NR	ug/L					
202199		Total		3917000		NR		NR	ug/L					
2152827		Total		6030000		5916000		6145000	ug/L					
202205		Total		7461000		6112000		9108000	ug/L					
202206		Total		6094000		4747000		7824000	ug/L					
202200		Total		1924000		NR		NR	ug/L					
202201		Total		3917000		NR		NR	ug/L					
205759	MSMT/CHRONIC VALUE///	Total		923000		643000		1324000	ug/L					
2061009		Total		30000000		NR		NR	ug/L					
2163188		Total		0.24		NR		NR	%					
2163192		Total		0.24		NR		NR	%					
2163194		Total		0.24		NR		NR	%					
2163190		Total		0.24		NR		NR	%					
2163088		Total		3790000		NR		NR	ug/L					
2163089		Total		4500000		NR		NR	ug/L					
2163090		Total		6800000		NR		NR	ug/L					
2163087		Total		2690000		NR		NR	ug/L					
2162431		Total		200000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2163112		Total		7400000		NR		NR	ug/L					
2163110		Total		7400000		7130000		7680000	ug/L					
2163109		Total		6990000		6720000		7260000	ug/L					
2163111		Total		4900000		NR		NR	ug/L					
740693		Total		10000000		NR		NR	ug/L					
741709		Total		10000000		NR		NR	ug/L					
201543		Total		5060000		NR		NR	ug/L					
201542		Total		2540000		2410000		2640000	ug/L					
231546	MSMT/TLM/	Total		5100000		NR		NR	ug/L					
231545	MSMT/TLM/	Total		5100000		NR		NR	ug/L					
231550	MSMT/TLM/	Total		6200000		NR		NR	ug/L					
231549	MSMT/TLM/	Total		6200000		NR		NR	ug/L					
231554	MSMT/TLM/	Total		4100000		NR		NR	ug/L					
231544	MSMT/TLM/	Total	>	5600000		NR		NR	ug/L					
231553	MSMT/TLM/	Total		4250000		NR		NR	ug/L					
231547	MSMT/TLM/	Total		7500000		NR		NR	ug/L					
231542	MSMT/TLM/	Total	>	5600000		NR		NR	ug/L					
231551	MSMT/TLM/	Total		4800000		NR		NR	ug/L					
231548	MSMT/TLM/	Total		6950000		NR		NR	ug/L					
231540	MSMT/TLM/	Total		3500000		NR		NR	ug/L					
231543	MSMT/TLM/	Total	>	5600000		NR		NR	ug/L					
231539	MSMT/TLM/	Total		3700000		NR		NR	ug/L					
231538	MSMT/TLM/	Total		4200000		NR		NR	ug/L					
231552	MSMT/TLM/	Total		4250000		NR		NR	ug/L					
231541	MSMT/TLM/	Total		3500000		NR		NR	ug/L					
741736		Total		8.7		7.6		9.9	mS/cm					
196750		Total		7750000		NR		NR	ug/L					
196772		Total		7500000		NR		NR	ug/L					
196755		Total		7950000		NR		NR	ug/L					
196735		Total		9000000		NR		NR	ug/L					
196726		Total		7650000		NR		NR	ug/L					
196768		Total		7200000		NR		NR	ug/L					
196767		Total		7200000		NR		NR	ug/L					
196736		Total		8300000		NR		NR	ug/L					
196713		Total		7050000		NR		NR	ug/L					
196744		Total		7800000		NR		NR	ug/L					
196769		Total		7200000		NR		NR	ug/L					
196724		Total		7650000		NR		NR	ug/L					
196765		Total		8150000		NR		NR	ug/L					
196763		Total		8300000		NR		NR	ug/L					
740694		Total		10000000		NR		NR	ug/L					
759180		Total		11400000		10890000		11850000	ug/L					
740696		Total		10000000		NR		NR	ug/L					
740697		Total		20000000		NR		NR	ug/L					
196745		Total		7800000		NR		NR	ug/L					
196714		Total		7050000		NR		NR	ug/L					
196748		Total		7650000		NR		NR	ug/L					
196728		Total		7400000		NR		NR	ug/L					
196741		Total		8200000		NR		NR	ug/L					
196756		Total		7950000		NR		NR	ug/L					
196734		Total		7200000		NR		NR	ug/L					
196729		Total		7400000		NR		NR	ug/L					
196760		Total		8400000		NR		NR	ug/L					
196759		Total		8700000		NR		NR	ug/L					
196761		Total		8400000		NR		NR	ug/L					
196731		Total		7500000		NR		NR	ug/L					
196738		Total		8300000		NR		NR	ug/L					
196839		Total		7650000		NR		NR	ug/L					
196770		Total		7600000		NR		NR	ug/L					
196720		Total		7400000		NR		NR	ug/L					
196718		Total		7100000		NR		NR	ug/L					
196753		Total		7450000		NR		NR	ug/L					
196766		Total		7500000		NR		NR	ug/L					
196757		Total		7950000		NR		NR	ug/L					
196723		Total		7700000		NR		NR	ug/L					
196732		Total		7300000		NR		NR	ug/L					
196740		Total		8200000		NR		NR	ug/L					
768104		Total		2250000		NR		NR	ug/L					
768105		Total		1250000		NR		NR	ug/L					
201560		Total		252000		NR		NR	ug/L					
768072		Total		5000000		NR		NR	ug/L					
768073		Total		2500000		NR		NR	ug/L					
2152828		Total		4079000		3644000		4565000	ug/L					
768158		Total		1250000		NR		NR	ug/L					
768157		Total		2500000		NR		NR	ug/L					
201562		Total		298000		NR		NR	ug/L					
768067		Total		2500000		NR		NR	ug/L					
768066		Total		5000000		NR		NR	ug/L					
768059		Total		2500000		NR		NR	ug/L					
768058		Total		5000000		NR		NR	ug/L					
768096		Total		5000000		NR		NR	ug/L					
768097		Total		2500000		NR		NR	ug/L					
201537		Total		6570000		6420000		6700000	ug/L					
768128		Total		1250000		NR		NR	ug/L					
768127		Total		2500000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Typ	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
196716		Total		7100000		NR		NR	ug/L					
196749		Total		7650000		NR		NR	ug/L					
196722		Total		7400000		NR		NR	ug/L					
196751		Total		7550000		NR		NR	ug/L					
196711		Total		7100000		NR		NR	ug/L					
196737		Total		8300000		NR		NR	ug/L					
196712		Total		7050000		NR		NR	ug/L					
196764		Total		8150000		NR		NR	ug/L					
196742		Total		8200000		NR		NR	ug/L					
196746		Total		7800000		NR		NR	ug/L					
196733		Total		7200000		NR		NR	ug/L					
196758		Total		8800000		NR		NR	ug/L					
196773		Total		7500000		NR		NR	ug/L					
196725		Total		7650000		NR		NR	ug/L					
196752		Total		7450000		NR		NR	ug/L					
196715		Total		7200000		NR		NR	ug/L					
196730		Total		7400000		NR		NR	ug/L					
196727		Total		7750000		NR		NR	ug/L					
196771		Total		7500000		NR		NR	ug/L					
196721		Total		7400000		NR		NR	ug/L					
196739		Total		8300000		NR		NR	ug/L					
196754		Total		8100000		NR		NR	ug/L					
196717		Total		7100000		NR		NR	ug/L					
196747		Total		7650000		NR		NR	ug/L					
196743		Total		8150000		NR		NR	ug/L					
196762		Total		8800000		NR		NR	ug/L					
196719		Total		7400000		NR		NR	ug/L					
768144		Total		1250000		NR		NR	ug/L					
768143		Total		2500000		NR		NR	ug/L					
768090		Total		2500000		NR		NR	ug/L					
768091		Total		1250000		NR		NR	ug/L					
2055548		Total		7300000		NR		NR	ug/L					
2055549		Total		8300000		NR		NR	ug/L					
2055550		Total		6750000		NR		NR	ug/L					
2055542		Total		8360000		NR		NR	ug/L					
741400	MSMT/CONC/ AVERAGE 7 DAY CONCENTRA	Total		2000000		NR		NR	ug/L					
741744		Total		1140000		NR		NR	ug/L					
742666		Total		860000		NR		NR	ug/L					
2163907		Dissolved		25430		NR		NR	ug/L					
2163914		Dissolved		25430		NR		NR	ug/L					
768089		Total		2500000		NR		NR	ug/L					
768088		Total		5000000		NR		NR	ug/L					
768124		Total		1250000		NR		NR	ug/L					
768123		Total		2500000		NR		NR	ug/L					
768163		Total		5000000		NR		NR	ug/L					
768164		Total		2500000		NR		NR	ug/L					
768153		Total		2500000		NR		NR	ug/L					
768154		Total		1250000		NR		NR	ug/L					
768098		Total		5000000		NR		NR	ug/L					
768099		Total		2500000		NR		NR	ug/L					
768074		Total		2500000		NR		NR	ug/L					
768075		Total		1250000		NR		NR	ug/L					
767563		Total		5440		4970		5960	ug/L					
768080		Total		5000000		NR		NR	ug/L					
768081		Total		2500000		NR		NR	ug/L					
742059		Total		4490000		NR		NR	ug/L					
742029		Total		4490000		NR		NR	ug/L					
742057		Total		4490000		NR		NR	ug/L					
742070		Total		4490000		NR		NR	ug/L					
784793		Total		0.5		NR		NR	%					
742077		Total		4490000		NR		NR	ug/L					
742932		Total		4490000		NR		NR	ug/L					
742058		Total		4490000		NR		NR	ug/L					
160325		Total		6390000		6020000		7070000	ug/L					
160324		Total		6510000		6090000		7070000	ug/L					
68599		Total		4000000		NR		NR	ug/L					
42865		Total		4000000		NR		NR	ug/L					
167862		Total		7650000		NR		NR	ug/L					
167861		Total		7650000		NR		NR	ug/L					
14383		Total		4000000		NR		NR	ug/L					
96885		Total		4000000		NR		NR	ug/L					
42866		Total		8000000		NR		NR	ug/L					
768114		Total		1250000		NR		NR	ug/L					
768113		Total		2500000		NR		NR	ug/L					
768108		Total		1250000		NR		NR	ug/L					
768107		Total		2500000		NR		NR	ug/L					
201538		Total		7310000		NR		NR	ug/L					
768083		Total		1250000		NR		NR	ug/L					
768082		Total		2500000		NR		NR	ug/L					
768138		Total		1250000		NR		NR	ug/L					
768137		Total		2500000		NR		NR	ug/L					
768147		Total		2500000		NR		NR	ug/L					
768148		Total		1250000		NR		NR	ug/L					
768064		Total		5000000		NR		NR	ug/L					
768065		Total		2500000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
768134		Total		2500000		NR		NR	ug/L					
768133		Total		5000000		NR		NR	ug/L					
768117		Total		2500000		NR		NR	ug/L					
768118		Total		1250000		NR		NR	ug/L					
201561		Total		352000		NR		NR	ug/L					
767566	MSMT/MEAN OF LABORATORY REFERENCE	Total		6280		NR		NR	ug/L					
96881		Total		8000000		NR		NR	ug/L					
768559		Total		3035200		NR		NR	ug/L					
69057		Total		4000000		NR		NR	ug/L					
160323		Total		8280000		7240000		10000000	ug/L					
42423		Total		8000000		NR		NR	ug/L					
96906		Total		8000000		NR		NR	ug/L					
96907		Total		4000000		NR		NR	ug/L					
14389		Total		8000000		NR		NR	ug/L					
2210509		Total		201000		NR		NR	ug/L					
768558		Total		6068500		NR		NR	ug/L					
68598		Total		8000000		NR		NR	ug/L					
742691		Total		210000		NR		NR	ug/L					
741410		Total		2200000		NR		NR	ug/L					
742027		Total		4490000		NR		NR	ug/L					
742030		Total		4490000		NR		NR	ug/L					
742026		Total		4490000		NR		NR	ug/L					
231532	MSMT/TLM/	Total		6150000		NR		NR	ug/L					
231528	MSMT/TLM/	Total	>	10000000		NR		NR	ug/L					
231531	MSMT/TLM/	Total		6150000		NR		NR	ug/L					
231530	MSMT/TLM/	Total		6150000		NR		NR	ug/L					
231529	MSMT/TLM/	Total		7500000		NR		NR	ug/L					
26115	MSMT/TLM///	Total		18735000		NR		NR	ug/L					
26116	MSMT/TLM///	Total		16595000		NR		NR	ug/L					
2060321		Total	>	11700000		NR		NR	ug/L					
2060324	MSMT/REPLICATE B/	Total		11700000		NR		NR	ug/L					
2060323	MSMT/REPLICATE A/	Total		7720000		NR		NR	ug/L					
2061003		Total		30000000		NR		NR	ug/L					
747953		Total		284000		NR		NR	ug/L					
741586		Total		2.5		NR		NR	%					
741559		Total		2.5		NR		NR	%					
742665		Total		10000000		NR		NR	ug/L					
741795		Total		3526000		2364000		5258000	ug/L					
742664		Total		10000000		NR		NR	ug/L					
741756		Total		3526000		2364000		5258000	ug/L					
741783		Total		10000000		NR		NR	ug/L					
741751		Total		10000000		NR		NR	ug/L					
2060370	MSMT/REPLICATE C/	Total		4760000		NR		NR	ug/L					
2060369	MSMT/REPLICATE B/	Total		4760000		NR		NR	ug/L					
2060365	MSMT/REPLICATE A/	Total		4760000		NR		NR	ug/L					
2060367	MSMT/REPLICATE A/	Total		7180000		NR		NR	ug/L					
2060362		Total		5846090		4760000		7180000	ug/L					
2060368	MSMT/REPLICATE B/	Total		7180000		NR		NR	ug/L					
2060371	MSMT/REPLICATE C/	Total		7180000		NR		NR	ug/L					
2058029		Total		1500000		NR		NR	ug/L					
2061008		Total		30000000		NR		NR	ug/L					
2170552		Total		4000000		NR		NR	ug/L					
740692		Total		10000000		NR		NR	ug/L					
740691		Total		10000000		NR		NR	ug/L					
41933		Total		40000000		NR		NR	ug/L					
41934		Total		5000000		NR		NR	ug/L					
740686		Total		10000000		NR		NR	ug/L					
740685		Total		10000000		NR		NR	ug/L					
2061035		Total		85000000		NR		NR	ug/L					
2075473		Total		1100000		1040000		1164000	ug/L					
2075472		Total		740000		687000		807000	ug/L					
231556	MSMT/TLM/	Total		1950000		NR		NR	ug/L					
231560	MSMT/TLM/	Total		1550000		NR		NR	ug/L					
231561	MSMT/TLM/	Total		1250000		NR		NR	ug/L					
231559	MSMT/TLM/	Total		2400000		NR		NR	ug/L					
231557	MSMT/TLM/	Total		1250000		NR		NR	ug/L					
231558	MSMT/TLM/	Total		1100000		NR		NR	ug/L					
231562	MSMT/TLM/	Total		1150000		NR		NR	ug/L					
231555	MSMT/TLM/	Total		2250000		NR		NR	ug/L					
741781		Total		10000000		NR		NR	ug/L					
84265	MSMT/SURVIVAL///	Total		5600		NR		NR	ug/L					
83067	MSMT/SURVIVAL///	Total		3500		NR		NR	ug/L					
10561		Total		7000		NR		NR	ug/L					
84260	MSMT/SURVIVAL///	Total		2700		NR		NR	ug/L					
2061027		Total		85000000		NR		NR	ug/L					
741743		Total		10000000		NR		NR	ug/L					
741788		Total	>	10000000		NR		NR	ug/L					
741742		Total		10000000		NR		NR	ug/L					
161742		Formulation		NR		2200000		4500000	ug/L					
161744		Formulation		520000		NR		NR	ug/L					
2075476		Total		4278000		3848000		4717000	ug/L					
2075477		Total		6008000		5563000		6489000	ug/L					
2152833		Total		5648000		5219000		6111000	ug/L					
803853		Total		2760000		2650000		2880000	ug/L					
741562		Total		2590000		2410000		2770000	ug/L					

Result Number	EE Comment	Conc 1 Typ	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
741561		Total		3310000		3120000		3500000	ug/L					
741583		Total		5230000		4640000		5830000	ug/L					
803850		Total		3630000		3380000		3880000	ug/L					
2064226	ENDPT/TLM/	Formulation		42000		NR		NR	ug/L					
2064225	ENDPT/TLM/	Formulation		42000		NR		NR	ug/L					
2064223	ENDPT/TLM/	Formulation		42000		NR		NR	ug/L					
211034		Total		0.2		NR		NR	N					
67863	MSMT/TLM///	Total		300000		NR		NR	ug/L					
67862	MSMT/TLM///	Total		300000		NR		NR	ug/L					
18178	MSMT/TLM///	Total		880000		NR		NR	ug/L					
18176	MSMT/TLM///	Total		2380000		NR		NR	ug/L					
18177	MSMT/TLM///	Total		1110000		NR		NR	ug/L					
18179	MSMT/TLM///	Total		880000		NR		NR	ug/L					
764340		Total		4800000		NR		NR	ug/L					
764585		Total		900000		NR		NR	ug/L					
759286	MSMT/COMBINED 3 REPLICATES/	Total		1900000		NR		NR	ug/L					
759285	MSMT/COMBINED 3 REPLICATES/	Total		2530000		NR		NR	ug/L					
759267		Total		2670000		2000000		3500000	ug/L					
759268	MSMT/COMBINED THREE TESTS/	Total		1930000		1750000		2070000	ug/L					
759266		Total		2800000		2200000		4000000	ug/L					
759265		Total		2530000		1900000		3800000	ug/L					
766604		Total		2853000		NR		NR	ug/L					
766435		Total		2547000		NR		NR	ug/L					
766426		Total		3000000		NR		NR	ug/L					
767351		Total		1772150		NR		NR	ug/L					
766436		Total		NR	>	2300000	<	2500000	ug/L					
2017050		Total		2600000		NR		NR	ug/L					
2017049		Total		1300000		NR		NR	ug/L					
2017048		Total		1551000		1297000		1855000	ug/L					
2017057		Total		1619000		1364000		1920000	ug/L					
2017059		Total		2700000		NR		NR	ug/L					
2017058		Total		1450000		NR		NR	ug/L					
2017040		Total		1267000		1026000		1566000	ug/L					
2017042		Total		2000000		NR		NR	ug/L					
2017041		Total		1250000		NR		NR	ug/L					
2017029		Total		914000		809000		1030000	ug/L					
2017030		Total		610000		NR		NR	ug/L					
2017031		Total		1300000		NR		NR	ug/L					
766228		Total		3065000		NR		NR	ug/L					
766227		Total		2446000		NR		NR	ug/L					
766225		Total		NR	>	2000000	<	2500000	ug/L					
766224		Total		3000000		NR		NR	ug/L					
766221		Total		2049000		NR		NR	ug/L					
766222		Total		2216000		NR		NR	ug/L					
766223		Total		NR	>	1500000	<	2000000	ug/L					
766226		Total		2442000		NR		NR	ug/L					
759078		Total		1966980		NR		NR	ug/L					
759072		Total		3650000		NR		NR	ug/L					
759073		Total		1060000		NR		NR	ug/L					
761596		Total		1381000		NR		NR	ug/L					
767459		Total		2177930		NR		NR	ug/L					
766432		Total		3516000		NR		NR	ug/L					
767457		Total		2989490		NR		NR	ug/L					
766427		Total		2173000		NR		NR	ug/L					
160330		Total		3590000		3540000		3740000	ug/L					
767456		Total		2177930		NR		NR	ug/L					
767412		Total		1772150		NR		NR	ug/L					
767375		Total		3462900		NR		NR	ug/L					
766430		Total		3174000		NR		NR	ug/L					
767380		Total		3462900		NR		NR	ug/L					
767353		Total		1772150		NR		NR	ug/L					
766418		Total		2526000		NR		NR	ug/L					
766433		Total		2793000		NR		NR	ug/L					
767350		Total		3462900		NR		NR	ug/L					
766428		Total		2946000		NR		NR	ug/L					
767411		Total		3462900		NR		NR	ug/L					
766419		Total		2216000		NR		NR	ug/L					
766437		Total	~	2300000		NR		NR	ug/L					
766431		Total		2744000		NR		NR	ug/L					
766215	MSMT/MEAN OF 3 TESTS/	Total		2050000		NR		NR	ug/L					
160331		Total		3080000		1770000		3540000	ug/L					
766429		Total		2389000		NR		NR	ug/L					
766434		Total		3288000		NR		NR	ug/L					
767454		Total		2989490		NR		NR	ug/L					
766216		Total		1759000		NR		NR	ug/L					
767376		Total		1772150		NR		NR	ug/L					
766576		Total		1830000		NR		NR	ug/L					
766609		Total		3716000		NR		NR	ug/L					
766554		Total		2526000		NR		NR	ug/L					
766567		Total		2724000		NR		NR	ug/L					
766580		Total		1328000		NR		NR	ug/L					
766565		Total		2494000		NR		NR	ug/L					
766607		Total		3073000		NR		NR	ug/L					
766556		Total		2243000		NR		NR	ug/L					
766720	MSMT/MEAN OF 3 TESTS/	Total		2419000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
766574		Total		2757000		NR		NR	ug/L					
766740	MSMT/MEAN OF 3 TESTS/	Total		2264000		NR		NR	ug/L					
766739	MSMT/MEAN OF 3 TESTS/	Total		3000000		NR		NR	ug/L					
766717	MSMT/MEAN OF 3 TESTS/	Total		2469000		NR		NR	ug/L					
766577		Total		1793000		NR		NR	ug/L					
766560		Total		2402000		NR		NR	ug/L					
766603		Total		3361000		NR		NR	ug/L					
766575		Total		2184000		NR		NR	ug/L					
766581		Total		1828000		NR		NR	ug/L					
766722	MSMT/MEAN OF 3 TESTS/	Total		2272000		NR		NR	ug/L					
766573		Total		2404000		NR		NR	ug/L					
766730	MSMT/MEAN OF 3 TESTS/	Total		2273000		NR		NR	ug/L					
766731	MSMT/MEAN OF 3 TESTS/	Total		1727000		NR		NR	ug/L					
766578		Total		2095000		NR		NR	ug/L					
766595		Total		2383000		NR		NR	ug/L					
766586		Total		1868000		NR		NR	ug/L					
766610		Total		3506000		NR		NR	ug/L					
766745	MSMT/MEAN OF 3 TESTS/	Total		NR	>	3000000	<	3500000	ug/L					
766555		Total		2223000		NR		NR	ug/L					
766566		Total		2198000		NR		NR	ug/L					
766718	MSMT/MEAN OF 3 TESTS/	Total		2289000		NR		NR	ug/L					
766570		Total		1925000		NR		NR	ug/L					
766723	MSMT/MEAN OF 3 TESTS/	Total		2417000		NR		NR	ug/L					
766605		Total		3297000		NR		NR	ug/L					
766591		Total		2436000		NR		NR	ug/L					
766724	MSMT/MEAN OF 3 TESTS/	Total		1914000		NR		NR	ug/L					
766572		Total		2481000		NR		NR	ug/L					
766548		Total		2526000		NR		NR	ug/L					
766606		Total		3369000		NR		NR	ug/L					
766585		Total		2030000		NR		NR	ug/L					
766588		Total		2538000		NR		NR	ug/L					
766608		Total		3091000		NR		NR	ug/L					
766551		Total		2357000		NR		NR	ug/L					
766563		Total		2295000		NR		NR	ug/L					
767585		Total		3650000		NR		NR	ug/L					
767586		Total		1060000		NR		NR	ug/L					
767587		Total		1955980		NR		NR	ug/L					
766854		Total		1300900		NR		NR	ug/L					
766592		Total		3059000		NR		NR	ug/L					
766726	MSMT/MEAN OF 3 TESTS/	Total		1496000		NR		NR	ug/L					
766748	MSMT/MEAN OF 3 TESTS/	Total		NR	>	2000000	<	2500000	ug/L					
766587		Total		2269000		NR		NR	ug/L					
766612		Total		3338000		NR		NR	ug/L					
766561		Total		2470000		NR		NR	ug/L					
766590		Total		2607000		NR		NR	ug/L					
766593		Total		2706000		NR		NR	ug/L					
766594		Total		3265000		NR		NR	ug/L					
766571		Total		2472000		NR		NR	ug/L					
766584		Total		1116000		NR		NR	ug/L					
766217	MSMT/MEAN OF TWO TESTS/	Total		14134000		NR		NR	ug/L					
766218	MSMT/MEAN OF TWO TESTS/	Total		11682000		NR		NR	ug/L					
18144	MSMT/TLM///	Total		11430000		NR		NR	ug/L					
18145	MSMT/TLM///	Total		13350000		NR		NR	ug/L					
84497		Total		64.25605		NR		NR	mmol/L					
767473		Total		6844400		NR		NR	ug/L					
759175		Total		8600000		8390000		8770000	ug/L					
767575		Total		3650000		NR		NR	ug/L					
767574		Total		7460000		NR		NR	ug/L					
119467		Total		2564000		NR		NR	ug/L					
767294		Total		1194000		NR		NR	ug/L					
767307		Total		4395000		NR		NR	ug/L					
767306		Total		1985000		NR		NR	ug/L					
767296		Total		3342000		NR		NR	ug/L					
767303		Total		3808000		NR		NR	ug/L					
767295		Total		1551000		NR		NR	ug/L					
767298		Total		1194000		NR		NR	ug/L					
767576		Total		5218140		3650000		7460000	ug/L					
18452	MSMT/TLM///	Total		725000		NR		NR	ug/L					
18147	MSMT/TLM///	Total		6100000		NR		NR	ug/L					
18453	MSMT/TLM///	Total		630000		NR		NR	ug/L					
18454	MSMT/TLM///	Total		4547000		NR		NR	ug/L					
18451	MSMT/TLM///	Total		2564000		NR		NR	ug/L					
18450	MSMT/TLM///	Total		8384000		NR		NR	ug/L					
18146	MSMT/TLM///	Total		6800000		NR		NR	ug/L					
759091		Total		3650000		NR		NR	ug/L					
759090		Total		7460000		NR		NR	ug/L					
759092		Total		5218140		3650000		7460000	ug/L					
767297		Total		3203000		NR		NR	ug/L					
767305		Total		1563000		NR		NR	ug/L					
767299		Total		3203000		NR		NR	ug/L					
767496		Total		6844400		NR		NR	ug/L					
767494		Total		926770		NR		NR	ug/L					
767475		Total		6844400		NR		NR	ug/L					
160332		Total		6290000		5790000		7070000	ug/L					
767491		Total		6844400		NR		NR	ug/L					

Raw Data from ECOTOX (Unfiltered)

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean (	Conc 1 Mean (St	Conc 1 Min Op (St	Conc 1 Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
160333		Total		4580000		4060000		5360000	ug/L					
767505		Total		5491800		NR		NR	ug/L					
767507		Total		1434000		NR		NR	ug/L					
31684		Total		8384000		NR		NR	ug/L					
2064207	ENDPT/TLM/	Total		10000000		NR		NR	ug/L					
2064204	ENDPT/TLM/	Total		24000000		NR		NR	ug/L					
2064206	ENDPT/TLM/	Total		16500000		NR		NR	ug/L					
2064205	ENDPT/TLM/	Total		17500000		NR		NR	ug/L					
764940		Total		25000		NR		NR	ug/L					
764943		Total		635000		NR		NR	ug/L					
764942		Total		367000		NR		NR	ug/L					
764936		Total		24000		NR		NR	ug/L					
766638		Total		2840000		NR		NR	ug/L					
766642		Total		4145000		NR		NR	ug/L					
766639		Total		2724000		NR		NR	ug/L					
766712	MSMT/MEAN OF 3 TESTS/	Total		1854000		NR		NR	ug/L					
766716	MSMT/MEAN OF 3 TESTS/	Total		1470000		NR		NR	ug/L					
766618		Total		1779000		NR		NR	ug/L					
766713	MSMT/MEAN OF 3 TESTS/	Total		1799000		NR		NR	ug/L					
766641		Total		4336000		NR		NR	ug/L					
766616		Total		1767000		NR		NR	ug/L					
766625		Total		1684000		NR		NR	ug/L					
766633		Total		2740000		NR		NR	ug/L					
766631		Total		1621000		NR		NR	ug/L					
766640		Total		4046000		NR		NR	ug/L					
766644		Total		3796000		NR		NR	ug/L					
766627		Total		1480000		NR		NR	ug/L					
766617		Total		1820000		NR		NR	ug/L					
766624		Total		1616000		NR		NR	ug/L					
766619		Total		1879000		NR		NR	ug/L					
766714	MSMT/MEAN OF 3 TESTS/	Total		1938000		NR		NR	ug/L					
766715	MSMT/MEAN OF 3 TESTS/	Total		1691000		NR		NR	ug/L					
766629		Total		2000000		NR		NR	ug/L					
766710	MSMT/MEAN OF 3 TESTS/	Total		1563000		NR		NR	ug/L					
766623		Total		1679000		NR		NR	ug/L					
2017143		Total		2246000		NR		NR	ug/L					
2017146		Total		2412000		NR		NR	ug/L					
2017113		Total		2069000		NR		NR	ug/L					
2017144		Total		2461000		NR		NR	ug/L					
766643		Total		4345000		NR		NR	ug/L					
766630		Total		1901000		NR		NR	ug/L					
766635		Total		2955000		NR		NR	ug/L					
766711	MSMT/MEAN OF 3 TESTS/	Total		1562000		NR		NR	ug/L					
766637		Total		3462000		NR		NR	ug/L					
766622		Total		2002000		NR		NR	ug/L					
767601		Total		1226130		1118210		1344270	ug/L					
766709	MSMT/MEAN OF 3 TESTS/	Total		1387000		NR		NR	ug/L					
766628		Total		1438000		NR		NR	ug/L					
766626		Total		1433000		NR		NR	ug/L					
766636		Total		2121000		NR		NR	ug/L					
766632		Total		2002000		NR		NR	ug/L					
766634		Total		2203000		NR		NR	ug/L					
766621		Total		1830000		NR		NR	ug/L					
2017145		Total		1637000		NR		NR	ug/L					
764945		Total		138000		NR		NR	ug/L					
764947		Total		642000		NR		NR	ug/L					
767290		Total		1448000		NR		NR	ug/L					
767310		Total		2725000		NR		NR	ug/L					
767293		Total		5259000		NR		NR	ug/L					
767291		Total		1580000		NR		NR	ug/L					
767311		Total		2240000		NR		NR	ug/L					
767312		Total		2101000		NR		NR	ug/L					
767289		Total		569000		NR		NR	ug/L					
767599		Total		3650000		NR		NR	ug/L					
767600		Total		1060000		NR		NR	ug/L					
759093		Total		1226130		1118210		1344270	ug/L					
759094		Total		3650000		NR		NR	ug/L					
759095		Total		1060000		NR		NR	ug/L					
767292		Total		3144000		NR		NR	ug/L					
766440		Total		1460000		NR		NR	ug/L					
766446		Total		1460000		NR		NR	ug/L					
766416		Total		2185		NR		NR	mg/kg bdwt/wk					
766367	MSMT/MEAN OF THREE TESTS/	Total		262000		NR		NR	ug/L					
766441		Total		1460000		NR		NR	ug/L					
766438		Total		1460000		NR		NR	ug/L					
766365	MSMT/MEAN OF THREE TESTS/	Total		512000		NR		NR	ug/L					
766439		Total		1460000		NR		NR	ug/L					
766444		Total		1460000		NR		NR	ug/L					
766443		Total		1460000		NR		NR	ug/L					
766442		Total		1460000		NR		NR	ug/L					
766415		Total		2855000		NR		NR	ug/L					
766445		Total		1460000		NR		NR	ug/L					
766659		Total		3525000		3330000		3731000	ug/L					
766663		Total		1702000		1598000		1812000	ug/L					
766664		Total		1727000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
766658		Total		3523000		NR		NR	ug/L					
766666		Total		1822000		NR		NR	ug/L					
766662		Total		3729000		NR		NR	ug/L					
766657		Total		3377000		3205000		3558000	ug/L					
766656		Total		3183000		2837000		3571000	ug/L					
766665		Total		2661000		2268000		3123000	ug/L					
766661		Total		3574000		NR		NR	ug/L					
200196		Total		13500000		NR		NR	ug/L					
40509		Total		3040000*		NR		NR	ug/L					
40508		Total		4380000*		NR		NR	ug/L					
18180	MSMT/TLM///	Total		17500000		NR		NR	ug/L					
13415		Total		13500000		NR		NR	ug/L					
126071	MSMT/TLM///	Total		12750000		NR		NR	ug/L					
126072	MSMT/TLM///	Total		12500000		NR		NR	ug/L					
126070	MSMT/TLM///	Total		13000000		NR		NR	ug/L					
764588		Total		1000000		NR		NR	ug/L					
18150	MSMT/TLM///	Total		5400000		NR		NR	ug/L					
18151	MSMT/TLM///	Total		5400		NR		NR	ug/L					
18152	MSMT/TLM///	Total		3553		NR		NR	ug/L					
18149	MSMT/TLM///	Total		5401000		NR		NR	ug/L					
6211		Total		650000*		NR		NR	ug/L					
41636		Total		220000*		NR		NR	ug/L					
802675		Total		100000		NR		NR	ug/L					
802668		Total		4500000		NR		NR	ug/L					
41641		Total		790000*		NR		NR	ug/L					
802670		Total		4500000		NR		NR	ug/L					
802671		Total	>	2000000		NR		NR	ug/L					
6217		Total		1100000*		NR		NR	ug/L					
41642		Total		790000*		NR		NR	ug/L					
802677		Total		100000		NR		NR	ug/L					
802667		Total		4500000		NR		NR	ug/L					
41640		Total		790000*		NR		NR	ug/L					
802664		Total		2500000		NR		NR	ug/L					
802665		Total		2500000		NR		NR	ug/L					
6214		Total		81000*		NR		NR	ug/L					
802678		Total		500000		NR		NR	ug/L					
6216		Total		1100000*		NR		NR	ug/L					
802669		Total		4500000		NR		NR	ug/L					
6215		Total		1100000*		NR		NR	ug/L					
41635		Total		450000*		NR		NR	ug/L					
6212		Total		320000*		NR		NR	ug/L					
802672		Total	>	2000000		NR		NR	ug/L					
6213		Total		160000*		NR		NR	ug/L					
802663		Total		2500000		NR		NR	ug/L					
41637		Total		110000*		NR		NR	ug/L					
802674		Total		1000000		NR		NR	ug/L					
802676		Total		100000		NR		NR	ug/L					
41638		Total		56000*		NR		NR	ug/L					
802673		Total		2000000		NR		NR	ug/L					
41639		Total		790000*		NR		NR	ug/L					
6218		Total		1100000*		NR		NR	ug/L					
802666		Total		2500000		NR		NR	ug/L					
759029		Total		7500000		NR		NR	ug/L					
2017191		Total		2850000		NR		NR	ug/L					
766856		Total		1300900		NR		NR	ug/L					
761598		Total		1381000		NR		NR	ug/L					
2017213		Total		5250000		NR		NR	ug/L					
2017209		Total		2451000		1129000	>	5250000	ug/L					
2017210		Total	>	5250000		NR		NR	ug/L					
2017212		Total		2900000		NR		NR	ug/L					
2017211		Total	>	5250000		NR		NR	ug/L					
764930		Total		214000		NR		NR	ug/L					
764935		Total		906000		NR		NR	ug/L					
764929		Total		160000		NR		NR	ug/L					
2017182		Total		2850000		NR		NR	ug/L					
2017178		Total		1555000		869000		2032000	ug/L					
2017181		Total		1300000		NR		NR	ug/L					
2017180		Total		2938000		2359000		3385000	ug/L					
2017179		Total		2183000		1499000		2634000	ug/L					
764932		Total		24000		NR		NR	ug/L					
2017190		Total		4553000		3827000		5157000	ug/L					
2017188		Total		3231000		2084000		3840000	ug/L					
2017189		Total		3801000		2817000		4356000	ug/L					
767594		Total		1355480		NR		NR	ug/L					
759176		Total		15200000		14470000		15940000	ug/L					
767593		Total		510000		NR		NR	ug/L					
2017168		Total		559000		293000		805000	ug/L					
2017172		Total		1250000		NR		NR	ug/L					
2017171		Total		595000		NR		NR	ug/L					
2017170		Total		1649000		1255000		2097000	ug/L					
2017169		Total		933000		601000		1230000	ug/L					
764934		Total		474000		NR		NR	ug/L					
2163930		Dissolved		101370		NR		NR	ug/L					
2163923		Dissolved		101370		NR		NR	ug/L					
160335		Total	>	7960000		6800000	>	10000000	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
160334		Total	>	8080000		7070000	>	10000000	ug/L					
160336		Total		7960000		6800000	>	10000000	ug/L					
764928		Total		24000		NR		NR	ug/L					
2017192		Total		5500000		NR		NR	ug/L					
767592		Total		1060000		NR		NR	ug/L					
18153	MSMT/TLM///	Total		15996000		NR		NR	ug/L					
18148	MSMT/TLM///	Total		20040000		NR		NR	ug/L					
2017315		Total		1075000		NR		NR	ug/L					
2017301		Total		719000		234000		1041000	ug/L					
2017306		Total		1850000		NR		NR	ug/L					
2017304		Total	>	1850000		NR		NR	ug/L					
2017313		Total		1205000		363000		1510000	ug/L					
2017316		Total		1925000		NR		NR	ug/L					
2017314		Total		1507000		907000		1963000	ug/L					
2017312		Total		985000		146000		1302000	ug/L					
747208		Total		343000		NR		NR	ug/L					
2017303		Total		1190000		750000		2002000	ug/L					
2017305		Total		978000		NR		NR	ug/L					
766706	MSMT/MEAN OF 2 TESTS/	Total		2590000		NR		NR	ug/L					
766705	MSMT/MEAN OF 2 TESTS/	Total		2926000		NR		NR	ug/L					
766363	MSMT/MEAN OF THREE TESTS/	Total		2078000		NR		NR	ug/L					
766707	MSMT/MEAN OF 2 TESTS/	Total		2200000		NR		NR	ug/L					
766364	MSMT/MEAN OF THREE TESTS/	Total		1502000		NR		NR	ug/L					
766703	MSMT/MEAN OF 3 TESTS/	Total		2186000		NR		NR	ug/L					
766704	MSMT/MEAN OF 2 TESTS/	Total		2190000		NR		NR	ug/L					
766708	MSMT/MEAN OF 3 TESTS/	Total		2650000		NR		NR	ug/L					
161740		Formulation		7340000		NR		NR	ug/L					
161739		Formulation		660000		NR		NR	ug/L					
2052622		Total		300000		NR		NR	ug/L					
160500		Total	>	1970000	>	1970000	>	1970000	ug/L					
767397		Total		1470270		NR		NR	ug/L					
767360		Total		1447370		NR		NR	ug/L					
767399		Total		859960		NR		NR	ug/L					
767463		Total		764840		NR		NR	ug/L					
160498		Total	>	1910000		1910000	>	1970000	ug/L					
767462		Total		764840		NR		NR	ug/L					
767317		Total		1447370		NR		NR	ug/L					
160497		Total	>	1940000	>	1940000	>	1990000	ug/L					
2148118		Total		233000		NR		NR	ug/L					
2148117		Total		233000		NR		NR	ug/L					
2148116		Total		254000		NR		NR	ug/L					
2148115		Total		254000		NR		NR	ug/L					
759021	MSMT/F/F2 SURVIVAL/	Total		1600000		NR		NR	ug/L					
767483		Total		1470240		NR		NR	ug/L					
767467		Total		1470270		NR		NR	ug/L					
160499		Total	>	1970000	>	1970000	>	1970000	ug/L					
767469		Total		859960		NR		NR	ug/L					
767484		Total		1470240		NR		NR	ug/L					
759462	MSMT/REPLICATE A///	Total		360000		NR		NR	ug/L					
759465	MSMT/REPLICATE B///	Total		360000		NR		NR	ug/L					
2063748	ENDPT/TLM/	Total	>	56000000		NR		NR	ug/L					
2063749	ENDPT/TLM/	Total	>	56000000		NR		NR	ug/L					
2063750	ENDPT/TLM/	Total	>	56000000		NR		NR	ug/L					
196198		Total		2980000		NR		NR	ug/L					
26240		Total		2980000		NR		NR	ug/L					
759023		Total		732000		NR		NR	ug/L					
759024		Total		732000		NR		NR	ug/L					
160503		Total	>	1970000	>	1970000	>	1970000	ug/L					
160502		Total	>	1970000	>	1970000	>	1970000	ug/L					
767512		Total		1470200		NR		NR	ug/L					
767515		Total		1470200		NR		NR	ug/L					
160501		Total	>	1970000	>	1970000	>	1970000	ug/L					
749018		Total		1900000		1583300		2280000	ug/L					
748589		Total		190000		NR		NR	ug/L					
748332		Total		2600000		NR		NR	ug/L					
767446		Total		576380		NR		NR	ug/L					
767354		Total		770400		NR		NR	ug/L					
767421		Total		770400		NR		NR	ug/L					
767385		Total		425900		NR		NR	ug/L					
767443		Total		643620		NR		NR	ug/L					
767357		Total		770400		NR		NR	ug/L					
767427		Total		253650		NR		NR	ug/L					
767390		Total		253650		NR		NR	ug/L					
160505		Total	<	680000	<	620000		710000	ug/L					
160504		Total		770000		770000		780000	ug/L					
767387		Total		770400		NR		NR	ug/L					
767437		Total		253650		NR		NR	ug/L					
767432		Total		770400		NR		NR	ug/L					
767382		Total		770400		NR		NR	ug/L					
2147175		Total		600000		NR		NR	ug/L					
759765		Total		340000		NR		NR	ug/L					
2147174		Total		600000		NR		NR	ug/L					
767501		Total		425900		NR		NR	ug/L					
767482		Total		253650		NR		NR	ug/L					
767477		Total		770400		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc 1 Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (Sta	Conc 2 Units (Standa	Application Rate	Application Rate Units
767508		Total		632600		NR		NR	ug/L					
767480		Total		770400		NR		NR	ug/L					
767479		Total		253650		NR		NR	ug/L					
160506		Total		850000		670000		1170000	ug/L					
767503		Total		425900		NR		NR	ug/L					
767510		Total		412120		NR		NR	ug/L					
160507		Total		720000		580000		880000	ug/L					
114033		Total		112000		62000		140000	ug/L					
759759		Total		95000		NR		NR	ug/L					
40514		Total		3550000		NR		NR	ug/L					
160510		Total		680000		510000		880000	ug/L					
160509		Total		860000		580000		1170000	ug/L					
160508		Total		990000		770000		1170000	ug/L					
748333		Total		1310000		NR		NR	ug/L					
748588		Total		1000000		854700		1170000	ug/L					
22954		Total		360000		NR		NR	ug/L					
22953		Total		270000		NR		NR	ug/L					
22952		Total		480000		NR		NR	ug/L					
167635		Labile		180.6		NR		NR	mmol/L	Total	180.6	mmol/L		
160513		Total		1270000		880000		1770000	ug/L					
768177		Total		467310		NR		NR	ug/L					
768178		Total		932710		NR		NR	ug/L					
768277		Total		467310		NR		NR	ug/L					
160514		Total		880000		880000		880000	ug/L					
768176		Total		932710		NR		NR	ug/L					
22960		Total		32000		27400		37400	ug/L					
160516		Total		1330000		1170000		1580000	ug/L					
25475	MSMT/TLM///	Total		3699000		NR		NR	ug/L					
25474	MSMT/TLM///	Total		3391000		NR		NR	ug/L					
25476	MSMT/TLM///	Total		3484000		NR		NR	ug/L					
768454		Total		2044100		NR		NR	ug/L					
768393		Total		1863530		NR		NR	ug/L					
768501		Total		1491200		NR		NR	ug/L					
768392		Total		467310		NR		NR	ug/L					
768395		Total		467310		NR		NR	ug/L					
768451		Total		2044100		NR		NR	ug/L					
160515		Total		1560000		1250000		1810000	ug/L					
768390		Total		1863530		NR		NR	ug/L					
768456		Total		512450		NR		NR	ug/L					
768503		Total		746550		NR		NR	ug/L					
2064007	ENDPT/TLM/	Total		17750000		NR		NR	ug/L					
2064009	ENDPT/TLM/	Total		16500000		NR		NR	ug/L					
2064004	ENDPT/TLM/	Total		18750000		NR		NR	ug/L					
2054796		Total		7110000		6540000		7740000	ug/L					
2054792		Total		6140000		NR		NR	ug/L					
2054794		Total		7280000		6730000		7920000	ug/L					
2054791		Total		3840000		NR		NR	ug/L					
2054795		Total		7240000		6640000		7820000	ug/L					
2054793		Total		7370000		6810000		7990000	ug/L					
121880		Total		1355000		119900		1507000	ug/L					
22955		Total		760000		NR		NR	ug/L					
22957		Total		570000		NR		NR	ug/L					
22956		Total		440000		NR		NR	ug/L					
160517		Total		3520000		2520000		4490000	ug/L					
160518		Total		2840000		1970000		3880000	ug/L					
160519		Total		2120000		1580000		2740000	ug/L					
740705	MSMT/HATCHING RATE. BENEFICIAL EFFEC	Total		14120		NR		NR	ug/L					
740706	MSMT/HATCHING RATE. /	Total		32710		NR		NR	ug/L					
741940	MSMT/POST HATCH SURVIVAL RATE. /	Total		32710		NR		NR	ug/L					
741939	MSMT/POST HATCH SURVIVAL RATE STATIS	Total		14120		NR		NR	ug/L					
2163065		Total		0.4		NR		NR	%					
2064918		Total		0.001		NR		NR	M					
2173768		Total		6200		NR		NR	umol/L					
2173772		Total		6200		NR		NR	umol/L					
741341		Total		3000000		NR		NR	ug/L					
741319		Total		1000000		NR		NR	ug/L					
741323		Total		3500000		NR		NR	ug/L					
741305		Total		500000		NR		NR	ug/L					
742028		Total		4500000		NR		NR	ug/L					
741324		Total		1000000		NR		NR	ug/L					
2147187		Total		1000000		NR		NR	ug/L					
167631		Labile		400.3		NR		NR	mmol/L	Total	400.3	mmol/L		
2152764		Total	NR		>	2000000	<	2500000	ug/L					
767342		Total		800400		NR		NR	ug/L					
160619		Total		2260000		1770000		2680000	ug/L					
160620		Total		1830000		1770000		2030000	ug/L					
768180		Total		1598900		NR		NR	ug/L					
768283		Total		800400		NR		NR	ug/L					
768183		Total		800400		NR		NR	ug/L					
2152765		Total	NR		>	1000000	<	1500000	ug/L					
768284		Total		1598900		NR		NR	ug/L					
768181		Total		800400		NR		NR	ug/L					
768182		Total		1598900		NR		NR	ug/L					
768286		Total		401150		NR		NR	ug/L					
742988		Total		4970000		4740000		5260000	ug/L					

Result Number	EE Comment	Conc 1 Typ	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2057502		Total		3307.8		NR		NR	uM					
44241		Total		3000000		2280000		3948000	ug/L					
768399		Total		3195900		NR		NR	ug/L					
160622		Total		2770000		2330000		3230000	ug/L					
768396		Total		3195900		NR		NR	ug/L					
768462		Total		1196460		NR		NR	ug/L					
2152738		Total		NR	>	1500000	<	2000000	ug/L					
2152737		Total		NR	>	2000000	<	2500000	ug/L					
2152736		Total		172000		NR		NR	ug/L					
18686	MSMT/TLM///	Total		759000		NR		NR	ug/L					
18685	MSMT/TLM///	Total		1838000		NR		NR	ug/L					
18688	MSMT/TLM///	Total		649000		NR		NR	ug/L					
18684	MSMT/TLM///	Total		3005000		NR		NR	ug/L					
18683	MSMT/TLM///	Total		3526000		NR		NR	ug/L					
18687	MSMT/TLM///	Total		759000		NR		NR	ug/L					
742079		Total		590000		560000		630000	ug/L					
768457		Total		4780120		NR		NR	ug/L					
768402		Total		800400		NR		NR	ug/L					
768460		Total		1196460		NR		NR	ug/L					
768398		Total		800400		NR		NR	ug/L					
160621		Total		3250000		2680000		4010000	ug/L					
32466		Total		1838000		NR		NR	ug/L					
119478		Total		759000		NR		NR	ug/L					
2153763		Total		10000000		NR		NR	ug/L					
2153676		Total		10000000		NR		NR	ug/L					
740759		Total		10000000		NR		NR	ug/L					
740760		Total		10000000		NR		NR	ug/L					
740732		Total		10000000		NR		NR	ug/L					
2153700		Total		10000000		NR		NR	ug/L					
2153697		Total		10000000		NR		NR	ug/L					
740761		Total		10000000		NR		NR	ug/L					
2063733	ENDPT/TLM/	Total		13400000		NR		NR	ug/L					
2063726	ENDPT/TLM/	Total		13400000		NR		NR	ug/L					
2063735	ENDPT/TLM/	Total		13400000		NR		NR	ug/L					
740765		Total		10000000		NR		NR	ug/L					
740777		Total		10000000		NR		NR	ug/L					
740778		Total		10000000		NR		NR	ug/L					
19522		Total		10650000		NR		NR	ug/L					
741717		Total		10000000		NR		NR	ug/L					
196145		Total		10650000		NR		NR	ug/L					
40507		Total		10650000		NR		NR	ug/L					
2153801		Total		10000000		NR		NR	ug/L					
126054	MSMT/TLM///	Total		11300000		NR		NR	ug/L					
126052	MSMT/TLM///	Total		9500000		NR		NR	ug/L					
126053	MSMT/TLM///	Total		9500000		NR		NR	ug/L					
18689	MSMT/TLM///	Total		8350000		NR		NR	ug/L					
2054808		Total		3980000		3460000		4570000	ug/L					
2054805		Total		4850000		4160000		5650000	ug/L					
2054806		Total		4720000		4080000		5470000	ug/L					
2054807		Total		4180000		3690000		4730000	ug/L					
2054803		Total		2400000		NR		NR	ug/L					
2054804		Total		3840000		NR		NR	ug/L					
18693	MSMT/TLM///	Total		2573000		NR		NR	ug/L					
18691	MSMT/TLM///	Total		3094000		NR		NR	ug/L					
18690	MSMT/TLM///	Total		4485000		NR		NR	ug/L					
18692	MSMT/TLM///	Total		3308000		NR		NR	ug/L					
2153798		Total		10000000		NR		NR	ug/L					
740767		Total		10000000		NR		NR	ug/L					
184730		Total		NR		5000		80000	ug/L					
2152710		Total		1200		NR		NR	uM					
759027		Total		850000		NR		NR	ug/L					
759028		Total		850000		NR		NR	ug/L					
99472		Total	>	1000000		NR		NR	ug/L					
99476		Total	>	1000000		NR		NR	ug/L					
99478		Total	>	1000000		NR		NR	ug/L					
61681		Total	>	1000000		NR		NR	ug/L					
99477		Total	>	1000000		NR		NR	ug/L					
61680		Total	>	1000000		NR		NR	ug/L					
160623		Total	>	6660000		4700000	>	10000000	ug/L					
741718		Total		10000000		NR		NR	ug/L					
2153836		Total		20000000		NR		NR	ug/L					
2153835		Total		20000000		NR		NR	ug/L					
768541		Total		4780100		NR		NR	ug/L					
768539		Total		4780100		NR		NR	ug/L					
160624		Total	>	6560000		4390000	>	10000000	ug/L					
160625		Total		4630000		3930000		5360000	ug/L					
742032		Total		2640000		NR		NR	ug/L					
742060		Total		2840000		NR		NR	ug/L					
742031		Total		2840000		NR		NR	ug/L					
740738		Total		10000000		NR		NR	ug/L					
742933		Total		2840000		NR		NR	ug/L					
742078		Total		2110000		1980000		2220000	ug/L					
742890	MSMT/POST HATCH SURVIVAL/	Total		62940		NR		NR	ug/L					
741711	MSMT/POST-HATCH SURVIVAL./	Total		24950		NR		NR	ug/L					
741932	MSMT/SIGNIFICANT INCREASE IN HATCH/	Total		24950		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
740701	MSMT/HATCHING RATE./	Total		62940		NR		NR	ug/L					
740730		Total		10000000		NR		NR	ug/L					
55003		Total		7500000		NR		NR	ug/L					
740744		Total		10000000		NR		NR	ug/L					
2153802		Total		10000000		NR		NR	ug/L					
740734		Total		10000000		NR		NR	ug/L					
740779		Total		20000000		NR		NR	ug/L					
2064902		Total		0.001		NR		NR	M					
2060129	rs	Total		NR		125000		150000	ug/L					
2060130	rs	Total		NR		203000		355000	ug/L					
793903		Total		690000		NR		NR	ug/L					
761758		Total		960000		NR		NR	ug/L					
761759		Total		160000		NR		NR	ug/L					
17106		Total		68000		NR		NR	ug/L					
13816		Total		61000*		NR		NR	ug/L					
759476	MSMT/REPLICATE B///	Total		24000		NR		NR	ug/L					
759475	MSMT/REPLICATE A///	Total		24000		NR		NR	ug/L					
2254703		Total		4		NR		NR	mM					
2254689		Total		0.5		NR		NR	mM					
2254694		Total		0.5		NR		NR	mM					
2254764		Total		4		NR		NR	mM					
2254701		Total		4		NR		NR	mM					
2254763	f lateral head displacement	Total		2		NR		NR	mM					
2254782		Total		1		NR		NR	mM					
2254746	f lateral head displacement	Total		0.25		NR		NR	mM					
2255473		Total		0.5		NR		NR	mM					
2254766		Total		4		NR		NR	mM					
2254699		Total		1		NR		NR	mM					
2254707		Total		0.5		NR		NR	mM					
2254702		Total		4		NR		NR	mM					
2254695		Total		4		NR		NR	mM					
2254762	f lateral head displacement	Total		4		NR		NR	mM					
2254700		Total		2		NR		NR	mM					
2254684		Total		2		NR		NR	mM					
2254691		Total		0.25		NR		NR	mM					
2254690		Total		0.25		NR		NR	mM					
2254759	f lateral head displacement	Total		0.125		NR		NR	mM					
767230	MSMT/CERCARIA PRODUCTION DAYS/	Total		1250000		NR		NR	ug/L					
767232	MSMT/CERCARIA PRODUCTION PER SNAIL F	Total		1250000		NR		NR	ug/L					
2153175	MSMT/MEAN PER SNAIL PAIR/	Total		96000		61000		150000	ug/L					
2153081	MSMT/MEAN PER SNAIL PAIR/	Total		4500		2200		6200	ug/L					
2153082	MSMT/MEAN PER SNAIL PAIR/	Total		13000		11000		15000	ug/L					
2153174	MSMT/MEAN PER SNAIL PAIR/	Total		5600		600		14000	ug/L					
759472	MSMT/REPLICATE B///	Total		360000		NR		NR	ug/L					
759471	MSMT/REPLICATE A///	Total		360000		NR		NR	ug/L					
2153176	MSMT/3 BROOD PRODUCTION/	Total		39000		17000		54000	ug/L					
2153177	MSMT/3 BROOD PRODUCTION/	Total		122000		99000		151000	ug/L					
2153102	MSMT/3 BROOD PRODUCTION/	Total		63000		56000		70000	ug/L					
2153101	MSMT/3 BROOD PRODUCTION/	Total		36000		27000		42000	ug/L					
767204	MSMT/CERCARIA PRODUCTION PER SNAIL F	Total		1000000		NR		NR	ug/L					
767205	MSMT/DAYS CERCARIA PRODUCED (SHEDD	Total		2000000		NR		NR	ug/L					
741875	MSMT/NO CLEAR DOSE RESPONSE, LOWER	Total		500000		NR		NR	ug/L					
2152821		Total		1505000		540000		1670000	ug/L					
2152822		Total		1945000		1631000		2263000	ug/L					
2152820		Total		1241000		211000		1345000	ug/L					
2152823		Total		1120000		NR		NR	ug/L					
2152824		Total		2230000		NR		NR	ug/L					
759400	MSMT/COMBINED THREE TESTS/	Total		2700000		NR		NR	ug/L					
759401	MSMT/COMBINED THREE TESTS/	Total		1900000		NR		NR	ug/L					
759403	MSMT/COMBINED THREE TESTS/	Total		16000000		NR		NR	ug/L					
767972	rs	Total		620000		NR		NR	ug/L					
767971	rs	Total		1250000		NR		NR	ug/L					
767883	rs	Total		2500000		NR		NR	ug/L					
767884	rs	Total		1250000		NR		NR	ug/L					
767957	rs	Total		1250000		NR		NR	ug/L					
767958	rs	Total		620000		NR		NR	ug/L					
766861	rs	Total		620000		NR		NR	ug/L					
766860	rs	Total		2500000		NR		NR	ug/L					
767901	rs	Total		1250000		NR		NR	ug/L					
767902	rs	Total		620000		NR		NR	ug/L					
767553	MSMT/MEAN OF ALL LABORATORY REFERE	Total		1450250		NR		NR	ug/L					
742896	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
741947	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1000000		NR		NR	ug/L					
741679	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		750000		NR		NR	ug/L					
761582	rs	Total		500000		NR		NR	ug/L					
741938	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1000000		NR		NR	ug/L					
767860	rs	Total		2500000		NR		NR	ug/L					
767861	rs	Total		1250000		NR		NR	ug/L					
767868	rs	Total		1250000		NR		NR	ug/L					
767869	rs	Total		620000		NR		NR	ug/L					
766869	rs	Total		620000		NR		NR	ug/L					
766868	rs	Total		1250000		NR		NR	ug/L					
2153272		Total		454000		251000		819000	ug/L					
2153273		Total		697400		540000		901000	ug/L					
767875	rs	Total		620000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
767874	rs	Total		1250000		NR		NR	ug/L					
2152726	rs	Total		1296000		NR		NR	ug/L					
2152725	rs	Total		NR	>	2500000	<	3000000	ug/L					
2152727	rs	Total		2160000		NR		NR	ug/L					
767893	rs	Total		2500000		NR		NR	ug/L					
767894	rs	Total		1250000		NR		NR	ug/L					
2152721		Total		454000		251000		819000	ug/L					
2152731		Total		697000		540000		901000	ug/L					
767877	rs	Total		620000		NR		NR	ug/L					
767876	rs	Total		1250000		NR		NR	ug/L					
767858	rs	Total		1250000		NR		NR	ug/L					
767859	rs	Total		620000		NR		NR	ug/L					
2152855		Total		117000		94000		169000	ug/L					
2152873		Total		161000		126000		211000	ug/L					
767552	rs	Total		1245610		900660		1565610	ug/L					
2153276		Total		895000		706000		1177000	ug/L					
2153275		Total		580000		210000		733000	ug/L					
2153278		Total		521000		361000		588000	ug/L					
2153279		Total		700000		613000		784000	ug/L					
741688	rs	Total		440000		NR		NR	ug/L					
742568	rs	Total		850000		NR		NR	ug/L					
741661	rs	Total		1350000		1120000		1640000	ug/L					
207720	rs	Total		NR	>	1500000	<	2000000	ug/L					
2146818	rs	Total		630		NR		NR	ug/L					
2146819	rs	Total		1250		NR		NR	ug/L					
741952	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		250000		NR		NR	ug/L					
761594	rs	Total		500000		NR		NR	ug/L					
741936	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1100000		NR		NR	ug/L					
761578	rs	Total		1500000		NR		NR	ug/L					
761586	rs	Total		1000000		NR		NR	ug/L					
741950	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		670000		NR		NR	ug/L					
761580	rs	Total		1060000		NR		NR	ug/L					
742564	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1130000		NR		NR	ug/L					
741953	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		250000		NR		NR	ug/L					
742900	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
741944	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
742898	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		250000		NR		NR	ug/L					
741951	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		960000		NR		NR	ug/L					
741929	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		920000		NR		NR	ug/L					
761575	rs	Total		1160000		NR		NR	ug/L					
761574	rs	Total		1000000		NR		NR	ug/L					
761587	rs	Total		1170000		NR		NR	ug/L					
741937	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
742892	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1000000		NR		NR	ug/L					
742894	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		980000		NR		NR	ug/L					
742895	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		610000		NR		NR	ug/L					
741957	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1000000		NR		NR	ug/L					
742891	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
761576	rs	Total		1200000		NR		NR	ug/L					
761590	rs	Total		500000		NR		NR	ug/L					
2148464	rs	Total		147000		NR		NR	ug/L					
2148463	rs	Total		342000		NR		NR	ug/L					
2148479	rs	Total		563000		NR		NR	ug/L					
2148480	rs	Total		340000		NR		NR	ug/L					
2148473	rs	Total		653000		NR		NR	ug/L					
2148474	rs	Total		456000		NR		NR	ug/L					
767853	rs	Total		620000		NR		NR	ug/L					
767852	rs	Total		1250000		NR		NR	ug/L					
767956	rs	Total		130000		NR		NR	ug/L					
767955	rs	Total		620000		NR		NR	ug/L					
767850	rs	Total		1250000		NR		NR	ug/L					
767851	rs	Total		620000		NR		NR	ug/L					
766862	rs	Total		1250000		NR		NR	ug/L					
766863	rs	Total		620000		NR		NR	ug/L					
767866	rs	Total		1250000		NR		NR	ug/L					
767867	rs	Total		620000		NR		NR	ug/L					
766870	rs	Total		1250000		NR		NR	ug/L					
766871	rs	Total		620000		NR		NR	ug/L					
767892	rs	Total		310000		NR		NR	ug/L					
767891	rs	Total		620000		NR		NR	ug/L					
767885	rs	Total		1250000		NR		NR	ug/L					
767886	rs	Total		620000		NR		NR	ug/L					
767963	rs	Total		1250000		NR		NR	ug/L					
767964	rs	Total		620000		NR		NR	ug/L					
2153269		Total		146000		82000		277000	ug/L					
2153270		Total		481000		207000		541000	ug/L					
767899	rs	Total		1250000		NR		NR	ug/L					
767900	rs	Total		620000		NR		NR	ug/L					
767965	rs	Total		1250000		NR		NR	ug/L					
767966	rs	Total		620000		NR		NR	ug/L					
2153267		Total		301000		275000		362000	ug/L					
2152881		Total		264000		104000		280000	ug/L					
767974	rs	Total		1250000		NR		NR	ug/L					
767973	rs	Total		2500000		NR		NR	ug/L					
251022	rs	Total		900000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
251024	rs	Total		1500000		NR		NR	ug/L					
120834	rs	Total		1900000		NR		NR	ug/L					
120851	rs	Total		1510000		NR		NR	ug/L					
120833	rs	Total		1760000		NR		NR	ug/L					
251019	MSMT/FOUND IN ~10% OF LABS///	Total		300000		NR		NR	ug/L					
251014	rs	Total		1500000		NR		NR	ug/L					
741538	rs	Total	>	467000		NR		NR	ug/L					
741566	rs	Total		467000		NR		NR	ug/L					
120830	rs	Total		1600000		NR		NR	ug/L					
120832	rs	Total		1290000		NR		NR	ug/L					
120852	rs	Total		740000		NR		NR	ug/L					
120853	rs	Total		650000		NR		NR	ug/L					
120850	rs	Total		1340000		NR		NR	ug/L					
251020	rs	Total		500000		NR		NR	ug/L					
120836	rs	Total		1340000		NR		NR	ug/L					
251023	MSMT/FOUND BETWEEN 60 AND 70% OF L	Total		900000		NR		NR	ug/L					
251017	MSMT/FOUND IN ~20% OF LABS///	Total	<	300000		NR		NR	ug/L					
120856	MSMT/FOUND BETWEEN 10 AND 20% OF L	Total	<	300000		NR		NR	ug/L					
120849	rs	Total		300000		NR		NR	ug/L					
251016	rs	Total		2500000		NR		NR	ug/L					
251013	MSMT/FOUND BETWEEN 40 AND 50% OF L	Total		900000		NR		NR	ug/L					
120846	rs	Total	<	330000		NR		NR	ug/L					
120835	rs	Total		720000		NR		NR	ug/L					
120848	rs	Total		1390000		NR		NR	ug/L					
251010	rs	Total		300000		NR		NR	ug/L					
251015	MSMT/FOUND BETWEEN 30 AND 40% OF L	Total		1500000		NR		NR	ug/L					
251011	MSMT/FOUND BETWEEN 10 AND 20% OF L	Total		500000		NR		NR	ug/L					
251021	MSMT/FOUND IN ~10% OF LABS///	Total		500000		NR		NR	ug/L					
120847	rs	Total		1690000		NR		NR	ug/L					
120854	rs	Total		730000		NR		NR	ug/L					
120831	rs	Total	<	330000		NR		NR	ug/L					
251018	rs	Total		300000		NR		NR	ug/L					
251012	rs	Total		900000		NR		NR	ug/L					
742893	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
741958	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		570000		NR		NR	ug/L					
761585	rs	Total		500000		NR		NR	ug/L					
761579	rs	Total		1140000		NR		NR	ug/L					
741948	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		720000		NR		NR	ug/L					
761577	rs	Total		1500000		NR		NR	ug/L					
761588	rs	Total		1070000		NR		NR	ug/L					
761589	rs	Total		500000		NR		NR	ug/L					
761572	rs	Total		600000		NR		NR	ug/L					
761573	rs	Total		500000		NR		NR	ug/L					
742901	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
741949	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1000000		NR		NR	ug/L					
761584	rs	Total		670000		NR		NR	ug/L					
761591	rs	Total		690000		NR		NR	ug/L					
761595	rs	Total		600000		NR		NR	ug/L					
741943	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		710000		NR		NR	ug/L					
741648	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
742563	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		1000000		NR		NR	ug/L					
761583	rs	Total		520000		NR		NR	ug/L					
761593	rs	Total		500000		NR		NR	ug/L					
761581	rs	Total		1500000		NR		NR	ug/L					
761592	rs	Total		710000		NR		NR	ug/L					
742899	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		680000		NR		NR	ug/L					
742565	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
741649	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		250000		NR		NR	ug/L					
741945	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		250000		NR		NR	ug/L					
741946	MSMT/AUTHOR REPORTS REPRODUCTION (	Total	<	250000		NR		NR	ug/L					
741959	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		500000		NR		NR	ug/L					
741942	MSMT/AUTHOR REPORTS REPRODUCTION (	Total		250000		NR		NR	ug/L					
742897	MSMT/AUTHOR REPORTS REPRODUCTION (	Total	<	250000		NR		NR	ug/L					
761753		Total		1155000		NR		NR	ug/L					
761752		Total		1650000		NR		NR	ug/L					
741696	rs	Total		850000		NR		NR	ug/L					
741654	rs	Total		650000		530000		790000	ug/L					
741659	rs	Total		440000		NR		NR	ug/L					
741546	rs	Total		467000		NR		NR	ug/L					
741530	rs	Total	>	467000		NR		NR	ug/L					
2164764		Total		500000		NR		NR	ug/L					
2164766		Total		2000000		NR		NR	ug/L					
2164761		Total		1000000		NR		NR	ug/L					
2164763		Total		1000000		NR		NR	ug/L					
2164765		Total		1000000		NR		NR	ug/L					
2164767		Total		1000000		NR		NR	ug/L					
2164768		Total		2000000		NR		NR	ug/L					
2164769		Total		2000000		NR		NR	ug/L					
2164770		Total		2000000		NR		NR	ug/L					
2164762		Total		1000000		NR		NR	ug/L					
2152714	rs	Total		1296000		NR		NR	ug/L					
2152713	rs	Total		NR	>	4000000	<	4500000	ug/L					
2152715	rs	Total		2160000		NR		NR	ug/L					
2152734		Total	<	506000		NR		NR	ug/L					
2152733		Total		1037000		684000		1491000	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
2152735		Total		506000		NR		NR	ug/L					
2152732		Total		421000		262000		825000	ug/L					
2164729		Total		500000		NR		NR	ug/L					
2164728		Total		1000000		NR		NR	ug/L					
201550	MSMT/CHRONIC VALUE///	Total		314000		NR		NR	ug/L					
201552	MSMT/CHRONIC VALUE///	Total		372000		NR		NR	ug/L					
201549	MSMT/CHRONIC VALUE///	Total		372000		NR		NR	ug/L					
201548		Total		441000		NR		NR	ug/L					
201547		Total		314000		NR		NR	ug/L					
201551	rs	Total		441000		NR		NR	ug/L					
2160498	MSMT/EGGS PER BROOD/	Total		1200000		NR		NR	ug/L					
773634	MSMT/AVERAGE MASS PER EGG OR EMBRY	Formulation		100000		NR		NR	ug/L					
773635		Formulation		100000		NR		NR	ug/L					
2152784		Total		1366000		1199000		1541000	ug/L					
2152783		Total		825000		549000		1256000	ug/L					
2152786		Total		366000		NR		NR	ug/L					
2152785		Total	<	366000		NR		NR	ug/L					
2163917	MSMT/MEASURED AS TOTAL EGGS PER FEN	Dissolved		25430		NR		NR	ug/L					
2163920	MSMT/MEASURED AS PERCENTAGE OF CHA	Dissolved		25430		NR		NR	ug/L					
2163918	MSMT/MEASURED AS CUMULATIVE EGGS F	Dissolved		25430		NR		NR	ug/L					
2163919	MSMT/MEASURED AS MEAN EGGS PER FEN	Dissolved		25430		NR		NR	ug/L					
2163916		Dissolved		25430		NR		NR	ug/L					
2254781		Total		180		NR		NR	mM					
2254792		Total		180		NR		NR	mM					
2254801		Total		120		NR		NR	mM					
2254784		Total		120		NR		NR	mM					
2254788		Total		180		NR		NR	mM					
2254793		Total		180		NR		NR	mM					
2254797		Total		60		NR		NR	mM					
2254804	f lateral head displacement	Total		180		NR		NR	mM					
2254803	f lateral head displacement	Total		180		NR		NR	mM					
2254798		Total		30		NR		NR	mM					
2254785		Total		120		NR		NR	mM					
2254805	f lateral head displacement	Total		180		NR		NR	mM					
2254789		Total		180		NR		NR	mM					
2254802	f lateral head displacement	Total		120		NR		NR	mM					
2254800		Total		180		NR		NR	mM					
2254810		Total		180		NR		NR	mM					
2254813		Total		180		NR		NR	mM					
767224	MSMT/CERCARIA PRODUCTION DAYS/	Total		2000000		NR		NR	ug/L					
767225	MSMT/CERCARIA PRODUCTION PER SNAIL F	Total		1000000		NR		NR	ug/L					
2152796		Total		519000		235000		529000	ug/L					
2152810		Total		964000		NR		NR	ug/L					
2152808		Total		752000		628000		803000	ug/L					
2152807		Total		606000		391000		632000	ug/L					
2152809		Total		462000		NR		NR	ug/L					
2153137	MSMT/MEAN PER SNAIL PAIR/	Total	>	338000		NR		NR	ug/L					
759367	MSMT/COMBINED THREE TESTS, EGGS PER	Total		6000000		NR		NR	ug/L					
2148468	rs	Total		625000		NR		NR	ug/L					
2148476	rs	Total		496000		NR		NR	ug/L					
2148475	rs	Total		715000		NR		NR	ug/L					
2148470	rs	Total		1060000		NR		NR	ug/L					
2148469	rs	Total		1252000		NR		NR	ug/L					
759076	general)	Total		1266760		325610		1568690	ug/L					
759077	general)	Total		2061180		1535210		2262460	ug/L					
759074	general)	Total		3650000		NR		NR	ug/L					
759075	general)	Total		1060000		NR		NR	ug/L					
2017032	rs	Total		150000		NR		NR	ug/L					
761597	rs	Total	>	1381000		NR		NR	ug/L					
2148467	rs	Total		766000		NR		NR	ug/L					
2017033	rs	Total	<	150000		NR		NR	ug/L					
2017036	rs	Total		137000		71000		204000	ug/L					
2017034	rs	Total		465000		358000		592000	ug/L					
2017035	rs	Total		246000		172000		326000	ug/L					
2017043	rs	Total		1250000		NR		NR	ug/L					
2017044	rs	Total		645000		NR		NR	ug/L					
2017047	rs	Total		622000		NR		NR	ug/L					
2017046	rs	Total		855000		601000		1036000	ug/L					
766735	MSMT/MEAN OF 3 TESTS/	Total		780000		NR		NR	ug/L					
766734	MSMT/MEAN OF 3 TESTS/	Total		934000		NR		NR	ug/L					
766738	MSMT/MEAN OF 3 TESTS/	Total		906000		NR		NR	ug/L					
766737	MSMT/MEAN OF 3 TESTS/	Total		1195000		NR		NR	ug/L					
766855	rs	Total		1300900		NR		NR	ug/L					
767589	rs	Total		1266760		325610		1568690	ug/L					
767588	rs	Total		2061180		1535210		2262460	ug/L					
767590	rs	Total		3650000		NR		NR	ug/L					
767591	rs	Total		1060000		NR		NR	ug/L					
766354	MSMT/MEASURED IN F3 GENERATION/	Total		1000000		NR		NR	ug/L					
766229	rs	Total		1458000		NR		NR	ug/L					
766344	rs	Total		1000000		NR		NR	ug/L					
766355	MSMT/MEASURED IN F4 GENERATION/	Total		1000000		NR		NR	ug/L					
766230	rs	Total		1236000		NR		NR	ug/L					
766231	rs	Total		NR	>	0	<	1236000	ug/L					
766351	MSMT/MEASURED IN F2 GENERATION/	Total		1000000		NR		NR	ug/L					
766356	MSMT/MEASURED IN F5 GENERATION/	Total		1000000		NR		NR	ug/L					

Result Number	EE Comment	Conc 1 Type	Conc 1 Mean	Conc 1 Mean (St	Conc 1 Min Op (St	Conc Min 1 (Stan	Conc 1 Max Op (Sta	Conc 1 Max (Stan	Conc 1 Units (	Conc 2 Type (Stan	Conc 2 Mean (St	Conc 2 Units (Standa	Application Rate	Application Rate Units
766232	rs	Total		899000		NR		NR	ug/L					
766233	rs	Total		NR	>	0	<	899000	ug/L					
766234	rs	Total		1148000		NR		NR	ug/L					
2017051	rs	Total		1300000		NR		NR	ug/L					
2017054	rs	Total		1212000		1206000		1219000	ug/L					
2017053	rs	Total		1257000		1248000		1267000	ug/L					
2017055	rs	Total		1174000		1153000		1188000	ug/L					
2017052	rs	Total		775000		NR		NR	ug/L					
2017061	rs	Total		420000		NR		NR	ug/L					
2017063	rs	Total		542000		455000		640000	ug/L					
2017064	rs	Total		420000		331000		481000	ug/L					
2017062	rs	Total		843000		710000		1003000	ug/L					
2017060	rs	Total		480000		NR		NR	ug/L					
2017045	rs	Total		1129000		990000		1269000	ug/L					
761751		Total	<	2220000		NR		NR	ug/L					
761750		Total		2220000		NR		NR	ug/L					
786725	MSMT/MEAN NUMBER OF YOUNG PRODU	Total		4.6		NR		NR	mM					
786731	MSMT/MEAN NUMBER OF NEONATES PRO	Total		4.6		NR		NR	mM					
786730	MSMT/MEAN NUMBER OF YOUNG PRODU	Total		4.6		NR		NR	mM					
786726	MSMT/MEAN NUMBER OF REPRODUCTION	Total		4.6		NR		NR	mM					
786727	MSMT/MEAN NUMBER OF YOUNG PER BR	Total		4.6		NR		NR	mM					
786729	MSMT/TIME TO FIRST BROOD/	Total		4.6		NR		NR	mM					
786728	MSMT/NUMBER OF BROODS/	Total		4.6		NR		NR	mM					
2017147	rs	Total		380000		NR		NR	ug/L					
2017150	rs	Total		1637000		NR		NR	ug/L					
2017151	rs	Total		2412000		NR		NR	ug/L					
2017148	rs	Total		1056000		NR		NR	ug/L					
2017149	rs	Total	>	2412000		NR		NR	ug/L					
767570		Total		3500000		NR		NR	ug/L					
767571		Total		1060000		NR		NR	ug/L					
767573	MSMT/AUTHOR REPORTED 95% CI (1224.31	Total		1477430		NR		NR	ug/L					
767572	MSMT/AUTHOR REPORTED 95% CI 1100.02	Total		1280460		NR		NR	ug/L					
759086	MSMT/AUTHOR REPORTED ENDPOINT FOR	Total		3500000		NR		NR	ug/L					
759088	MSMT/AUTHOR REPORTED ENDPOINT FOR	Total		1280460		1100020	<	7150000	ug/L					
759089	MSMT/AUTHOR REPORTED ENDPOINT FOR	Total		1477430		1224310	>	7150000	ug/L					
759087	MSMT/AUTHOR REPORTED ENDPOINT FOR	Total		1060000		NR		NR	ug/L					
2163934	MSMT/MEASURED AS CUMULATIVE EGGS P	Dissolved		101370		NR		NR	ug/L					
2163936	MSMT/MEASURED AS PERCENTAGE OF CHA	Dissolved		101370		NR		NR	ug/L					
2163933	MSMT/MEASURED AS TOTAL EGGS PER FEM	Dissolved		101370		NR		NR	ug/L					
2163935	MSMT/MEASURED AS MEAN EGGS PER FEM	Dissolved		101370		NR		NR	ug/L					
2163932		Dissolved		101370		NR		NR	ug/L					
759464	MSMT/STATISTICALLY SIGNIFICANT INCREA	Total		360000		NR		NR	ug/L					
759022	MSMT/F1 AND F2 CUMULATIVE NUMBER/	Total		1600000		NR		NR	ug/L					
759463	MSMT/STATISTICALLY SIGNIFICANT INCREA	Total		360000		NR		NR	ug/L					
759484	MSMT/STATISTICALLY SIGNIFICANT INCREA	Total		1600000		NR		NR	ug/L					
767210	MSMT/DAYS CERCARIA PRODUCED (SHEDD	Total		1000000		NR		NR	ug/L					
767211	MSMT/CERCARIA PRODUCED PER SNAIL PE	Total		1000000		NR		NR	ug/L					
2153133	MSMT/MEAN PER SNAIL PAIR/	Total		20000		17000		22000	ug/L					
22951		Total		125000		NR		NR	ug/L					
2148185		Total		2.5		NR		NR	mmol/L					
2148186		Total		2.5		NR		NR	mmol/L					
2148187		Total		1.25		NR		NR	mmol/L					
2152768	rs	Total		1106000		NR		NR	ug/L					
2152767	rs	Total		638000		NR		NR	ug/L					
2152766	rs	Total		NR	>	500000	<	1000000	ug/L					
761756		Total		305000		NR		NR	ug/L					
761757		Total	<	305000		NR		NR	ug/L					
2148354	MSMT/WEEKLY EGG MASSES/	Total		1202000		NR		NR	ug/L					
48480		Total		220000		NR		NR	ug/L					
2152741	rs	Total		1198000		NR		NR	ug/L					
2152740	rs	Total		668000		NR		NR	ug/L					
2152739	rs	Total		NR	>	1500000	<	2000000	ug/L					
2148178		Total		1.25		NR		NR	mmol/L					
2148142		Total		0.08		NR		NR	mmol/L					
2148177		Total		1.25		NR		NR	mmol/L					
2148149		Total		6		NR		NR	mmol/L					
2148148		Total		12		NR		NR	mmol/L					
2148139		Total		0.16		NR		NR	mmol/L					
2148141		Total		0.16		NR		NR	mmol/L					
2148137		Total		0.08		NR		NR	mmol/L					
2254841		Total		70		NR		NR	mM					
2254825		Total		70		NR		NR	mM					
2254852		Total		70		NR		NR	mM					
2254826		Total		50		NR		NR	mM					
2254842		Total		4		NR		NR	mM					
2254853		Total		50		NR		NR	mM					
2254861		Total		50		NR		NR	mM					
2254847		Total		8		NR		NR	mM					
2254814		Total		30		NR		NR	mM					
2254817		Total		50		NR		NR	mM					
2254859		Total		70		NR		NR	mM					

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
793900	Significant	<	0.05		NR		NR		44					mg/L CaCO3
793901	No significance	<	0.05		NR		NR		44					mg/L CaCO3
2060109	No significance		0.05		NR		NR							Mod Hard
2060110	Not applicable		NA		NA		NA							Mod Hard
2060142	Not applicable		NA		NA		NA							Mod Hard
2060141	No significance		0.05		NR		NR							Mod Hard
718597	Not applicable		NA		NA		NA							NR
718595	No significance		NR		NR		NR							NR
718596	Not applicable		NA		NA		NA							NR
728144	Significant		NR		NR		NR							NR
96887	Not applicable		NA		NA		NA				86		94	mg/L CaCO3
43171	No significance		0.05		NR		NR				86		94	mg/L CaCO3
96886	No significance		0.05		NR		NR				86		94	mg/L CaCO3
96891	No significance		0.05		NR		NR				86		94	mg/L CaCO3
96893	Significant		0.05		NR		NR				86		94	mg/L CaCO3
761771	Not applicable		NA		NA		NA							NR
761770	Not applicable		NA		NA		NA							NR
96897	No significance		0.05		NR		NR				86		94	mg/L CaCO3
96894	Not applicable		NA		NA		NA				86		94	mg/L CaCO3
96902	No significance		0.05		NR		NR				86		94	mg/L CaCO3
43166	No significance		0.05		NR		NR				86		94	mg/L CaCO3
729236	Significant		NR		NR		NR							NR
718611	No significance		NR		NR		NR							NR
718612	Not applicable		NA		NA		NA							NR
2154061	Significant at all concentrations		0.01		NR		NR							NR
2154065	Not significant at all concentrations		0.3		NR		NR							NR
759445	No significance		0.005		NR		NR							NR
759439	No significance		0.001		NR		NR							NR
759438	Significant	<	0.05		NR		NR							NR
759418	Not significant at all concentrations		0.84		NR		NR							NR
759397	Not significant at all concentrations		0.34		NR		NR							NR
759421	Not significant at all concentrations		0.065		NR		NR							NR
759437	No significance		0		NR		NR							NR
759444	Significant	<	0.05		NR		NR							NR
759436	Significant	<	0.05		NR		NR							NR
2152812	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152813	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152815	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
2152811	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152814	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
201556	Significant	<	0.05		NR		NR		96.3					mg/L CaCO3
2160501	Significant		0.002		NR		NR							NR
2160499	No significance		0.1064		NR		NR							NR
201555	No significance	<	0.05		NR		NR		96.3					mg/L CaCO3
201557	Not applicable		NA		NA		NA		96.3					mg/L CaCO3
748411	Not significant at all concentrat	>	0.05		NR		NR							NR
773639	Not significant at all concentrat	>	0.3		NR		NR							NR
773638	Not significant at all concentrat	>	0.3		NR		NR							NR
2152819	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
2152817	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152816	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152818	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
2164559	Not applicable		NA		NA		NA							NR
2162413	Not significant at all concentrations		0.113		NR		NR							NR
741641	Not significant at all concentrat	<	0.05		NR		NR							NR
741652	No significance	<	0.05		NR		NR							NR
741651	Significant	<	0.05		NR		NR							NR
2165532	Significant at all concentrations		0.066		NR		NR							NR
2165533	Not significant at all concentrations		0.824		NR		NR							NR
2060023	Not significant at all concentrations		0.477		NR		NR							NR
2165525	Not significant at all concentrations		0.824		NR		NR							NR
2154068	Not significant at all concentrations		0.76		NR		NR							NR
2165524	Not significant at all concentrations		0.824		NR		NR							NR
741597	Significant	<	0.05		NR		NR							NR
741576	No significance	<	0.05		NR		NR							NR
741623	Not significant at all concentrat	<	0.05		NR		NR							NR
202204	Significant		0.05		NR		NR		44					mg/L
741685	Not significant at all concentrat	<	0.01		NR		NR		284					mg/L CaCO3
251448	Not significant at all concentrations		0.05		NR		NR		46*					mg/L
251447	Significant		0.05		NR		NR		46*					mg/L
251464	Not significant at all concentrations		0.05		NR		NR		44					mg/L
251446	No significance		0.05		NR		NR		46*					mg/L
2152749	No significance	<	0.01		NR		NR		40					mg/L CaCO3
2152748	Not applicable		NA		NA		NA		40					mg/L CaCO3
2152747	Not applicable		NA		NA		NA		40					mg/L CaCO3
2152750	Significant	<	0.01		NR		NR		40					mg/L CaCO3
202202	Not applicable		NA		NA		NA		44					mg/L
202203	No significance		0.05		NR		NR		44					mg/L
2163091	No significance		0.657		NR		NR							NR
761549	Not applicable		NA		NA		NA							NR
761548	Not applicable		NA		NA		NA							NR
761567	Not applicable		NA		NA		NA							NR
784790	Not significant at all concentrat	<	0.01		NR		NR		119.6					mg/L CaCO3
761560	Not applicable		NA		NA		NA							NR
761555	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
761550	Not applicable		NA		NA		NA							NR
761564	Not applicable		NA		NA		NA							NR
784789	Not significant at all concentrat	<	0.05		NR		NR		96.7					mg/L CaCO3
761558	Not applicable		NA		NA		NA							NR
761565	Not applicable		NA		NA		NA							NR
761553	Not applicable		NA		NA		NA							NR
761552	Not applicable		NA		NA		NA							NR
761568	Not applicable		NA		NA		NA							NR
761556	Not applicable		NA		NA		NA							NR
761566	Not applicable		NA		NA		NA							NR
761569	Not applicable		NA		NA		NA							NR
761561	Not applicable		NA		NA		NA							NR
761563	Not applicable		NA		NA		NA							NR
761557	Not applicable		NA		NA		NA							NR
761551	Not applicable		NA		NA		NA							NR
761562	Not applicable		NA		NA		NA							NR
761571	Not applicable		NA		NA		NA							NR
761554	Not applicable		NA		NA		NA							NR
761570	Not applicable		NA		NA		NA							NR
14424	No significance		0.05		NR		NR				86		94	mg/L CaCO3
42862	No significance		0.05		NR		NR				86		94	mg/L CaCO3
14380	No significance		0.05		NR		NR				86		94	mg/L CaCO3
42867	No significance		0.05		NR		NR				86		94	mg/L CaCO3
96882	No significance		0.05		NR		NR				86		94	mg/L CaCO3
108590	No significance		0.05		NR		NR				86		94	mg/L CaCO3
768151	Not reported		NR		NR		NR							NR
768152	Not reported		NR		NR		NR							NR
768129	Not reported		NR		NR		NR							NR
768130	Not reported		NR		NR		NR							NR
768092	Not reported		NR		NR		NR							NR
768093	Not reported		NR		NR		NR							NR
768111	Not reported		NR		NR		NR							NR
768112	Not reported		NR		NR		NR							NR
768142	Not reported		NR		NR		NR							NR
768141	Not reported		NR		NR		NR							NR
768162	Not reported		NR		NR		NR							NR
768161	Not reported		NR		NR		NR							NR
768087	Not reported		NR		NR		NR							NR
768086	Not reported		NR		NR		NR							NR
768094	Not reported		NR		NR		NR							NR
768095	Not reported		NR		NR		NR							NR
768149	Not reported		NR		NR		NR							NR
768150	Not reported		NR		NR		NR							NR
768079	Not reported		NR		NR		NR							NR
768078	Not reported		NR		NR		NR							NR
768160	Not reported		NR		NR		NR							NR
768159	Not reported		NR		NR		NR							NR
768084	Not reported		NR		NR		NR							NR
768085	Not reported		NR		NR		NR							NR
768077	Not reported		NR		NR		NR							NR
768076	Not reported		NR		NR		NR							NR
768140	Not reported		NR		NR		NR							NR
768139	Not reported		NR		NR		NR							NR
2152753	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152752	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152754	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
2152755	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
768070	Not reported		NR		NR		NR							NR
768071	Not reported		NR		NR		NR							NR
768069	Not reported		NR		NR		NR							NR
768068	Not reported		NR		NR		NR							NR
768119	Not reported		NR		NR		NR							NR
768120	Not reported		NR		NR		NR							NR
768109	Not reported		NR		NR		NR							NR
768110	Not reported		NR		NR		NR							NR
741831	Significant at all concentrations		0.05		NR		NR				90		110	mg/L
741780	Significant		0.05		NR		NR				90		110	mg/L
741815	No significance		0.05		NR		NR				90		110	mg/L
742694	Not significant at all concentrations		0.05		NR		NR				90		110	mg/L
741814	Not significant at all concentrations		0.05		NR		NR				90		110	mg/L
761559	Not applicable		NA		NA		NA							NR
761764	Not applicable		NA		NA		NA							NR
761765	Not applicable		NA		NA		NA							NR
2163911	Not significant at all concentrat	>	0.05		NR		NR							NR
2163912	Not significant at all concentrat	>	0.05		NR		NR							NR
2163908	Not significant at all concentrat	>	0.05		NR		NR							NR
768103	Not reported		NR		NR		NR							NR
768102	Not reported		NR		NR		NR							NR
768131	Not reported		NR		NR		NR							NR
768132	Not reported		NR		NR		NR							NR
768122	Not reported		NR		NR		NR							NR
768121	Not reported		NR		NR		NR							NR
768101	Not reported		NR		NR		NR							NR
768100	Not reported		NR		NR		NR							NR
768061	Not reported		NR		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
768060	Not reported		NR		NR		NR							NR
768062	Not reported		NR		NR		NR							NR
768063	Not reported		NR		NR		NR							NR
748412	Not significant at all concentrat	>	0.05		NR		NR							NR
747196	Not significant at all concentrat	<	0.05		NR		NR		75.0*					mg/L CaCO3
747204	Not significant at all concentrat	<	0.05		NR		NR		75.0*					mg/L CaCO3
2058030	Not significant at all concentrat	>	0.166		NR		NR							NR
2164834	Significant at all concentrations	<	0.05		NR		NR							NR
2164835	Significant at all concentrations	<	0.05		NR		NR							NR
84264	No significance		0.05		NR		NR		48.5*					mg/L CaCO3
84263	No significance		0.05		NR		NR		48.5*					mg/L CaCO3
60460	Significant		0.05		NR		NR		48.5*					mg/L CaCO3
10560	Significant		0.05		NR		NR		48.5*					mg/L CaCO3
60461	Significant		0.05		NR		NR		48.5*					mg/L CaCO3
83065	No significance		0.05		NR		NR		48.5*					mg/L CaCO3
10559	Significant		0.05		NR		NR		48.5*					mg/L CaCO3
83066	No significance		0.05		NR		NR		48.5*					mg/L CaCO3
759372	No significance	<	0.05		NR		NR							NR
759371	Significant	<	0.05		NR		NR							NR
759332	Not significant at all concentrations		0.33		NR		NR							NR
759386	Significant	<	0.05		NR		NR							NR
759387	No significance		0.007		NR		NR							NR
759374	Not significant at all concentrations		0.138		NR		NR							NR
759373	Not significant at all concentrations		0.202		NR		NR							NR
759388	Not significant at all concentrat	<	0.05		NR		NR							NR
759385	Not significant at all concentrations		0.668		NR		NR							NR
765903	Significant at all concentrations		0.016		NR		NR		92*					mg/L CaCO3
765901	Not significant at all concentrations		0.8333		NR		NR		92*					mg/L CaCO3
765902	Significant at all concentrations		0.0187		NR		NR		92*					mg/L CaCO3
765900	Not significant at all concentrations		0.8352		NR		NR		92*					mg/L CaCO3
2163928	Not significant at all concentrat	>	0.05		NR		NR							NR
2163924	Not significant at all concentrat	>	0.05		NR		NR							NR
767596	Not applicable		NA		NA		NA		105*					mg/L CaCO3
2163927	Not significant at all concentrat	>	0.05		NR		NR							NR
761763	Not applicable		NA		NA		NA							NR
761599	Not applicable		NA		NA		NA							NR
767595	Not applicable		NA		NA		NA		105*					mg/L CaCO3
767597	Significant		0.05		NR		NR		105*					mg/L CaCO3
767598	No significance		0.05		NR		NR		105*					mg/L CaCO3
761762	Not applicable		NA		NA		NA							NR
766857	Not reported		NR		NR		NR							NR
2017310	Not applicable		NA		NA		NA		15					mg/L
2017309	Not applicable		NA		NA		NA		15					mg/L
2017307	Significant		NR		NR		NR		15					mg/L
2017311	Not applicable		NA		NA		NA		15					mg/L
2017321	Not applicable		NA		NA		NA		80					mg/L
2017308	No significance		NR		NR		NR		15					mg/L
2017320	Not applicable		NA		NA		NA		80					mg/L
2017319	Not applicable		NA		NA		NA		80					mg/L
2017317	Significant		NR		NR		NR		80					mg/L
2017318	No significance		NR		NR		NR		80					mg/L
747209	Not significant at all concentrat	<	0.05		NR		NR		75.0*					mg/L CaCO3
747215	Not significant at all concentrat	<	0.05		NR		NR		75.0*					mg/L CaCO3
759025	Not significant at all concentrations		0.05		NR		NR				73		763	mg/L CaCO3
2173770	Not significant at all concentrat	<	0.05		NR		NR							NR
759026	Not significant at all concentrations		0.05		NR		NR				744		749	mg/L CaCO3
761769	Not applicable		NA		NA		NA							NR
761768	Not applicable		NA		NA		NA							NR
2084608	Not applicable		NA		NA		NA							NR
2084613	Not applicable		NA		NA		NA							NR
116971	Not applicable		NA		NA		NA							NR
2084590	Not applicable		NA		NA		NA							NR
15729	Not applicable		NA		NA		NA							NR
23442	Not applicable		NA		NA		NA							NR
24311	Not applicable		NA		NA		NA							NR
2745	Not applicable		NA		NA		NA							NR
15730	Not applicable		NA		NA		NA							NR
15731	Not applicable		NA		NA		NA							NR
764342	Not applicable		NA		NA		NA							NR
764344	Not applicable		NA		NA		NA							NR
764560	Not applicable		NA		NA		NA							NR
764348	Not applicable		NA		NA		NA							NR
764346	Not applicable		NA		NA		NA							NR
764556	Not applicable		NA		NA		NA							NR
764558	Not applicable		NA		NA		NA							NR
187927	Not applicable		NA		NA		NA							NR
187925	Not applicable		NA		NA		NA							NR
187921	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187923	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187920	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187919	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
2148456	Significant		0.05		NR		NR							NR
2148457	No significance		0.05		NR		NR							NR
2148455	Significant		0.05		NR		NR							NR
2148462	No significance		0.05		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2148461	No significance		0.05		NR		NR							NR
2148458	No significance		0.05		NR		NR							NR
187922	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
2148459	Significant		0.05		NR		NR							NR
2148460	Significant		0.05		NR		NR							NR
187926	Not applicable		NA		NA		NA							NR
187924	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
768170	Not applicable		NA		NA		NA							NR
160280	Not applicable		NA		NA		NA							NR
793899	Not applicable		NA		NA		NA		44					mg/L CaCO3
793902	Significant at all concentrations	<	0.05		NR		NR		44					mg/L CaCO3
768254	Not applicable		NA		NA		NA							NR
2060131	Not applicable		NA		NA		NA							Mod Hard
2060128	No significance		0.05		NR		NR							Mod Hard
160281	Not applicable		NA		NA		NA							NR
768261	Not applicable		NA		NA		NA							NR
768319	Not applicable		NA		NA		NA							NR
768351	Not applicable		NA		NA		NA							NR
768315	Not applicable		NA		NA		NA							NR
768353	Not applicable		NA		NA		NA							NR
768312	Not applicable		NA		NA		NA							NR
768357	Not applicable		NA		NA		NA							NR
768251	Not applicable		NA		NA		NA							NR
768257	Not applicable		NA		NA		NA							NR
727030	Not applicable		NA		NA		NA		93					mg/L
762358	Not applicable		NA		NA		NA		93*					mg/L
2056433	Not applicable		NA		NA		NA							NR
165611	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165609	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165610	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165622	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165615	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165614	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165621	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165613	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165616	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165620	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165612	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165617	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165608	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165619	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165607	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165623	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165618	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
2152543	Not applicable		NA		NA		NA				16*		20*	mg/L CaCO3
2152542	Not applicable		NA		NA		NA				16*		20*	mg/L CaCO3
2152541	Not applicable		NA		NA		NA				16*		20*	mg/L CaCO3
2146823	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
15436	Not applicable		NA		NA		NA		124					mg/L CaCO3
16498	Not applicable		NA		NA		NA		124					mg/L CaCO3
2146826	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
768484	Not applicable		NA		NA		NA							NR
768515	Not applicable		NA		NA		NA							NR
768422	Not applicable		NA		NA		NA							NR
768419	Not applicable		NA		NA		NA							NR
233426	Not applicable		NA		NA		NA							NR
233425	Not applicable		NA		NA		NA							NR
727031	Not applicable		NA		NA		NA		93					mg/L
2060108	No significance		0.05		NR		NR							Mod Hard
2060111	Not applicable		NA		NA		NA							Mod Hard
2060143	Not applicable		NA		NA		NA							Mod Hard
2060140	No significance		0.05		NR		NR							Mod Hard
119482	Not applicable		NA		NA		NA							NR
31878	Not applicable		NA		NA		NA							NR
18170	Not applicable		NA		NA		NA							NR
18166	Not applicable		NA		NA		NA							NR
18167	Not applicable		NA		NA		NA							NR
18169	Not applicable		NA		NA		NA							NR
18168	Not applicable		NA		NA		NA							NR
768482	Not applicable		NA		NA		NA							NR
768483	Not applicable		NA		NA		NA							NR
759474	Not applicable		NA		NA		NA		170					mg/L CaCO3
767301	Not applicable		NA		NA		NA		106					mg/L CaCO3
759477	Not applicable		NA		NA		NA		170					mg/L CaCO3
767309	Not applicable		NA		NA		NA		106					mg/L CaCO3
767300	Not applicable		NA		NA		NA		106					mg/L CaCO3
160282	Not applicable		NA		NA		NA							NR
768506	Not applicable		NA		NA		NA							NR
768494	Not applicable		NA		NA		NA							NR
768485	Not applicable		NA		NA		NA							NR
160283	Not applicable		NA		NA		NA							NR
768513	Not applicable		NA		NA		NA							NR
768508	Not applicable		NA		NA		NA							NR
768421	Not applicable		NA		NA		NA							NR
793895	Not applicable		NA		NA		NA		44					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
793894	Not applicable		NA		NA		NA		44					mg/L CaCO3
793893	Not applicable		NA		NA		NA		44					mg/L CaCO3
2084612	Not applicable		NA		NA		NA							NR
2084609	Not applicable		NA		NA		NA							NR
2084591	Not applicable		NA		NA		NA							NR
762369	Not applicable		NA		NA		NA		93*					mg/L
2153704	Not applicable		NA		NA		NA		180					mg/L CaCO3
2153706	Not applicable		NA		NA		NA		180					mg/L CaCO3
114855	Not applicable		NA		NA		NA							NR
181632	Not applicable		NA		NA		NA							NR
181627	Not applicable		NA		NA		NA							NR
181631	Not applicable		NA		NA		NA							NR
183876	Not applicable		NA		NA		NA							NR
181630	Not applicable		NA		NA		NA							NR
181637	Not applicable		NA		NA		NA							NR
181620	Not applicable		NA		NA		NA							NR
181625	Not applicable		NA		NA		NA							NR
181636	Not applicable		NA		NA		NA							NR
181624	Not applicable		NA		NA		NA							NR
181621	Not applicable		NA		NA		NA							NR
181635	Not applicable		NA		NA		NA							NR
181634	Not applicable		NA		NA		NA							NR
181626	Not applicable		NA		NA		NA							NR
181622	Not applicable		NA		NA		NA							NR
8825	Not reported		NR		NR		NR		40					mg/L CaCO3
2153767	Not applicable		NA		NA		NA		180					mg/L CaCO3
2153705	Not applicable		NA		NA		NA		180					mg/L CaCO3
181628	Not applicable		NA		NA		NA							NR
181623	Not applicable		NA		NA		NA							NR
181629	Not applicable		NA		NA		NA							NR
13892	Not reported		NR		NR		NR		40					mg/L CaCO3
181633	Not applicable		NA		NA		NA							NR
181619	Not applicable		NA		NA		NA							NR
2084619	Not applicable		NA		NA		NA							NR
2064060	Not applicable		NA		NA		NA							NR
2064050	Not applicable		NA		NA		NA							NR
2064059	Not applicable		NA		NA		NA							NR
168350	Not applicable		NA		NA		NA				90*		110*	mg/L CaCO3
221427	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
165600	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165601	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165602	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165598	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
168351	Not applicable		NA		NA		NA		100					mg/L CaCO3
2056432	Not applicable		NA		NA		NA							NR
165603	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165599	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
221426	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
165604	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165605	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165606	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
165597	Not applicable		NA		NA		NA				120		130	mg/L CaCO3
168352	Not applicable		NA		NA		NA		100					mg/L CaCO3
221428	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
221422	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
221425	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
221423	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
221429	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
221424	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
221421	Not applicable		NA		NA		NA				217		301	mg/L CaCO3
15437	Not applicable		NA		NA		NA		124					mg/L CaCO3
16499	Not applicable		NA		NA		NA		124					mg/L CaCO3
2153843	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153875	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153891	Not applicable		NA		NA		NA		140					mg/L CaCO3
64914	Not reported		NR		NR		NR		40					mg/L CaCO3
2153890	Not applicable		NA		NA		NA		140					mg/L CaCO3
181639	Not applicable		NA		NA		NA							NR
2153877	Not applicable		NA		NA		NA		140					mg/L CaCO3
234000	Not applicable		NA		NA		NA		41					mg/L CaCO3
40518	Not applicable		NA		NA		NA				33.4		45	mg/L CaCO3
2153878	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153893	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153845	Not applicable		NA		NA		NA		140					mg/L CaCO3
18171	Not applicable		NA		NA		NA							NR
196201	Not applicable		NA		NA		NA		10					mg/L CaCO3
40519	Not applicable		NA		NA		NA				33.4		45	mg/L CaCO3
13462	Not applicable		NA		NA		NA							NR
2153879	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153894	Not applicable		NA		NA		NA		140					mg/L CaCO3
18172	Not applicable		NA		NA		NA							NR
18174	Not applicable		NA		NA		NA							NR
18173	Not applicable		NA		NA		NA							NR
18175	Not applicable		NA		NA		NA							NR
2084610	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2271245	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271240	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271247	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2264909	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271238	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271239	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
762359	Not applicable		NA		NA		NA		93*					mg/L
181641	Not applicable		NA		NA		NA							NR
181645	Not applicable		NA		NA		NA							NR
193880	Not applicable		NA		NA		NA							NR
193908	Not applicable		NA		NA		NA							NR
193897	Not applicable		NA		NA		NA							NR
193921	Not applicable		NA		NA		NA							NR
193898	Not applicable		NA		NA		NA							NR
193891	Not applicable		NA		NA		NA							NR
193924	Not applicable		NA		NA		NA							NR
193913	Not applicable		NA		NA		NA							NR
193920	Not applicable		NA		NA		NA							NR
193881	Not applicable		NA		NA		NA							NR
193877	Not applicable		NA		NA		NA							NR
193896	Not applicable		NA		NA		NA							NR
193904	Not applicable		NA		NA		NA							NR
193889	Not applicable		NA		NA		NA							NR
193909	Not applicable		NA		NA		NA							NR
193910	Not applicable		NA		NA		NA							NR
193899	Not applicable		NA		NA		NA							NR
193879	Not applicable		NA		NA		NA							NR
193922	Not applicable		NA		NA		NA							NR
193894	Not applicable		NA		NA		NA							NR
193919	Not applicable		NA		NA		NA							NR
193886	Not applicable		NA		NA		NA							NR
193928	Not applicable		NA		NA		NA							NR
193882	Not applicable		NA		NA		NA							NR
193903	Not applicable		NA		NA		NA							NR
193933	No significance	<	0.05		NR		NR							NR
193887	Not applicable		NA		NA		NA							NR
193923	Not applicable		NA		NA		NA							NR
193890	Not applicable		NA		NA		NA							NR
193934	Significant	<	0.05		NR		NR							NR
193925	Not applicable		NA		NA		NA							NR
193911	Not applicable		NA		NA		NA							NR
193884	Not applicable		NA		NA		NA							NR
193918	Not applicable		NA		NA		NA							NR
193893	Not applicable		NA		NA		NA							NR
193907	Not applicable		NA		NA		NA							NR
193878	Not applicable		NA		NA		NA							NR
193901	Not applicable		NA		NA		NA							NR
193900	Not applicable		NA		NA		NA							NR
193895	Not applicable		NA		NA		NA							NR
193912	Not applicable		NA		NA		NA							NR
193902	Not applicable		NA		NA		NA							NR
193916	Not applicable		NA		NA		NA							NR
193915	Not applicable		NA		NA		NA							NR
193892	Not applicable		NA		NA		NA							NR
193883	Not applicable		NA		NA		NA							NR
193888	Not applicable		NA		NA		NA							NR
193929	No significance	<	0.05		NR		NR							NR
193906	Not applicable		NA		NA		NA							NR
193930	Significant	<	0.05		NR		NR							NR
193932	Not applicable		NA		NA		NA							NR
193885	Not applicable		NA		NA		NA							NR
193926	Not applicable		NA		NA		NA							NR
193917	Not applicable		NA		NA		NA							NR
193914	Not applicable		NA		NA		NA							NR
193905	Not applicable		NA		NA		NA							NR
2081278	Not applicable		NA		NA		NA		263					mg/L CaCO3
2081284	Not applicable		NA		NA		NA		263					mg/L CaCO3
2081280	Not applicable		NA		NA		NA		263					mg/L CaCO3
2081282	Not applicable		NA		NA		NA		263					mg/L CaCO3
16497	Not applicable		NA		NA		NA		124					mg/L CaCO3
15435	Not applicable		NA		NA		NA		124					mg/L CaCO3
181642	Not applicable		NA		NA		NA							NR
141012	Not applicable		NA		NA		NA		40					mg/L CaCO3
181640	Not applicable		NA		NA		NA							NR
718593	No significance		NR		NR		NR							NR
2153840	Not applicable		NA		NA		NA		140					mg/L CaCO3
718598	Not applicable		NA		NA		NA							NR
718594	Not applicable		NA		NA		NA							NR
36690	Not reported		NR		NR		NR		40					mg/L CaCO3
2153841	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153867	Not applicable		NA		NA		NA		140					mg/L CaCO3
15733	Not applicable		NA		NA		NA							NR
2746	Not applicable		NA		NA		NA							NR
24099	Not applicable		NA		NA		NA							NR
15728	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
15732	Not applicable		NA		NA		NA							NR
2747	Not applicable		NA		NA		NA							NR
2084611	Not applicable		NA		NA		NA							NR
2153898	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153897	Not applicable		NA		NA		NA		140					mg/L CaCO3
196202	Not applicable		NA		NA		NA		10					mg/L CaCO3
13426	Not applicable		NA		NA		NA							NR
2316118	Not applicable		NA		NA		NA				33*		50*	mg/L CaCO3
96900	No significance		0.05		NR		NR				86		94	mg/L CaCO3
160285	Not applicable		NA		NA		NA							NR
181638	Not applicable		NA		NA		NA							NR
96905	No significance		0.05		NR		NR				86		94	mg/L CaCO3
160286	Not applicable		NA		NA		NA							NR
96896	Significant		0.05		NR		NR				86		94	mg/L CaCO3
96890	Significant		0.05		NR		NR				86		94	mg/L CaCO3
2153866	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153882	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153899	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153883	Not applicable		NA		NA		NA		140					mg/L CaCO3
96889	No significance		0.05		NR		NR				86		94	mg/L CaCO3
2153865	Not applicable		NA		NA		NA		140					mg/L CaCO3
160284	Not applicable		NA		NA		NA							NR
43169	No significance		0.05		NR		NR				86		94	mg/L CaCO3
43165	Significant		0.05		NR		NR				86		94	mg/L CaCO3
43170	Significant		0.05		NR		NR				86		94	mg/L CaCO3
768557	Not applicable		NA		NA		NA							NR
43174	No significance		0.05		NR		NR				86		94	mg/L CaCO3
768549	Not applicable		NA		NA		NA							NR
96901	Significant		0.05		NR		NR				86		94	mg/L CaCO3
96908	Significant		0.05		NR		NR				86		94	mg/L CaCO3
43164	No significance		0.05		NR		NR				86		94	mg/L CaCO3
768554	Not applicable		NA		NA		NA							NR
2084588	Not applicable		NA		NA		NA							NR
2084620	Not applicable		NA		NA		NA							NR
2153839	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153887	Not applicable		NA		NA		NA		140					mg/L CaCO3
727826	Significant		NR		NR		NR							NR
718609	No significance		NR		NR		NR							NR
718610	Not applicable		NA		NA		NA							NR
2153884	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153837	Not applicable		NA		NA		NA		140					mg/L CaCO3
181644	Not applicable		NA		NA		NA							NR
2153853	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153880	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153847	Not applicable		NA		NA		NA		140					mg/L CaCO3
181643	Not applicable		NA		NA		NA							NR
767040	Not applicable		NA		NA		NA							NR
234001	Not applicable		NA		NA		NA		41					mg/L CaCO3
759169	Not applicable		NA		NA		NA							NR
764615	Not applicable		NA		NA		NA							NR
767364	Not applicable		NA		NA		NA							NR
767366	Not applicable		NA		NA		NA							NR
767346	Not applicable		NA		NA		NA							NR
767410	Not applicable		NA		NA		NA							NR
160288	Not applicable		NA		NA		NA							NR
767362	Not applicable		NA		NA		NA							NR
767348	Not applicable		NA		NA		NA							NR
767347	Not applicable		NA		NA		NA							NR
767402	Not applicable		NA		NA		NA							NR
160287	Not applicable		NA		NA		NA							NR
767405	Not applicable		NA		NA		NA							NR
767461	Not applicable		NA		NA		NA							NR
767465	Not applicable		NA		NA		NA							NR
767365	Not applicable		NA		NA		NA							NR
767407	Not applicable		NA		NA		NA							NR
764850	Not applicable		NA		NA		NA							NR
759182	Not applicable		NA		NA		NA		563*		404*		694*	mg/L CaCO3
767488	Not applicable		NA		NA		NA							NR
767485	Not applicable		NA		NA		NA							NR
160289	Not applicable		NA		NA		NA							NR
767471	Not applicable		NA		NA		NA							NR
160290	Not applicable		NA		NA		NA							NR
767487	Not applicable		NA		NA		NA							NR
767490	Not applicable		NA		NA		NA							NR
759473	Not applicable		NA		NA		NA		170					mg/L CaCO3
759470	Not applicable		NA		NA		NA		170					mg/L CaCO3
24910	Not applicable		NA		NA		NA							NR
24907	Not applicable		NA		NA		NA							NR
24908	Not applicable		NA		NA		NA							NR
24906	Not applicable		NA		NA		NA							NR
24909	Not applicable		NA		NA		NA							NR
2064012	Not applicable		NA		NA		NA							NR
2064016	Not applicable		NA		NA		NA							NR
2064015	Not applicable		NA		NA		NA							NR
763381	Significant	>	0.05		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
763382	No significance	>	0.05		NR		NR							NR
763506	No significance	>	0.05		NR		NR							NR
763384	No significance	>	0.05		NR		NR							NR
763505	Significant	>	0.05		NR		NR							NR
763383	Significant	>	0.05		NR		NR							NR
220044	Not significant at all concentrations		0.05		NR		NR							NR
24911	Not applicable		NA		NA		NA							NR
24914	Not applicable		NA		NA		NA							NR
24912	Not applicable		NA		NA		NA							NR
24913	Not applicable		NA		NA		NA							NR
24915	Not applicable		NA		NA		NA							NR
2153117	Not applicable		NA		NA		NA							NR
2153118	Not applicable		NA		NA		NA							NR
2153181	Not applicable		NA		NA		NA							NR
2153180	Not applicable		NA		NA		NA							NR
89658	Not applicable		NA		NA		NA							NR
61287	Not applicable		NA		NA		NA							NR
61288	Not applicable		NA		NA		NA							NR
61289	Not applicable		NA		NA		NA							NR
89662	Not applicable		NA		NA		NA							NR
89660	Not applicable		NA		NA		NA							NR
160291	Not applicable		NA		NA		NA							NR
759181	Not applicable		NA		NA		NA		563*		404*		694*	mg/L CaCO3
767519	Not applicable		NA		NA		NA							NR
160292	Not applicable		NA		NA		NA							NR
160293	Not applicable		NA		NA		NA							NR
97577	Not applicable		NA		NA		NA							NR
2061006	Not applicable		NA		NA		NA							NR
2055980	Not applicable		NA		NA		NA		22*					mg/L CaCO3
741747	Not reported		NR		NR		NR							NR
741782	Not reported		NR		NR		NR							NR
741753	Not applicable		NA		NA		NA							NR
741540	Not applicable		NA		NA		NA							NR
741556	Not applicable		NA		NA		NA							NR
742902	Not applicable		NA		NA		NA							NR
742923	Not applicable		NA		NA		NA							NR
798968	Not applicable		NA		NA		NA							NR
741577	Not applicable		NA		NA		NA							NR
742533	Not applicable		NA		NA		NA							NR
741572	Not applicable		NA		NA		NA							NR
742535	Not applicable		NA		NA		NA							NR
742696	Not applicable		NA		NA		NA							NR
741545	Not applicable		NA		NA		NA							NR
741548	Not applicable		NA		NA		NA							NR
741573	Not applicable		NA		NA		NA							NR
742534	Not applicable		NA		NA		NA							NR
741580	Not applicable		NA		NA		NA							NR
741539	Not applicable		NA		NA		NA							NR
741578	Not applicable		NA		NA		NA							NR
741571	Not applicable		NA		NA		NA							NR
741544	Not applicable		NA		NA		NA							NR
741543	Not applicable		NA		NA		NA							NR
741555	Not applicable		NA		NA		NA							NR
741554	Not applicable		NA		NA		NA							NR
742532	Not applicable		NA		NA		NA							NR
741741	Not reported		NR		NR		NR							NR
741740	Not reported		NR		NR		NR							NR
741787	Not applicable		NA		NA		NA							NR
2060991	Not applicable		NA		NA		NA							NR
2154070	Not significant at all concentrations		0.37		NR		NR							NR
2059519	No significance		0.05		NR		NR							NR
2059522	Significant		0.05		NR		NR							NR
2061032	Not applicable		NA		NA		NA							NR
2014049	Not applicable		NA		NA		NA							NR
148555	Not reported		NR		NR		NR							NR
2455	Not applicable		NA		NA		NA				40		48	mg/L CaCO3
12210	Not applicable		NA		NA		NA				40		48	mg/L CaCO3
231580	Not applicable		NA		NA		NA		100*					ppm
231578	Not applicable		NA		NA		NA		20*					ppm
231574	Not applicable		NA		NA		NA		100*					ppm
231577	Not applicable		NA		NA		NA		100*					ppm
231575	Not applicable		NA		NA		NA		100*					ppm
231576	Not applicable		NA		NA		NA		100*					ppm
231579	Not applicable		NA		NA		NA		20*					ppm
231581	Not applicable		NA		NA		NA		100*					ppm
2162899	Not significant at all concentrat	>	0.05		NR		NR							NR
2162871	Not applicable		NA		NA		NA							NR
741874	No significance	<	0.05		NR		NR							NR
231569	Not applicable		NA		NA		NA		100*					ppm
231568	Not applicable		NA		NA		NA		100*					ppm
231571	Not applicable		NA		NA		NA		20*					ppm
231567	Not applicable		NA		NA		NA		100*					ppm
231573	Not applicable		NA		NA		NA		20*					ppm
231572	Not applicable		NA		NA		NA		20*					ppm
231563	Not applicable		NA		NA		NA		100*					ppm

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
231566	Not applicable		NA		NA		NA		100*					ppm
231570	Not applicable		NA		NA		NA		20*					ppm
231565	Not applicable		NA		NA		NA		100*					ppm
231564	Not applicable		NA		NA		NA		100*					ppm
2060990	Not applicable		NA		NA		NA							NR
2164637	Not significant at all concentrat	>	0.474		NR		NR		90*					mg/L CaCO3
764333	Not applicable		NA		NA		NA							NR
764325	Not applicable		NA		NA		NA							NR
764330	Not applicable		NA		NA		NA							NR
764326	Not applicable		NA		NA		NA							NR
764329	Not applicable		NA		NA		NA							NR
2060979	Not applicable		NA		NA		NA							NR
2060983	Not applicable		NA		NA		NA							NR
2152847	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
741752	Not reported		NR		NR		NR							NR
764481	Not applicable		NA		NA		NA							NR
2060992	Not applicable		NA		NA		NA							NR
742917	No significance		0.05		NR		NR							NR
742918	No significance		0.05		NR		NR							NR
742037	No significance		0.05		NR		NR							NR
742036	Significant		0.05		NR		NR							NR
742919	No significance		0.05		NR		NR							NR
742006	Significant		0.05		NR		NR							NR
187909	Not applicable		NA		NA		NA							NR
187905	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187907	Not applicable		NA		NA		NA							NR
187903	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187902	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187908	Not applicable		NA		NA		NA							NR
187901	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187906	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
187904	Not applicable		NA		NA		NA				80		90	mg/L CaCO3
742038	Significant		0.05		NR		NR							NR
742016	Significant		0.05		NR		NR							NR
196818	Not applicable		NA		NA		NA							SOFT
196801	Not applicable		NA		NA		NA							SOFT
196817	Not applicable		NA		NA		NA							SOFT
196799	Not applicable		NA		NA		NA							SOFT
196831	Not applicable		NA		NA		NA							SOFT
196814	Not applicable		NA		NA		NA							SOFT
196791	Not applicable		NA		NA		NA							SOFT
196837	Not applicable		NA		NA		NA							SOFT
196776	Not applicable		NA		NA		NA							SOFT
196783	Not applicable		NA		NA		NA							SOFT
196795	Not applicable		NA		NA		NA							SOFT
196828	Not applicable		NA		NA		NA							SOFT
196816	Not applicable		NA		NA		NA							SOFT
196838	Not applicable		NA		NA		NA							SOFT
167864	Not applicable		NA		NA		NA		210*					mg/L CaCO3
167863	Not applicable		NA		NA		NA		210*					mg/L CaCO3
75451	Not applicable		NA		NA		NA		148.8					mg/L CaCO3
196826	Not applicable		NA		NA		NA							SOFT
196803	Not applicable		NA		NA		NA							SOFT
196841	Not applicable		NA		NA		NA							SOFT
196788	Not applicable		NA		NA		NA							SOFT
196784	Not applicable		NA		NA		NA							SOFT
196793	Not applicable		NA		NA		NA							SOFT
196805	Not applicable		NA		NA		NA							SOFT
196842	Not applicable		NA		NA		NA							SOFT
196846	Not applicable		NA		NA		NA							SOFT
196775	Not applicable		NA		NA		NA							SOFT
196834	Not applicable		NA		NA		NA							SOFT
196808	Not applicable		NA		NA		NA							SOFT
196827	Not applicable		NA		NA		NA							SOFT
196836	Not applicable		NA		NA		NA							SOFT
196845	Not applicable		NA		NA		NA							SOFT
196777	Not applicable		NA		NA		NA							SOFT
196823	Not applicable		NA		NA		NA							SOFT
196780	Not applicable		NA		NA		NA							SOFT
196790	Not applicable		NA		NA		NA							SOFT
196804	Not applicable		NA		NA		NA							SOFT
196785	Not applicable		NA		NA		NA							SOFT
196811	Not applicable		NA		NA		NA							SOFT
196797	Not applicable		NA		NA		NA							SOFT
196825	Not applicable		NA		NA		NA							SOFT
196824	Not applicable		NA		NA		NA							SOFT
196830	Not applicable		NA		NA		NA							SOFT
196844	Not applicable		NA		NA		NA							SOFT
196778	Not applicable		NA		NA		NA							SOFT
196807	Not applicable		NA		NA		NA							SOFT
196802	Not applicable		NA		NA		NA							SOFT
196810	Not applicable		NA		NA		NA							SOFT
196813	Not applicable		NA		NA		NA							SOFT
196822	Not applicable		NA		NA		NA							SOFT
196789	Not applicable		NA		NA		NA							SOFT

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
196794	Not applicable		NA		NA		NA							SOFT
196798	Not applicable		NA		NA		NA							SOFT
196786	Not applicable		NA		NA		NA							SOFT
196821	Not applicable		NA		NA		NA							SOFT
196782	Not applicable		NA		NA		NA							SOFT
196796	Not applicable		NA		NA		NA							SOFT
196800	Not applicable		NA		NA		NA							SOFT
196812	Not applicable		NA		NA		NA							SOFT
196833	Not applicable		NA		NA		NA							SOFT
196779	Not applicable		NA		NA		NA							SOFT
196792	Not applicable		NA		NA		NA							SOFT
196815	Not applicable		NA		NA		NA							SOFT
196835	Not applicable		NA		NA		NA							SOFT
196829	Not applicable		NA		NA		NA							SOFT
196843	Not applicable		NA		NA		NA							SOFT
196820	Not applicable		NA		NA		NA							SOFT
196774	Not applicable		NA		NA		NA							SOFT
196806	Not applicable		NA		NA		NA							SOFT
196832	Not applicable		NA		NA		NA							SOFT
196781	Not applicable		NA		NA		NA							SOFT
196840	Not applicable		NA		NA		NA							SOFT
196819	Not applicable		NA		NA		NA							SOFT
196787	Not applicable		NA		NA		NA							SOFT
196809	Not applicable		NA		NA		NA							SOFT
26112	Not applicable		NA		NA		NA							NR
759442	Not applicable		NA		NA		NA							NR
759441	Not applicable		NA		NA		NA							NR
759395	Significant	<	0.05		NR		NR							NR
759417	Not applicable		NA		NA		NA							NR
759449	Not applicable		NA		NA		NA							NR
759396	No significance		0		NR		NR							NR
741761	Not applicable		NA		NA		NA							NR
759448	Not applicable		NA		NA		NA							NR
2060993	Not applicable		NA		NA		NA							NR
741687	No significance	<	0.05		NR		NR				54*		72*	mg/L CaCO3
742567	Significant	<	0.05		NR		NR				54*		72*	mg/L CaCO3
207718	Not applicable		NA		NA		NA		102		94		104	mg/L CaCO3
741686	Not applicable		NA		NA		NA				54		72	mg/L CaCO3
207719	Not applicable		NA		NA		NA		102		94		104	mg/L CaCO3
207716	Not applicable		NA		NA		NA		102		94		104	mg/L CaCO3
741695	Not applicable		NA		NA		NA				54		72	mg/L CaCO3
2146816	Significant	<	0.05		NR		NR		286*					mg/L CaCO3
2146817	Not applicable		NA		NA		NA		286*					mg/L CaCO3
2146815	No significance	<	0.05		NR		NR		286*					mg/L CaCO3
741660	Not reported		NR		NR		NR				54*		72*	mg/L CaCO3
207721	Not applicable		NA		NA		NA		102		94		104	mg/L CaCO3
741699	Not applicable		NA		NA		NA				54*		72*	mg/L CaCO3
207717	Not applicable		NA		NA		NA		102		94		104	mg/L CaCO3
767855	Not reported		NR		NR		NR							NR
2152825	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
767904	Not reported		NR		NR		NR							NR
767903	Not reported		NR		NR		NR							NR
2075467	Not applicable		NA		NA		NA		278		276		280	mg/L CaCO3
766865	Not reported		NR		NR		NR							NR
766864	Not reported		NR		NR		NR							NR
2153271	Not applicable		NA		NA		NA		40					mg/L CaCO3
767897	Not reported		NR		NR		NR							NR
767898	Not reported		NR		NR		NR							NR
767961	Not reported		NR		NR		NR							NR
767962	Not reported		NR		NR		NR							NR
2153268	Not applicable		NA		NA		NA		20					mg/L CaCO3
767879	Not reported		NR		NR		NR							NR
767880	Not reported		NR		NR		NR							NR
767896	Not reported		NR		NR		NR							NR
767895	Not reported		NR		NR		NR							NR
2075442	Not applicable		NA		NA		NA		796		792		800	mg/L CaCO3
2075434	Not applicable		NA		NA		NA		565		560		570	mg/L CaCO3
767873	Not reported		NR		NR		NR							NR
767872	Not reported		NR		NR		NR							NR
2075468	Not applicable		NA		NA		NA		282		280		283	mg/L CaCO3
767959	Not reported		NR		NR		NR							NR
767960	Not reported		NR		NR		NR							NR
767871	Not reported		NR		NR		NR							NR
767870	Not reported		NR		NR		NR							NR
767968	Not reported		NR		NR		NR							NR
767967	Not reported		NR		NR		NR							NR
2075410	Not applicable		NA		NA		NA		96		95		96	mg/L CaCO3
2075471	Not applicable		NA		NA		NA		279		278		280	mg/L CaCO3
2153274	Not applicable		NA		NA		NA		80					mg/L CaCO3
766873	Not reported		NR		NR		NR							NR
766872	Not reported		NR		NR		NR							NR
766866	Not reported		NR		NR		NR							NR
766867	Not reported		NR		NR		NR							NR
767889	Not reported		NR		NR		NR							NR
767890	Not reported		NR		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2152724	Not applicable		NA		NA		NA		98					mg/L CaCO3
2152722	Not applicable		NA		NA		NA		98					mg/L CaCO3
2152723	Not applicable		NA		NA		NA		98					mg/L CaCO3
767856	Not reported		NR		NR		NR							NR
767857	Not reported		NR		NR		NR							NR
767969	Not reported		NR		NR		NR							NR
767970	Not reported		NR		NR		NR							NR
767847	Not reported		NR		NR		NR							NR
767846	Not reported		NR		NR		NR							NR
2152874	Not applicable		NA		NA		NA		10					mg/L CaCO3
767953	Not reported		NR		NR		NR							NR
767954	Not reported		NR		NR		NR							NR
767887	Not reported		NR		NR		NR							NR
767888	Not reported		NR		NR		NR							NR
2153277	Not applicable		NA		NA		NA		160					mg/L CaCO3
2153280	Not applicable		NA		NA		NA		320					mg/L CaCO3
767881	Not reported		NR		NR		NR							NR
767882	Not reported		NR		NR		NR							NR
767975	Not reported		NR		NR		NR							NR
767976	Not reported		NR		NR		NR							NR
2075466	Not applicable		NA		NA		NA		280		279		280	mg/L CaCO3
2075469	Not applicable		NA		NA		NA		281		280		281	mg/L CaCO3
2075470	Not applicable		NA		NA		NA		285		280		290	mg/L CaCO3
2074934	Not applicable		NA		NA		NA		28		25		30	mg/L CaCO3
2075402	Not applicable		NA		NA		NA		47		44		49	mg/L CaCO3
767864	Not reported		NR		NR		NR							NR
767865	Not reported		NR		NR		NR							NR
2075426	Not applicable		NA		NA		NA		388		375		400	mg/L CaCO3
767863	Not reported		NR		NR		NR							NR
767862	Not reported		NR		NR		NR							NR
2075418	Not applicable		NA		NA		NA		187		180		194	mg/L CaCO3
741671	Not applicable		NA		NA		NA							NR
767849	Not reported		NR		NR		NR							NR
767848	Not reported		NR		NR		NR							NR
767854	Not reported		NR		NR		NR							NR
251007	Significant		NR		NR		NR							NR
250997	No significance		NR		NR		NR							NR
120843	Not applicable		NA		NA		NA							NR
251000	No significance		NR		NR		NR							NR
120826	Not applicable		NA		NA		NA							NR
120844	Not applicable		NA		NA		NA							NR
251003	Significant		NR		NR		NR							NR
120840	Not applicable		NA		NA		NA							NR
251001	Significant		NR		NR		NR							NR
250999	Significant		NR		NR		NR							NR
251009	Significant		NR		NR		NR							NR
120842	Not applicable		NA		NA		NA							NR
742530	Not reported		NR		NR		NR		101		100		103	mg/L CaCO3
741547	Not applicable		NA		NA		NA		101		100		103	mg/L CaCO3
120829	Not applicable		NA		NA		NA							NR
120855	No significance		NR		NR		NR							NR
251004	No significance		NR		NR		NR							NR
251002	No significance		NR		NR		NR							NR
120845	Not applicable		NA		NA		NA							NR
120837	Not applicable		NA		NA		NA							NR
251008	No significance		NR		NR		NR							NR
120827	Not applicable		NA		NA		NA							NR
120841	Not applicable		NA		NA		NA							NR
120824	Not applicable		NA		NA		NA							NR
250998	Significant		NR		NR		NR							NR
120839	Not applicable		NA		NA		NA							NR
120828	Not applicable		NA		NA		NA							NR
120825	Not applicable		NA		NA		NA							NR
120838	Not applicable		NA		NA		NA							NR
251006	No significance		NR		NR		NR							NR
251005	Significant		NR		NR		NR							NR
160319	Not applicable		NA		NA		NA							NR
768266	Not applicable		NA		NA		NA							NR
768264	Not applicable		NA		NA		NA							NR
768272	Not applicable		NA		NA		NA							NR
768175	Not applicable		NA		NA		NA							NR
768340	Not applicable		NA		NA		NA							NR
768268	Not applicable		NA		NA		NA							NR
768173	Not applicable		NA		NA		NA							NR
160320	Not applicable		NA		NA		NA							NR
741288	Not applicable		NA		NA		NA							NR
741435	Not applicable		NA		NA		NA		84*					ppm
2060999	Not applicable		NA		NA		NA							NR
741635	Not applicable		NA		NA		NA							NR
741678	Not applicable		NA		NA		NA							NR
155066	Not reported		NR		NR		NR		69.4					mg/L CaCO3
157997	Not applicable		NA		NA		NA		69.4					mg/L CaCO3
2152838	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2060247	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060217	Not applicable		NA		NA		NA		296*					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2060213	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060209	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060237	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060223	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060221	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060216	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060210	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060201	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060275	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060220	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060259	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060254	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060211	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060236	Significant	<=	0.01		NR		NR		296*					mg/L CaCO3
2060225	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060214	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060270	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060228	No significance	<=	0.01		NR		NR		296*					mg/L CaCO3
2060212	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060222	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060218	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2211037	Not applicable		NA		NA		NA				140*		160*	mg/L
2060996	Not applicable		NA		NA		NA							NR
741489	Not applicable		NA		NA		NA							NR
2162289	Not applicable		NA		NA		NA							NR
2162290	Not applicable		NA		NA		NA							NR
2211025	Not applicable		NA		NA		NA				140*		160*	mg/L
2211024	Not applicable		NA		NA		NA				140*		160*	mg/L
16495	Not applicable		NA		NA		NA		124					mg/L CaCO3
26114	Not applicable		NA		NA		NA							NR
26113	Not applicable		NA		NA		NA							NR
764830	Not applicable		NA		NA		NA							NR
2152592	Not applicable		NA		NA		NA							NR
2152588	Not applicable		NA		NA		NA							NR
2152587	Not applicable		NA		NA		NA							NR
742887	Not applicable		NA		NA		NA							NR
2060198	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060148	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060190	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060157	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060168	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060189	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060161	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060191	Not applicable		NA		NA		NA		296*					mg/L CaCO3
741331	Significant	<	0.05		NR		NR		193.5*					mg/L CaCO3
741388	No significance	<	0.05		NR		NR		193.5*					mg/L CaCO3
76295	Not applicable		NA		NA		NA							NR
2057566	Not applicable		NA		NA		NA		9.1					mg/L CaCO3
742566	Not applicable		NA		NA		NA				54		72	mg/L CaCO3
741698	No significance	<	0.05		NR		NR				54*		72*	mg/L CaCO3
741697	Significant	<	0.05		NR		NR				54*		72*	mg/L CaCO3
741610	Not applicable		NA		NA		NA							NR
18462	Not applicable		NA		NA		NA							NR
18463	Not applicable		NA		NA		NA							NR
18461	Not applicable		NA		NA		NA							NR
18464	Not applicable		NA		NA		NA							NR
2152826	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
759179	Not applicable		NA		NA		NA		563*		404*		694*	mg/L CaCO3
2164732	Not applicable		NA		NA		NA		149.6					mg/L
2164727	Not applicable		NA		NA		NA		149.6					mg/L
2164731	Not applicable		NA		NA		NA		149.6					mg/L
2152707	Not applicable		NA		NA		NA		170					mg/L CaCO3
2152709	Not applicable		NA		NA		NA		170					mg/L CaCO3
2152708	Not applicable		NA		NA		NA		170					mg/L CaCO3
119469	Not applicable		NA		NA		NA							NR
31699	Not applicable		NA		NA		NA							NR
84498	Not applicable		NA		NA		NA							NR
144221	Not applicable		NA		NA		NA		240					mg/L CaCO3
144220	Not applicable		NA		NA		NA		240					mg/L CaCO3
144218	Not applicable		NA		NA		NA		240					mg/L CaCO3
144219	Not applicable		NA		NA		NA		240					mg/L CaCO3
144222	Not applicable		NA		NA		NA		240					mg/L CaCO3
768428	Not applicable		NA		NA		NA							NR
768533	Not applicable		NA		NA		NA							NR
768500	Not applicable		NA		NA		NA							NR
160322	Not applicable		NA		NA		NA							NR
768426	Not applicable		NA		NA		NA							NR
768527	Not applicable		NA		NA		NA							NR
768431	Not applicable		NA		NA		NA							NR
768498	Not applicable		NA		NA		NA							NR
741531	Not reported		NR		NR		NR		169		166		172	mg/L CaCO3
742529	Not applicable		NA		NA		NA		169		166		172	mg/L CaCO3
768489	Not applicable		NA		NA		NA							NR
768475	Not applicable		NA		NA		NA							NR
768531	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
768450	Not applicable		NA		NA		NA							NR
768496	Not applicable		NA		NA		NA							NR
768523	Not applicable		NA		NA		NA							NR
768530	Not applicable		NA		NA		NA							NR
2210504	Not applicable		NA		NA		NA							NR
768520	Not applicable		NA		NA		NA							NR
768445	Not applicable		NA		NA		NA							NR
768499	Not applicable		NA		NA		NA							NR
768488	Not applicable		NA		NA		NA							NR
768467	Not applicable		NA		NA		NA							NR
768526	Not applicable		NA		NA		NA							NR
160321	Not applicable		NA		NA		NA							NR
768521	Not applicable		NA		NA		NA							NR
768486	Not applicable		NA		NA		NA							NR
2210505	Not applicable		NA		NA		NA							NR
742069	Not applicable		NA		NA		NA							NR
742931	Not applicable		NA		NA		NA							NR
742926	Not applicable		NA		NA		NA							NR
767302	Not applicable		NA		NA		NA		106					mg/L CaCO3
772103	Not applicable		NA		NA		NA		106					mg/L CaCO3
742068	Not applicable		NA		NA		NA							NR
742927	Not applicable		NA		NA		NA							NR
767308	Not applicable		NA		NA		NA		106					mg/L CaCO3
742008	Not applicable		NA		NA		NA				160*		180*	mg/L CaCO3
742019	Not applicable		NA		NA		NA				160*		180*	mg/L CaCO3
18460	Not applicable		NA		NA		NA							NR
201545	Not applicable		NA		NA		NA		92.8					mg/L CaCO3
2055828	Not applicable		NA		NA		NA				56		76	mg/L CaCO3
201558	Not applicable		NA		NA		NA		96.3					mg/L CaCO3
741434	Not applicable		NA		NA		NA		84*					ppm
201566	Not applicable		NA		NA		NA							NR
2055812	Not applicable		NA		NA		NA				28		82	mg/L CaCO3
2055826	Not applicable		NA		NA		NA				42		90	mg/L CaCO3
2055829	Not applicable		NA		NA		NA				40		70	mg/L CaCO3
2055827	Not applicable		NA		NA		NA				18		58	mg/L CaCO3
2160493	Significant at all concentrations		0.0193		NR		NR							NR
2160450	Significant at all concentrations	<	0.0005		NR		NR							NR
2160469	No significance	<=	0.05		NR		NR							NR
2160475	Significant	<	0.0001		NR		NR							NR
2160472	Not applicable		NA		NA		NA							NR
2160470	No significance		0.1521		NR		NR							NR
2160473	Not applicable		NA		NA		NA							NR
2160471	Significant	<	0.0001		NR		NR							NR
2160484	Significant		0.0122		NR		NR							NR
2160481	No significance		0.0346		NR		NR							NR
2160489	No significance		0.2008		NR		NR							NR
2160490	Significant		0.0159		NR		NR							NR
2160465	Not applicable		NA		NA		NA							NR
2160464	Significant	<	0.0001		NR		NR							NR
2160460	No significance		0.0679		NR		NR							NR
2160468	Not applicable		NA		NA		NA							NR
2060988	Not applicable		NA		NA		NA							NR
2061001	Not applicable		NA		NA		NA							NR
740690	Not applicable		NA		NA		NA		180					mg/L CaCO3
740662	Not applicable		NA		NA		NA		180					mg/L CaCO3
2060989	Not applicable		NA		NA		NA							NR
741563	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
803856	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
2052775	Not applicable		NA		NA		NA							NR
231524	Not applicable		NA		NA		NA		100*					ppm
231523	Not applicable		NA		NA		NA		100*					ppm
231527	Not applicable		NA		NA		NA		100*					ppm
231525	Not applicable		NA		NA		NA		100*					ppm
231526	Not applicable		NA		NA		NA		100*					ppm
2060997	Not applicable		NA		NA		NA							NR
2060994	Not applicable		NA		NA		NA							NR
2060995	Not applicable		NA		NA		NA							NR
2060998	Not applicable		NA		NA		NA							NR
741834	Not applicable		NA		NA		NA							NR
2062416	Not applicable		NA		NA		NA		193.9		171		256.5	mg/L CaCO3
2062417	Not applicable		NA		NA		NA		193.9		171		256.5	mg/L CaCO3
2064155	Not applicable		NA		NA		NA							NR
2064156	Not applicable		NA		NA		NA							NR
2064154	Not applicable		NA		NA		NA							NR
773637	Not significant at all concentrat	>	0.3		NR		NR							NR
118481	Not applicable		NA		NA		NA							NR
2061031	Not applicable		NA		NA		NA							NR
2061000	Not applicable		NA		NA		NA							NR
741789	Not applicable		NA		NA		NA							NR
742663	Not reported		NR		NR		NR							NR
2053816	Not applicable		NA		NA		NA							NR
2053813	Not applicable		NA		NA		NA							NR
2053818	Not applicable		NA		NA		NA							NR
2053814	Not applicable		NA		NA		NA							NR
2053819	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2061002	Not applicable		NA		NA		NA							NR
2053817	Not applicable		NA		NA		NA							NR
2061005	Not applicable		NA		NA		NA							NR
2061007	Not applicable		NA		NA		NA							NR
2061010	Not applicable		NA		NA		NA							NR
2061034	Not applicable		NA		NA		NA							NR
231537	Not applicable		NA		NA		NA		100*					ppm
231535	Not applicable		NA		NA		NA		100*					ppm
231533	Not applicable		NA		NA		NA		100*					ppm
231536	Not applicable		NA		NA		NA		100*					ppm
231534	Not applicable		NA		NA		NA		100*					ppm
2075474	Not applicable		NA		NA		NA		56					mg/L CaCO3
2075475	Not applicable		NA		NA		NA		212					mg/L CaCO3
763487	No significance	>	0.05		NR		NR							NR
763489	No significance	>	0.05		NR		NR							NR
763488	Significant	>	0.05		NR		NR							NR
763486	Significant	>	0.05		NR		NR							NR
2152842	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2164556	Not applicable		NA		NA		NA							NR
2164551	Not applicable		NA		NA		NA							NR
2164548	Not applicable		NA		NA		NA							NR
2164558	Not applicable		NA		NA		NA							NR
2164547	Not applicable		NA		NA		NA							NR
2164553	Not applicable		NA		NA		NA							NR
2164549	Not applicable		NA		NA		NA							NR
2164555	Not applicable		NA		NA		NA							NR
2164557	Not applicable		NA		NA		NA							NR
2164550	Not applicable		NA		NA		NA							NR
2164552	Not applicable		NA		NA		NA							NR
2164554	Not applicable		NA		NA		NA							NR
2061030	Not applicable		NA		NA		NA							NR
738141	Not applicable		NA		NA		NA							NR
16496	Not applicable		NA		NA		NA		124					mg/L CaCO3
2076800	Not applicable		NA		NA		NA				160*		180*	mg/L
2162414	Not significant at all concentrations		0.164		NR		NR							NR
741673	No significance	<	0.05		NR		NR							NR
740725	Not applicable		NA		NA		NA		140					mg/L CaCO3
741674	No significance	<	0.05		NR		NR							NR
741642	Significant	<	0.05		NR		NR							NR
742661	Not reported		NR		NR		NR							NR
741737	Not reported		NR		NR		NR							NR
742662	Not reported		NR		NR		NR							NR
741772	Not reported		NR		NR		NR							NR
741735	Not reported		NR		NR		NR							NR
741774	Not reported		NR		NR		NR							NR
741738	Not reported		NR		NR		NR							NR
741773	Not reported		NR		NR		NR							NR
741650	Significant	<	0.05		NR		NR							NR
741710	Not applicable		NA		NA		NA		140					mg/L CaCO3
740689	Not applicable		NA		NA		NA		140					mg/L CaCO3
2152606	Not applicable		NA		NA		NA		112*					mg/L CaCO3
2055947	Not applicable		NA		NA		NA							NR
2055953	Not applicable		NA		NA		NA							NR
2164711	Significant		0.05		NR		NR							NR
2164613	Not significant at all concentrations		0.05		NR		NR							NR
2164645	No significance		0.05		NR		NR							NR
2164646	Significant		0.05		NR		NR							NR
2164618	Not significant at all concentrations		0.05		NR		NR							NR
2164696	Significant		0.05		NR		NR							NR
2164695	No significance		0.05		NR		NR							NR
2164692	No significance		0.05		NR		NR							NR
2164693	Significant		0.05		NR		NR							NR
2164628	Significant		0.05		NR		NR							NR
2164699	No significance		0.05		NR		NR							NR
2164700	Significant		0.05		NR		NR							NR
2164640	No significance		0.05		NR		NR							NR
2164641	Significant		0.05		NR		NR							NR
2164627	No significance		0.05		NR		NR							NR
2164710	No significance		0.05		NR		NR							NR
2164623	No significance		0.05		NR		NR							NR
2164625	Significant		0.05		NR		NR							NR
2052772	Not applicable		NA		NA		NA							NR
2052780	Not applicable		NA		NA		NA		278					mg/L CaCO3
2052781	Not applicable		NA		NA		NA		292					mg/L CaCO3
2052782	Not applicable		NA		NA		NA		292					mg/L CaCO3
2052783	Not applicable		NA		NA		NA		322					mg/L CaCO3
741564	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
2052773	Not applicable		NA		NA		NA							NR
2052774	Not applicable		NA		NA		NA							NR
2052786	Not applicable		NA		NA		NA		306					mg/L CaCO3
2052785	Not applicable		NA		NA		NA		306					mg/L CaCO3
741584	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
803857	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
2052779	Not applicable		NA		NA		NA		278					mg/L CaCO3
2052784	Not applicable		NA		NA		NA		322					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2224815	Not applicable		NA		NA		NA				160*		180*	mg/L CaCO3
2052777	Not applicable		NA		NA		NA		172					mg/L CaCO3
2052778	Not applicable		NA		NA		NA		322					mg/L CaCO3
2052770	Not applicable		NA		NA		NA							NR
2052776	Not applicable		NA		NA		NA		47					mg/L CaCO3
2052771	Not applicable		NA		NA		NA		99					mg/L CaCO3
741568	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
803860	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
741594	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
2224806	Not applicable		NA		NA		NA				160*		180*	mg/L CaCO3
2164655	Not applicable		NA		NA		NA							NR
2164658	Not applicable		NA		NA		NA							NR
2164654	Significant at all concentrations	<	0.001		NR		NR							NR
2164657	Not applicable		NA		NA		NA							NR
2164656	Not applicable		NA		NA		NA							NR
196203	Not applicable		NA		NA		NA		10					mg/L CaCO3
2210845	Not applicable		NA		NA		NA				140*		160*	mg/L
18184	Not applicable		NA		NA		NA							NR
40512	Not applicable		NA		NA		NA				39.2		52	mg/L CaCO3
201540	Not applicable		NA		NA		NA		101.7					mg/L CaCO3
13417	Not applicable		NA		NA		NA							NR
740684	Not applicable		NA		NA		NA		140					mg/L CaCO3
740724	Not applicable		NA		NA		NA		140					mg/L CaCO3
220765	Not applicable		NA		NA		NA		429					mg/L CaCO3
2224820	Not applicable		NA		NA		NA				160*		180*	mg/L CaCO3
2224821	Not applicable		NA		NA		NA				160*		180*	mg/L CaCO3
231519	Not applicable		NA		NA		NA		100*					ppm
231583	Not applicable		NA		NA		NA		100*					ppm
231522	Not applicable		NA		NA		NA		100*					ppm
231584	Not applicable		NA		NA		NA		100*					ppm
231582	Not applicable		NA		NA		NA		100*					ppm
231521	Not applicable		NA		NA		NA		100*					ppm
231518	Not applicable		NA		NA		NA		100*					ppm
231520	Not applicable		NA		NA		NA		100*					ppm
203677	Not applicable		NA		NA		NA		100.8					mg/L CaCO3
203678	Not applicable		NA		NA		NA		100.8					mg/L CaCO3
2154076	Not significant at all concentrations		0.13		NR		NR							NR
2165531	Not significant at all concentrat	>	0.05		NR		NR							NR
2060018	Significant	<	0.05		NR		NR							NR
2060020	Not significant at all concentrations		0.382		NR		NR							NR
2059995	No significance	<	0.05		NR		NR							NR
2059533	Not significant at all concentrations		0.05		NR		NR							NR
2076801	Not applicable		NA		NA		NA				160*		180*	mg/L
741963	Not applicable		NA		NA		NA							NR
741964	Not applicable		NA		NA		NA							NR
2165523	Not significant at all concentrations		0.274		NR		NR							NR
2152829	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2060317	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060288	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060318	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060291	No significance	<=	0.01		NR		NR		296*					mg/L CaCO3
2060289	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060315	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060319	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060292	Significant	<=	0.01		NR		NR		296*					mg/L CaCO3
2060307	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060302	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060309	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060290	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060276	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060293	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060306	Not applicable		NA		NA		NA		296*					mg/L CaCO3
18185	Not applicable		NA		NA		NA							NR
764505	Not applicable		NA		NA		NA							NR
18186	Not applicable		NA		NA		NA							NR
741739	Not reported		NR		NR		NR							NR
2164605	No significance		0.05		NR		NR							NR
2164606	Significant		0.05		NR		NR							NR
2164588	Significant		0.05		NR		NR							NR
2164587	No significance		0.05		NR		NR							NR
2164592	Significant		0.05		NR		NR							NR
2164591	No significance		0.05		NR		NR							NR
2164600	Significant		0.05		NR		NR							NR
2164599	No significance		0.05		NR		NR							NR
2164608	No significance		0.05		NR		NR							NR
2164609	Significant		0.05		NR		NR							NR
2164603	Significant		0.05		NR		NR							NR
2164602	No significance		0.05		NR		NR							NR
2164594	No significance		0.05		NR		NR							NR
2164595	Significant		0.05		NR		NR							NR
741589	Not applicable		NA		NA		NA							NR
741627	No significance		0.05		NR		NR							NR
741624	Significant		0.05		NR		NR							NR
742550	Significant		0.05		NR		NR							NR
741596	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
742551	No significance		0.05		NR		NR							NR
742549	Not applicable		NA		NA		NA							NR
141462	Not applicable		NA		NA		NA	<	75*					mg/L CaCO3
2271253	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271251	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271252	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
2271250	Not applicable		NA		NA		NA	<	75*					ppm CaCO3
141461	Not applicable		NA		NA		NA	<	75*					mg/L CaCO3
742574	Not applicable		NA		NA		NA							NR
6172	Not applicable		NA		NA		NA							NR
802494	Not applicable		NA		NA		NA							NR
802495	Not applicable		NA		NA		NA							NR
6170	Not applicable		NA		NA		NA							NR
6174	Not applicable		NA		NA		NA							NR
802493	Not applicable		NA		NA		NA							NR
6169	Not applicable		NA		NA		NA							NR
6173	Not applicable		NA		NA		NA							NR
802503	Not applicable		NA		NA		NA							NR
802499	Not applicable		NA		NA		NA							NR
802492	Not applicable		NA		NA		NA							NR
6167	Not applicable		NA		NA		NA							NR
802504	Not applicable		NA		NA		NA							NR
802500	Not applicable		NA		NA		NA							NR
802501	Not applicable		NA		NA		NA							NR
802490	Not applicable		NA		NA		NA							NR
802497	Not applicable		NA		NA		NA							NR
6171	Not applicable		NA		NA		NA							NR
802505	Not applicable		NA		NA		NA							NR
802496	Not applicable		NA		NA		NA							NR
6168	Not applicable		NA		NA		NA							NR
802502	Not applicable		NA		NA		NA							NR
802506	Not applicable		NA		NA		NA							NR
802491	Not applicable		NA		NA		NA							NR
2075478	Not applicable		NA		NA		NA		48					mg/L CaCO3
16494	Not applicable		NA		NA		NA		124					mg/L CaCO3
2061004	Not applicable		NA		NA		NA							NR
2061033	Not applicable		NA		NA		NA							NR
2060335	Significant	<=	0.01		NR		NR		290*		288*		292*	mg/L CaCO3
2060352	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060360	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060336	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060333	No significance	<=	0.01		NR		NR		290*		288*		292*	mg/L CaCO3
2060327	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060350	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060361	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060325	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060342	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060326	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060329	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060354	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2061036	Not applicable		NA		NA		NA							NR
205755	No significance		0.05		NR		NR		46*					mg/L
202197	Not significant at all concentrations		0.05		NR		NR		44					mg/L
740665	Not applicable		NA		NA		NA		140					mg/L CaCO3
251449	Not applicable		NA		NA		NA		46*					mg/L
741684	Not applicable		NA		NA		NA		284					mg/L CaCO3
741683	Not applicable		NA		NA		NA		284					mg/L CaCO3
205757	No significance		0.05		NR		NR		46*					mg/L
205758	Significant		0.05		NR		NR		46*					mg/L
205754	Not significant at all concentrations		0.05		NR		NR		46*					mg/L
205753	Not applicable		NA		NA		NA		46*					mg/L
759632	Not applicable		NA		NA		NA							NR
205752	Not applicable		NA		NA		NA		46*					mg/L
740723	Not applicable		NA		NA		NA		140					mg/L CaCO3
205756	Significant		0.05		NR		NR		46*					mg/L
740663	Not applicable		NA		NA		NA		140					mg/L CaCO3
203282	Not applicable		NA		NA		NA							NR
202198	No significance		0.05		NR		NR		44					mg/L
202199	Not reported		NR		NR		NR		44					mg/L
2152827	Not applicable		NA		NA		NA		40					mg/L CaCO3
202205	Not applicable		NA		NA		NA		46					mg/L
202206	Not applicable		NA		NA		NA		46					mg/L
202200	Not applicable		NA		NA		NA		44					mg/L
202201	Not applicable		NA		NA		NA		44					mg/L
205759	Not applicable		NA		NA		NA		46*					mg/L
2061009	Not applicable		NA		NA		NA							NR
2163188	Not applicable		NA		NA		NA							NR
2163192	Not applicable		NA		NA		NA							NR
2163194	Not applicable		NA		NA		NA							NR
2163190	Not applicable		NA		NA		NA							NR
2163088	Not applicable		NA		NA		NA							NR
2163089	No significance	<	0.001		NR		NR							NR
2163090	Significant	<	0.001		NR		NR							NR
2163087	Not applicable		NA		NA		NA							NR
2162431	Not significant at all concentrations		0.272		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2163112	Significant	<	0.001		NR		NR							NR
2163110	Not applicable		NA		NA		NA							NR
2163109	Not applicable		NA		NA		NA							NR
2163111	No significance	<	0.001		NR		NR							NR
740693	Not applicable		NA		NA		NA		140					mg/L CaCO3
741709	Not applicable		NA		NA		NA		140					mg/L CaCO3
201543	Not applicable		NA		NA		NA		100.1					mg/L CaCO3
201542	Not applicable		NA		NA		NA		100.1					mg/L CaCO3
231546	Not applicable		NA		NA		NA		100*					ppm
231545	Not applicable		NA		NA		NA		100*					ppm
231550	Not applicable		NA		NA		NA		100*					ppm
231549	Not applicable		NA		NA		NA		100*					ppm
231554	Not applicable		NA		NA		NA		20*					ppm
231544	Not applicable		NA		NA		NA		100*					ppm
231553	Not applicable		NA		NA		NA		20*					ppm
231547	Not applicable		NA		NA		NA		100*					ppm
231542	Not applicable		NA		NA		NA		100*					ppm
231551	Not applicable		NA		NA		NA		20*					ppm
231548	Not applicable		NA		NA		NA		100*					ppm
231540	Not applicable		NA		NA		NA		100*					ppm
231543	Not applicable		NA		NA		NA		100*					ppm
231539	Not applicable		NA		NA		NA		100*					ppm
231538	Not applicable		NA		NA		NA		100*					ppm
231552	Not applicable		NA		NA		NA		20*					ppm
231541	Not applicable		NA		NA		NA		100*					ppm
741736	Not applicable		NA		NA		NA							NR
196750	Not applicable		NA		NA		NA							SOFT
196772	Not applicable		NA		NA		NA							SOFT
196755	Not applicable		NA		NA		NA							SOFT
196735	Not applicable		NA		NA		NA							SOFT
196726	Not applicable		NA		NA		NA							SOFT
196768	Not applicable		NA		NA		NA							SOFT
196767	Not applicable		NA		NA		NA							SOFT
196736	Not applicable		NA		NA		NA							SOFT
196713	Not applicable		NA		NA		NA							SOFT
196744	Not applicable		NA		NA		NA							SOFT
196769	Not applicable		NA		NA		NA							SOFT
196724	Not applicable		NA		NA		NA							SOFT
196765	Not applicable		NA		NA		NA							SOFT
196763	Not applicable		NA		NA		NA							SOFT
740694	Not applicable		NA		NA		NA		140					mg/L CaCO3
759180	Not applicable		NA		NA		NA		563*		404*		694*	mg/L CaCO3
740696	Not applicable		NA		NA		NA		140					mg/L CaCO3
740697	Not applicable		NA		NA		NA		140					mg/L CaCO3
196745	Not applicable		NA		NA		NA							SOFT
196714	Not applicable		NA		NA		NA							SOFT
196748	Not applicable		NA		NA		NA							SOFT
196728	Not applicable		NA		NA		NA							SOFT
196741	Not applicable		NA		NA		NA							SOFT
196756	Not applicable		NA		NA		NA							SOFT
196734	Not applicable		NA		NA		NA							SOFT
196729	Not applicable		NA		NA		NA							SOFT
196760	Not applicable		NA		NA		NA							SOFT
196759	Not applicable		NA		NA		NA							SOFT
196761	Not applicable		NA		NA		NA							SOFT
196731	Not applicable		NA		NA		NA							SOFT
196738	Not applicable		NA		NA		NA							SOFT
196839	Not applicable		NA		NA		NA							SOFT
196770	Not applicable		NA		NA		NA							SOFT
196720	Not applicable		NA		NA		NA							SOFT
196718	Not applicable		NA		NA		NA							SOFT
196753	Not applicable		NA		NA		NA							SOFT
196766	Not applicable		NA		NA		NA							SOFT
196757	Not applicable		NA		NA		NA							SOFT
196723	Not applicable		NA		NA		NA							SOFT
196732	Not applicable		NA		NA		NA							SOFT
196740	Not applicable		NA		NA		NA							SOFT
768104	Not reported		NR		NR		NR							NR
768105	Not reported		NR		NR		NR							NR
201560	No significance	<	0.05		NR		NR		96.9					mg/L CaCO3
768072	Not reported		NR		NR		NR							NR
768073	Not reported		NR		NR		NR							NR
2152828	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
768158	Not reported		NR		NR		NR							NR
768157	Not reported		NR		NR		NR							NR
201562	Not applicable		NA		NA		NA		96.9					mg/L CaCO3
768067	Not reported		NR		NR		NR							NR
768066	Not reported		NR		NR		NR							NR
768059	Not reported		NR		NR		NR							NR
768058	Not reported		NR		NR		NR							NR
768096	Not reported		NR		NR		NR							NR
768097	Not reported		NR		NR		NR							NR
201537	Not applicable		NA		NA		NA		96.3					mg/L CaCO3
768128	Not reported		NR		NR		NR							NR
768127	Not reported		NR		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
196716	Not applicable		NA		NA		NA							SOFT
196749	Not applicable		NA		NA		NA							SOFT
196722	Not applicable		NA		NA		NA							SOFT
196751	Not applicable		NA		NA		NA							SOFT
196711	Not applicable		NA		NA		NA							SOFT
196737	Not applicable		NA		NA		NA							SOFT
196712	Not applicable		NA		NA		NA							SOFT
196764	Not applicable		NA		NA		NA							SOFT
196742	Not applicable		NA		NA		NA							SOFT
196746	Not applicable		NA		NA		NA							SOFT
196733	Not applicable		NA		NA		NA							SOFT
196758	Not applicable		NA		NA		NA							SOFT
196773	Not applicable		NA		NA		NA							SOFT
196725	Not applicable		NA		NA		NA							SOFT
196752	Not applicable		NA		NA		NA							SOFT
196715	Not applicable		NA		NA		NA							SOFT
196730	Not applicable		NA		NA		NA							SOFT
196727	Not applicable		NA		NA		NA							SOFT
196771	Not applicable		NA		NA		NA							SOFT
196721	Not applicable		NA		NA		NA							SOFT
196739	Not applicable		NA		NA		NA							SOFT
196754	Not applicable		NA		NA		NA							SOFT
196717	Not applicable		NA		NA		NA							SOFT
196747	Not applicable		NA		NA		NA							SOFT
196743	Not applicable		NA		NA		NA							SOFT
196762	Not applicable		NA		NA		NA							SOFT
196719	Not applicable		NA		NA		NA							SOFT
768144	Not reported		NR		NR		NR							NR
768143	Not reported		NR		NR		NR							NR
768090	Not reported		NR		NR		NR							NR
768091	Not reported		NR		NR		NR							NR
2055548	Not applicable		NA		NA		NA				60		76	mg/L CaCO3
2055549	Not applicable		NA		NA		NA				46		70	mg/L CaCO3
2055550	Not applicable		NA		NA		NA				44		68	mg/L CaCO3
2055542	Not applicable		NA		NA		NA				52		96	mg/L CaCO3
741400	Not significant at all concentrations		0.05		NR		NR				90		110	mg/L
741744	Significant		0.05		NR		NR				90		110	mg/L
742666	No significance		0.05		NR		NR				90		110	mg/L
2163907	Not significant at all concentrat>		0.05		NR		NR							NR
2163914	Not significant at all concentrat>		0.05		NR		NR							NR
768089	Not reported		NR		NR		NR							NR
768088	Not reported		NR		NR		NR							NR
768124	Not reported		NR		NR		NR							NR
768123	Not reported		NR		NR		NR							NR
768163	Not reported		NR		NR		NR							NR
768164	Not reported		NR		NR		NR							NR
768153	Not reported		NR		NR		NR							NR
768154	Not reported		NR		NR		NR							NR
768098	Not reported		NR		NR		NR							NR
768099	Not reported		NR		NR		NR							NR
768074	Not reported		NR		NR		NR							NR
768075	Not reported		NR		NR		NR							NR
767563	Not applicable		NA		NA		NA		120					mg/L CaCO3
768080	Not reported		NR		NR		NR							NR
768081	Not reported		NR		NR		NR							NR
742059	Not applicable		NA		NA		NA							NR
742029	Not applicable		NA		NA		NA							NR
742057	Not applicable		NA		NA		NA							NR
742070	Not applicable		NA		NA		NA							NR
784793	Not applicable		NA		NA		NA							NR
742077	Not applicable		NA		NA		NA							NR
742932	Not applicable		NA		NA		NA							NR
742058	Not applicable		NA		NA		NA							NR
160325	Not applicable		NA		NA		NA							NR
160324	Not applicable		NA		NA		NA							NR
68599	No significance		0.05		NR		NR				86		94	mg/L CaCO3
42865	No significance		0.05		NR		NR				86		94	mg/L CaCO3
167862	Not applicable		NA		NA		NA		210*					mg/L CaCO3
167861	Not applicable		NA		NA		NA		210*					mg/L CaCO3
14383	No significance		0.05		NR		NR				86		94	mg/L CaCO3
96885	No significance		0.05		NR		NR				86		94	mg/L CaCO3
42866	Significant		0.05		NR		NR				86		94	mg/L CaCO3
768114	Not reported		NR		NR		NR							NR
768113	Not reported		NR		NR		NR							NR
768108	Not reported		NR		NR		NR							NR
768107	Not reported		NR		NR		NR							NR
201538	Not applicable		NA		NA		NA		96.3					mg/L CaCO3
768083	Not reported		NR		NR		NR							NR
768082	Not reported		NR		NR		NR							NR
768138	Not reported		NR		NR		NR							NR
768137	Not reported		NR		NR		NR							NR
768147	Not reported		NR		NR		NR							NR
768148	Not reported		NR		NR		NR							NR
768064	Not reported		NR		NR		NR							NR
768065	Not reported		NR		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
768134	Not reported		NR		NR		NR							NR
768133	Not reported		NR		NR		NR							NR
768117	Not reported		NR		NR		NR							NR
768118	Not reported		NR		NR		NR							NR
201561	Significant	<	0.05		NR		NR		96.9					mg/L CaCO3
767566	Not applicable		NA		NA		NA		120					mg/L CaCO3
96881	Significant		0.05		NR		NR				86		94	mg/L CaCO3
768559	Not applicable		NA		NA		NA							NR
69057	No significance		0.05		NR		NR				86		94	mg/L CaCO3
160323	Not applicable		NA		NA		NA							NR
42423	Significant		0.05		NR		NR				86		94	mg/L CaCO3
96906	Significant		0.05		NR		NR				86		94	mg/L CaCO3
96907	No significance		0.05		NR		NR				86		94	mg/L CaCO3
14389	Significant		0.05		NR		NR				86		94	mg/L CaCO3
2210509	Significant at all concentrations		0.05		NR		NR							NR
768558	Not applicable		NA		NA		NA							NR
68598	Significant		0.05		NR		NR				86		94	mg/L CaCO3
742691	Significant		0.05		NR		NR				90		110	mg/L
741410	Significant at all concentrations		0.05		NR		NR				90		110	mg/L
742027	Not applicable		NA		NA		NA							NR
742030	Not applicable		NA		NA		NA							NR
742026	Not applicable		NA		NA		NA							NR
231532	Not applicable		NA		NA		NA		100*					ppm
231528	Not applicable		NA		NA		NA		100*					ppm
231531	Not applicable		NA		NA		NA		100*					ppm
231530	Not applicable		NA		NA		NA		100*					ppm
231529	Not applicable		NA		NA		NA		100*					ppm
26115	Not applicable		NA		NA		NA							NR
26116	Not applicable		NA		NA		NA							NR
2060321	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060324	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2060323	Not applicable		NA		NA		NA		290*		288*		292*	mg/L CaCO3
2061003	Not applicable		NA		NA		NA							NR
747953	Not applicable		NA		NA		NA		75.0*					mg/L CaCO3
741586	Not significant at all concentrat	<	0.05		NR		NR							NR
741559	Not significant at all concentrat	<	0.05		NR		NR							NR
742665	Not reported		NR		NR		NR							NR
741795	Not applicable		NA		NA		NA							NR
742664	Not reported		NR		NR		NR							NR
741756	Not applicable		NA		NA		NA							NR
741783	Not reported		NR		NR		NR							NR
741751	Not reported		NR		NR		NR							NR
2060370	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060369	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060365	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060367	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060362	Not applicable		NA		NA		NA		300*		296*		304*	mg/L CaCO3
2060368	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2060371	Not applicable		NA		NA		NA		296*					mg/L CaCO3
2058029	Not significant at all concentrat	>	0.9		NR		NR							NR
2061008	Not applicable		NA		NA		NA							NR
2170552	Not applicable		NA		NA		NA				132		205	mg/L
740692	Not applicable		NA		NA		NA		140					mg/L CaCO3
740691	Not applicable		NA		NA		NA		140					mg/L CaCO3
41933	Not applicable		NA		NA		NA							NR
41934	Not applicable		NA		NA		NA							NR
740686	Not applicable		NA		NA		NA		140					mg/L CaCO3
740685	Not applicable		NA		NA		NA		140					mg/L CaCO3
2061035	Not applicable		NA		NA		NA							NR
2075473	Not applicable		NA		NA		NA		192					mg/L CaCO3
2075472	Not applicable		NA		NA		NA		51					mg/L CaCO3
231556	Not applicable		NA		NA		NA		100*					ppm
231560	Not applicable		NA		NA		NA		20*					ppm
231561	Not applicable		NA		NA		NA		20*					ppm
231559	Not applicable		NA		NA		NA		20*					ppm
231557	Not applicable		NA		NA		NA		100*					ppm
231558	Not applicable		NA		NA		NA		100*					ppm
231562	Not applicable		NA		NA		NA		20*					ppm
231555	Not applicable		NA		NA		NA		100*					ppm
741781	Not reported		NR		NR		NR							NR
84265	No significance		0.05		NR		NR		48.5*					mg/L CaCO3
83067	Significant		0.05		NR		NR		48.5*					mg/L CaCO3
10561	Significant		0.05		NR		NR		48.5*					mg/L CaCO3
84260	No significance		0.05		NR		NR		48.5*					mg/L CaCO3
2061027	Not applicable		NA		NA		NA							NR
741743	Not reported		NR		NR		NR							NR
741788	Not applicable		NA		NA		NA							NR
741742	Not reported		NR		NR		NR							NR
161742	Not applicable		NA		NA		NA		69.4					mg/L CaCO3
161744	Not reported		NR		NR		NR		69.4					mg/L CaCO3
2075476	Not applicable		NA		NA		NA		52					mg/L CaCO3
2075477	Not applicable		NA		NA		NA		220					mg/L CaCO3
2152833	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
803853	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
741562	Not applicable		NA		NA		NA				170		192	mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
741561	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
741583	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
803850	Not applicable		NA		NA		NA				170		192	mg/L CaCO3
2064226	Not applicable		NA		NA		NA							NR
2064225	Not applicable		NA		NA		NA							NR
2064223	Not applicable		NA		NA		NA							NR
211034	Not applicable		NA		NA		NA							NR
67863	Not applicable		NA		NA		NA							NR
67862	Not applicable		NA		NA		NA							NR
18178	Not applicable		NA		NA		NA							NR
18176	Not applicable		NA		NA		NA							NR
18177	Not applicable		NA		NA		NA							NR
18179	Not applicable		NA		NA		NA							NR
764340	Not applicable		NA		NA		NA							NR
764585	Not applicable		NA		NA		NA							NR
759286	No significance		0		NR		NR							NR
759285	Significant	<	0.05		NR		NR							NR
759267	Not applicable		NA		NA		NA							NR
759268	Not applicable		NA		NA		NA							NR
759266	Not applicable		NA		NA		NA							NR
759265	Not applicable		NA		NA		NA							NR
766604	Not applicable		NA		NA		NA		288					mg/L CaCO3
766435	Not applicable		NA		NA		NA		578					mg/L CaCO3
766426	Not applicable		NA		NA		NA		194					mg/L CaCO3
767351	Not applicable		NA		NA		NA							NR
766436	Not applicable		NA		NA		NA		94*					mg/L CaCO3
2017050	Significant		NR		NR		NR		160					mg/L
2017049	No significance		NR		NR		NR		160					mg/L
2017048	Not applicable		NA		NA		NA		160					mg/L
2017057	Not applicable		NA		NA		NA		320					mg/L
2017059	Significant		NR		NR		NR		320					mg/L
2017058	No significance		NR		NR		NR		320					mg/L
2017040	Not applicable		NA		NA		NA		80					mg/L
2017042	Significant		NR		NR		NR		80					mg/L
2017041	No significance		NR		NR		NR		80					mg/L
2017029	Not applicable		NA		NA		NA		40					mg/L
2017030	No significance		NR		NR		NR		40					mg/L
2017031	Significant		NR		NR		NR		40					mg/L
766228	Not applicable		NA		NA		NA		92*					mg/L CaCO3
766227	Not applicable		NA		NA		NA		92*					mg/L CaCO3
766225	No significance	<	0.05		NR		NR		92*					mg/L CaCO3
766224	Significant	<	0.05		NR		NR		92*					mg/L CaCO3
766221	Not applicable		NA		NA		NA		92*					mg/L CaCO3
766222	Significant	<	0.05		NR		NR		92*					mg/L CaCO3
766223	No significance	<	0.05		NR		NR		92*					mg/L CaCO3
766226	Not applicable		NA		NA		NA		92*					mg/L CaCO3
759078	Not applicable		NA		NA		NA							NR
759072	Not reported		NR		NR		NR							NR
759073	Not reported		NR		NR		NR							NR
761596	Not applicable		NA		NA		NA							NR
767459	Not applicable		NA		NA		NA							NR
766432	Not applicable		NA		NA		NA		484					mg/L CaCO3
767457	Not applicable		NA		NA		NA							NR
766427	Not applicable		NA		NA		NA		194					mg/L CaCO3
160330	Not applicable		NA		NA		NA							NR
767456	Not reported		NR		NR		NR							NR
767412	Not applicable		NA		NA		NA							NR
767375	Not applicable		NA		NA		NA							NR
766430	Not applicable		NA		NA		NA		390					mg/L CaCO3
767380	Not applicable		NA		NA		NA							NR
767353	Not applicable		NA		NA		NA							NR
766418	Not applicable		NA		NA		NA		107					mg/L CaCO3
766433	Not applicable		NA		NA		NA		484					mg/L CaCO3
767350	Not applicable		NA		NA		NA							NR
766428	Not applicable		NA		NA		NA		288					mg/L CaCO3
767411	Not applicable		NA		NA		NA							NR
766419	Not applicable		NA		NA		NA		107					mg/L CaCO3
766437	Not applicable		NA		NA		NA		94*					mg/L CaCO3
766431	Not applicable		NA		NA		NA		390					mg/L CaCO3
766215	Not applicable		NA		NA		NA		94*					mg/L CaCO3
160331	Not applicable		NA		NA		NA							NR
766429	Not applicable		NA		NA		NA		288					mg/L CaCO3
766434	Not applicable		NA		NA		NA		578					mg/L CaCO3
767454	Not applicable		NA		NA		NA							NR
766216	Not applicable		NA		NA		NA		94*					mg/L CaCO3
767376	Not applicable		NA		NA		NA							NR
766576	Not applicable		NA		NA		NA		98					mg/L CaCO3
766609	Not applicable		NA		NA		NA		484					mg/L CaCO3
766554	Not applicable		NA		NA		NA		102					mg/L CaCO3
766567	Not applicable		NA		NA		NA		96					mg/L CaCO3
766580	Not applicable		NA		NA		NA		96					mg/L CaCO3
766565	Not applicable		NA		NA		NA		94					mg/L CaCO3
766607	Not applicable		NA		NA		NA		390					mg/L CaCO3
766556	Not applicable		NA		NA		NA		94					mg/L CaCO3
766720	Not applicable		NA		NA		NA	~	100					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
766574	Not applicable		NA		NA		NA		96					mg/L CaCO3
766740	Not reported		NR		NR		NR							NR
766739	Not reported		NR		NR		NR							NR
766717	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766577	Not applicable		NA		NA		NA		102					mg/L CaCO3
766560	Not applicable		NA		NA		NA		94					mg/L CaCO3
766603	Not applicable		NA		NA		NA		288					mg/L CaCO3
766575	Not applicable		NA		NA		NA		104					mg/L CaCO3
766581	Not applicable		NA		NA		NA		98					mg/L CaCO3
766722	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766573	Not applicable		NA		NA		NA		96					mg/L CaCO3
766730	Not reported		NR		NR		NR							NR
766731	Not reported		NR		NR		NR							NR
766578	Not applicable		NA		NA		NA		102					mg/L CaCO3
766595	Not applicable		NA		NA		NA		288					mg/L CaCO3
766586	Not applicable		NA		NA		NA		94					mg/L CaCO3
766610	Not applicable		NA		NA		NA		484					mg/L CaCO3
766745	Not reported		NR		NR		NR							NR
766555	Not applicable		NA		NA		NA		92					mg/L CaCO3
766566	Not applicable		NA		NA		NA		100					mg/L CaCO3
766718	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766570	Not applicable		NA		NA		NA		96					mg/L CaCO3
766723	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766605	Not applicable		NA		NA		NA		288					mg/L CaCO3
766591	Not applicable		NA		NA		NA		107					mg/L CaCO3
766724	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766572	Not applicable		NA		NA		NA		96					mg/L CaCO3
766548	Not applicable		NA		NA		NA		100					mg/L CaCO3
766606	Not applicable		NA		NA		NA		390					mg/L CaCO3
766585	Not applicable		NA		NA		NA		94					mg/L CaCO3
766588	Not applicable		NA		NA		NA		107					mg/L CaCO3
766608	Not applicable		NA		NA		NA		390					mg/L CaCO3
766551	Not applicable		NA		NA		NA		100					mg/L CaCO3
766563	Not applicable		NA		NA		NA		94					mg/L CaCO3
767585	Significant		0.05		NR		NR		105*					mg/L CaCO3
767586	No significance		0.05		NR		NR		105*					mg/L CaCO3
767587	Not applicable		NA		NA		NA		105*					mg/L CaCO3
766854	Not reported		NR		NR		NR							NR
766592	Not applicable		NA		NA		NA		194					mg/L CaCO3
766726	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766748	Not reported		NR		NR		NR							NR
766587	Not applicable		NA		NA		NA		94					mg/L CaCO3
766612	Not applicable		NA		NA		NA		484					mg/L CaCO3
766561	Not applicable		NA		NA		NA		94					mg/L CaCO3
766590	Not applicable		NA		NA		NA		107					mg/L CaCO3
766593	Not applicable		NA		NA		NA		194					mg/L CaCO3
766594	Not applicable		NA		NA		NA		194					mg/L CaCO3
766571	Not applicable		NA		NA		NA		96					mg/L CaCO3
766584	Not applicable		NA		NA		NA		94					mg/L CaCO3
766217	Not applicable		NA		NA		NA		94*					mg/L CaCO3
766218	Not applicable		NA		NA		NA		94*					mg/L CaCO3
18144	Not applicable		NA		NA		NA							NR
18145	Not applicable		NA		NA		NA							NR
84497	Not applicable		NA		NA		NA							NR
767473	Not applicable		NA		NA		NA							NR
759175	Not applicable		NA		NA		NA		563*		404*		694*	mg/L CaCO3
767575	No significance		0.05		NR		NR		105*					mg/L CaCO3
767574	Significant		0.05		NR		NR		105*					mg/L CaCO3
119467	Not applicable		NA		NA		NA							NR
767294	Not applicable		NA		NA		NA		25					mg/L CaCO3
767307	Not applicable		NA		NA		NA		106					mg/L CaCO3
767306	Not applicable		NA		NA		NA		25					mg/L CaCO3
767296	Not applicable		NA		NA		NA		75					mg/L CaCO3
767303	Not applicable		NA		NA		NA		106					mg/L CaCO3
767295	Not applicable		NA		NA		NA		50					mg/L CaCO3
767298	Not applicable		NA		NA		NA		25					mg/L CaCO3
767576	Not applicable		NA		NA		NA		105*					mg/L CaCO3
18452	Not applicable		NA		NA		NA							NR
18147	Not applicable		NA		NA		NA							NR
18453	Not applicable		NA		NA		NA							NR
18454	Not applicable		NA		NA		NA							NR
18451	Not applicable		NA		NA		NA							NR
18450	Not applicable		NA		NA		NA							NR
18146	Not applicable		NA		NA		NA							NR
759091	Not reported		NR		NR		NR							NR
759090	Not reported		NR		NR		NR							NR
759092	Not reported		NR		NR		NR							NR
767297	Not applicable		NA		NA		NA		100					mg/L CaCO3
767305	Not applicable		NA		NA		NA		25					mg/L CaCO3
767299	Not applicable		NA		NA		NA		106					mg/L CaCO3
767496	Not applicable		NA		NA		NA							NR
767494	Not applicable		NA		NA		NA							NR
767475	Not applicable		NA		NA		NA							NR
160332	Not applicable		NA		NA		NA							NR
767491	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
160333	Not applicable		NA		NA		NA							NR
767505	Not applicable		NA		NA		NA							NR
767507	Not applicable		NA		NA		NA							NR
31684	Not applicable		NA		NA		NA							NR
2064207	Not applicable		NA		NA		NA							NR
2064204	Not applicable		NA		NA		NA							NR
2064206	Not applicable		NA		NA		NA							NR
2064205	Not applicable		NA		NA		NA							NR
764940	Not applicable		NA		NA		NA		139		132		144	mg/L CaCO3
764943	Not applicable		NA		NA		NA		134		128		140	mg/L CaCO3
764942	Not applicable		NA		NA		NA		137		130		144	mg/L CaCO3
764936	Not applicable		NA		NA		NA		139		132		144	mg/L CaCO3
766638	Not applicable		NA		NA		NA		292					mg/L CaCO3
766642	Not applicable		NA		NA		NA		486					mg/L CaCO3
766639	Not applicable		NA		NA		NA		392					mg/L CaCO3
766712	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766716	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766618	Not applicable		NA		NA		NA		96					mg/L CaCO3
766713	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766641	Not applicable		NA		NA		NA		396					mg/L CaCO3
766616	Not applicable		NA		NA		NA		96					mg/L CaCO3
766625	Not applicable		NA		NA		NA		100					mg/L CaCO3
766633	Not applicable		NA		NA		NA		194					mg/L CaCO3
766631	Not applicable		NA		NA		NA		98					mg/L CaCO3
766640	Not applicable		NA		NA		NA		396					mg/L CaCO3
766644	Not applicable		NA		NA		NA		482					mg/L CaCO3
766627	Not applicable		NA		NA		NA		100					mg/L CaCO3
766617	Not applicable		NA		NA		NA		100					mg/L CaCO3
766624	Not applicable		NA		NA		NA		96					mg/L CaCO3
766619	Not applicable		NA		NA		NA		98					mg/L CaCO3
766714	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766715	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766629	Not applicable		NA		NA		NA		106					mg/L CaCO3
766710	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766623	Not applicable		NA		NA		NA		98					mg/L CaCO3
2017143	Not applicable		NA		NA		NA		80					mg/L
2017146	Significant		NR		NR		NR		80					mg/L
2017113	Not applicable		NA		NA		NA		80					mg/L
2017144	Not applicable		NA		NA		NA		80					mg/L
766643	Not applicable		NA		NA		NA		482					mg/L CaCO3
766630	Not applicable		NA		NA		NA		100					mg/L CaCO3
766635	Not applicable		NA		NA		NA		196					mg/L CaCO3
766711	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766637	Not applicable		NA		NA		NA		292					mg/L CaCO3
766622	Not applicable		NA		NA		NA		100					mg/L CaCO3
767601	Not applicable		NA		NA		NA				105		116	mg/L CaCO3
766709	Not applicable		NA		NA		NA	~	100					mg/L CaCO3
766628	Not applicable		NA		NA		NA		100					mg/L CaCO3
766626	Not applicable		NA		NA		NA		98					mg/L CaCO3
766636	Not applicable		NA		NA		NA		296					mg/L CaCO3
766632	Not applicable		NA		NA		NA		102					mg/L CaCO3
766634	Not applicable		NA		NA		NA		192					mg/L CaCO3
766621	Not applicable		NA		NA		NA		100					mg/L CaCO3
2017145	No significance		NR		NR		NR		80					mg/L
764945	Not applicable		NA		NA		NA		137		132		140	mg/L CaCO3
764947	Not applicable		NA		NA		NA		141		138		142	mg/L CaCO3
767290	Not applicable		NA		NA		NA		50					mg/L CaCO3
767310	Not applicable		NA		NA		NA		102					mg/L CaCO3
767293	Not applicable		NA		NA		NA		250					mg/L CaCO3
767291	Not applicable		NA		NA		NA		75					mg/L CaCO3
767311	Not applicable		NA		NA		NA		102					mg/L CaCO3
767312	Not applicable		NA		NA		NA		102					mg/L CaCO3
767289	Not applicable		NA		NA		NA		25					mg/L CaCO3
767599	Significant		0.05		NR		NR				105		116	mg/L CaCO3
767600	No significance		0.05		NR		NR				105		116	mg/L CaCO3
759093	Not reported		NR		NR		NR							NR
759094	Not reported		NR		NR		NR							NR
759095	Not reported		NR		NR		NR							NR
767292	Not applicable		NA		NA		NA		123					mg/L CaCO3
766440	Not applicable		NA		NA		NA		100					mg/L CaCO3
766446	Significant at all concentrations	<	0.05		NR		NR		300					mg/L CaCO3
766416	Not applicable		NA		NA		NA		107					mg/L CaCO3
766367	Not applicable		NA		NA		NA		94*					mg/L CaCO3
766441	Significant at all concentrations	<	0.05		NR		NR		200					mg/L CaCO3
766438	Significant at all concentrations	<	0.05		NR		NR		100					mg/L CaCO3
766365	Not applicable		NA		NA		NA		94*					mg/L CaCO3
766439	Significant at all concentrations	<	0.05		NR		NR		100					mg/L CaCO3
766444	Not significant at all concentrat	<	0.05		NR		NR		300					mg/L CaCO3
766443	Significant at all concentrations	<	0.05		NR		NR		200					mg/L CaCO3
766442	Significant at all concentrations	<	0.05		NR		NR		200					mg/L CaCO3
766415	Not applicable		NA		NA		NA		107					mg/L CaCO3
766445	Not significant at all concentrat	<	0.05		NR		NR		300					mg/L CaCO3
766659	Not applicable		NA		NA		NA		300					mg/L CaCO3
766663	Not applicable		NA		NA		NA		100					mg/L CaCO3
766664	Not applicable		NA		NA		NA		100					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
766658	Not applicable		NA		NA		NA		300					mg/L CaCO3
766666	Not applicable		NA		NA		NA		100					mg/L CaCO3
766662	Not applicable		NA		NA		NA		500					mg/L CaCO3
766657	Not applicable		NA		NA		NA		100					mg/L CaCO3
766656	Not applicable		NA		NA		NA		100					mg/L CaCO3
766665	Not applicable		NA		NA		NA		100					mg/L CaCO3
766661	Not applicable		NA		NA		NA		500					mg/L CaCO3
200196	Not applicable		NA		NA		NA		10					mg/L CaCO3
40509	Not applicable		NA		NA		NA				35		62	mg/L CaCO3
40508	Not applicable		NA		NA		NA				35		62	mg/L CaCO3
18180	Not applicable		NA		NA		NA							NR
13415	Not applicable		NA		NA		NA							NR
126071	Not reported		NR		NR		NR							NR
126072	Not reported		NR		NR		NR							NR
126070	Not reported		NR		NR		NR							NR
764588	Not applicable		NA		NA		NA							NR
18150	Not applicable		NA		NA		NA							NR
18151	Not applicable		NA		NA		NA							NR
18152	Not applicable		NA		NA		NA							NR
18149	Not applicable		NA		NA		NA							NR
6211	Not applicable		NA		NA		NA							NR
41636	Not applicable		NA		NA		NA							NR
802675	Not applicable		NA		NA		NA							NR
802668	Not applicable		NA		NA		NA							NR
41641	Not applicable		NA		NA		NA							NR
802670	Not applicable		NA		NA		NA							NR
802671	Not applicable		NA		NA		NA							NR
6217	Not applicable		NA		NA		NA							NR
41642	Not applicable		NA		NA		NA							NR
802677	Not applicable		NA		NA		NA							NR
802667	Not applicable		NA		NA		NA							NR
41640	Not applicable		NA		NA		NA							NR
802664	Not applicable		NA		NA		NA							NR
802665	Not applicable		NA		NA		NA							NR
6214	Not applicable		NA		NA		NA							NR
802678	Not applicable		NA		NA		NA							NR
6216	Not applicable		NA		NA		NA							NR
802669	Not applicable		NA		NA		NA							NR
6215	Not applicable		NA		NA		NA							NR
41635	Not applicable		NA		NA		NA							NR
6212	Not applicable		NA		NA		NA							NR
802672	Not applicable		NA		NA		NA							NR
6213	Not applicable		NA		NA		NA							NR
802663	Not applicable		NA		NA		NA							NR
41637	Not applicable		NA		NA		NA							NR
802674	Not applicable		NA		NA		NA							NR
802676	Not applicable		NA		NA		NA							NR
41638	Not applicable		NA		NA		NA							NR
802673	Not applicable		NA		NA		NA							NR
41639	Not applicable		NA		NA		NA							NR
6218	Not applicable		NA		NA		NA							NR
802666	Not applicable		NA		NA		NA							NR
759029	Not applicable		NA		NA		NA							NR
2017191	No significance		NR		NR		NR		160					mg/L
766856	Not reported		NR		NR		NR							NR
761598	Not applicable		NA		NA		NA							NR
2017213	Significant		NR		NR		NR		320					mg/L
2017209	Not applicable		NA		NA		NA		320					mg/L
2017210	Not applicable		NA		NA		NA		320					mg/L
2017212	No significance		NR		NR		NR		320					mg/L
2017211	Not applicable		NA		NA		NA		320					mg/L
764930	Not applicable		NA		NA		NA		145		140		148	mg/L CaCO3
764935	Not applicable		NA		NA		NA		147		140		152	mg/L CaCO3
764929	Not applicable		NA		NA		NA		131		128		132	mg/L CaCO3
2017182	Significant		NR		NR		NR		80					mg/L
2017178	Not applicable		NA		NA		NA		80					mg/L
2017181	No significance		NR		NR		NR		80					mg/L
2017180	Not applicable		NA		NA		NA		80					mg/L
2017179	Not applicable		NA		NA		NA		80					mg/L
764932	Not applicable		NA		NA		NA		136		124		144	mg/L CaCO3
2017190	Not applicable		NA		NA		NA		160					mg/L
2017188	Not applicable		NA		NA		NA		160					mg/L
2017189	Not applicable		NA		NA		NA		160					mg/L
767594	Not applicable		NA		NA		NA		105*					mg/L CaCO3
759176	Not applicable		NA		NA		NA		563*		404*		694*	mg/L CaCO3
767593	No significance		0.05		NR		NR		105*					mg/L CaCO3
2017168	Not applicable		NA		NA		NA		40					mg/L
2017172	Significant		NR		NR		NR		40					mg/L
2017171	No significance		NR		NR		NR		40					mg/L
2017170	Not applicable		NA		NA		NA		40					mg/L
2017169	Not applicable		NA		NA		NA		40					mg/L
764934	Not applicable		NA		NA		NA		131		128		132	mg/L CaCO3
2163930	Not significant at all concentrat	>	0.05		NR		NR							NR
2163923	Not significant at all concentrat	>	0.05		NR		NR							NR
160335	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
160334	Not applicable		NA		NA		NA							NR
160336	Not applicable		NA		NA		NA							NR
764928	Not applicable		NA		NA		NA		131		128		136	mg/L CaCO3
2017192	Significant		NR		NR		NR		160					mg/L
767592	Significant		0.05		NR		NR		105*					mg/L CaCO3
18153	Not applicable		NA		NA		NA							NR
18148	Not applicable		NA		NA		NA							NR
2017315	No significance		NR		NR		NR		80					mg/L
2017301	Not applicable		NA		NA		NA		15					mg/L
2017306	Significant		NR		NR		NR		15					mg/L
2017304	Not applicable		NA		NA		NA		15					mg/L
2017313	Not applicable		NA		NA		NA		80					mg/L
2017316	Significant		NR		NR		NR		80					mg/L
2017314	Not applicable		NA		NA		NA		80					mg/L
2017312	Not applicable		NA		NA		NA		80					mg/L
747208	Not applicable		NA		NA		NA		75.0*					mg/L CaCO3
2017303	Not applicable		NA		NA		NA		15					mg/L
2017305	No significance		NR		NR		NR		15					mg/L
766706	Not applicable		NA		NA		NA		280					mg/L CaCO3
766705	Not applicable		NA		NA		NA		269					mg/L CaCO3
766363	Not applicable		NA		NA		NA		94*					mg/L CaCO3
766707	Not applicable		NA		NA		NA		93					mg/L CaCO3
766364	Not applicable		NA		NA		NA		94*					mg/L CaCO3
766703	Not applicable		NA		NA		NA		84					mg/L CaCO3
766704	Not applicable		NA		NA		NA		193					mg/L CaCO3
766708	Not applicable		NA		NA		NA		90					mg/L CaCO3
161740	Not reported		NR		NR		NR		69.4					mg/L CaCO3
161739	Not applicable		NA		NA		NA		69.4					mg/L CaCO3
2052622	Not applicable		NA		NA		NA		62					mg/L CaCO3
160500	Not applicable		NA		NA		NA							NR
767397	Not reported		NR		NR		NR							NR
767360	Not applicable		NA		NA		NA							NR
767399	Not applicable		NA		NA		NA							NR
767463	Not applicable		NA		NA		NA							NR
160498	Not applicable		NA		NA		NA							NR
767462	Not applicable		NA		NA		NA							NR
767317	Not applicable		NA		NA		NA							NR
160497	Not applicable		NA		NA		NA							NR
2148118	Not significant at all concentrat	<	0.05		NR		NR							NR
2148117	Not significant at all concentrat	<	0.05		NR		NR							NR
2148116	Not significant at all concentrat	<	0.05		NR		NR							NR
2148115	Not significant at all concentrat	<	0.05		NR		NR							NR
759021	Not significant at all concentrations		0.05		NR		NR				256		1468	mg/L CaCO3
767483	Not applicable		NA		NA		NA							NR
767467	Not applicable		NA		NA		NA							NR
160499	Not applicable		NA		NA		NA							NR
767469	Not applicable		NA		NA		NA							NR
767484	Not applicable		NA		NA		NA							NR
759462	Not applicable		NA		NA		NA		170					mg/L CaCO3
759465	Not applicable		NA		NA		NA		170					mg/L CaCO3
2063748	Not applicable		NA		NA		NA							NR
2063749	Not applicable		NA		NA		NA							NR
2063750	Not applicable		NA		NA		NA							NR
196198	Not applicable		NA		NA		NA		10					mg/L CaCO3
26240	Not applicable		NA		NA		NA							NR
759023	Not significant at all concentrations		0.05		NR		NR				73		763	mg/L CaCO3
759024	Not significant at all concentrations		0.05		NR		NR				73		763	mg/L CaCO3
160503	Not applicable		NA		NA		NA							NR
160502	Not applicable		NA		NA		NA							NR
767512	Not applicable		NA		NA		NA							NR
767515	Not applicable		NA		NA		NA							NR
160501	Not applicable		NA		NA		NA							NR
749018	Not applicable		NA		NA		NA							NR
748589	Not applicable		NA		NA		NA							NR
748332	Not applicable		NA		NA		NA							NR
767446	Not applicable		NA		NA		NA							NR
767354	Not applicable		NA		NA		NA							NR
767421	Not applicable		NA		NA		NA							NR
767385	Not applicable		NA		NA		NA							NR
767443	Not applicable		NA		NA		NA							NR
767357	Not applicable		NA		NA		NA							NR
767427	Not applicable		NA		NA		NA							NR
767390	Not reported		NR		NR		NR							NR
160505	Not applicable		NA		NA		NA							NR
160504	Not applicable		NA		NA		NA							NR
767387	Not applicable		NA		NA		NA							NR
767437	Not reported		NR		NR		NR							NR
767432	Not applicable		NA		NA		NA							NR
767382	Not applicable		NA		NA		NA							NR
2147175	Not applicable		NA		NA		NA		40.1					mg/L CaCO3
759765	Not applicable		NA		NA		NA		40.5					mg/L CaCO3
2147174	Not applicable		NA		NA		NA		40.1					mg/L CaCO3
767501	Not applicable		NA		NA		NA							NR
767482	Not applicable		NA		NA		NA							NR
767477	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
767508	Not applicable		NA		NA		NA							NR
767480	Not applicable		NA		NA		NA							NR
767479	Not applicable		NA		NA		NA							NR
160506	Not applicable		NA		NA		NA							NR
767503	Not applicable		NA		NA		NA							NR
767510	Not applicable		NA		NA		NA							NR
160507	Not applicable		NA		NA		NA							NR
114033	Not applicable		NA		NA		NA							NR
759759	Not applicable		NA		NA		NA		40.5					mg/L CaCO3
40514	Not applicable		NA		NA		NA				42		48	mg/L CaCO3
160510	Not applicable		NA		NA		NA							NR
160509	Not applicable		NA		NA		NA							NR
160508	Not applicable		NA		NA		NA							NR
748333	Not applicable		NA		NA		NA							NR
748588	Not applicable		NA		NA		NA							NR
22954	Not applicable		NA		NA		NA							NR
22953	Not applicable		NA		NA		NA							NR
22952	Not applicable		NA		NA		NA							NR
167635	Not applicable		NA		NA		NA							NR
160513	Not applicable		NA		NA		NA							NR
768177	Not applicable		NA		NA		NA							NR
768178	Not applicable		NA		NA		NA							NR
768277	Not applicable		NA		NA		NA							NR
160514	Not applicable		NA		NA		NA							NR
768176	Not applicable		NA		NA		NA							NR
22960	Not applicable		NA		NA		NA							NR
160516	Not applicable		NA		NA		NA							NR
25475	Not applicable		NA		NA		NA							NR
25474	Not applicable		NA		NA		NA							NR
25476	Not applicable		NA		NA		NA							NR
768454	Not applicable		NA		NA		NA							NR
768393	Not applicable		NA		NA		NA							NR
768501	Not applicable		NA		NA		NA							NR
768392	Not applicable		NA		NA		NA							NR
768395	Not applicable		NA		NA		NA							NR
768451	Not applicable		NA		NA		NA							NR
160515	Not applicable		NA		NA		NA							NR
768390	Not applicable		NA		NA		NA							NR
768456	Not applicable		NA		NA		NA							NR
768503	Not applicable		NA		NA		NA							NR
2064007	Not applicable		NA		NA		NA							NR
2064009	Not applicable		NA		NA		NA							NR
2064004	Not applicable		NA		NA		NA							NR
2054796	Not applicable		NA		NA		NA							NR
2054792	Significant		0.05		NR		NR							NR
2054794	Not applicable		NA		NA		NA							NR
2054791	No significance		0.05		NR		NR							NR
2054795	Not applicable		NA		NA		NA							NR
2054793	Not applicable		NA		NA		NA							NR
121880	Not applicable		NA		NA		NA				92		110	mg/L CaCO3
22955	Not applicable		NA		NA		NA							NR
22957	Not applicable		NA		NA		NA							NR
22956	Not applicable		NA		NA		NA							NR
160517	Not applicable		NA		NA		NA							NR
160518	Not applicable		NA		NA		NA							NR
160519	Not applicable		NA		NA		NA							NR
740705	Not significant at all concentrat	<	0.05		NR		NR		70					mg/L CaCO3
740706	Not significant at all concentrat	<	0.05		NR		NR		150					mg/L CaCO3
741940	Not significant at all concentrat	<	0.05		NR		NR		150					mg/L CaCO3
741939	Not significant at all concentrat	<	0.05		NR		NR		70					mg/L CaCO3
2163065	Not applicable		NA		NA		NA							NR
2064918	Not applicable		NA		NA		NA							NR
2173768	Not significant at all concentrat	<	0.05		NR		NR							NR
2173772	Not applicable		NA		NA		NA							NR
741341	Not applicable		NA		NA		NA							NR
741319	Not applicable		NA		NA		NA							NR
741323	Not applicable		NA		NA		NA							NR
741305	Not applicable		NA		NA		NA							NR
742028	Not applicable		NA		NA		NA							NR
741324	Not applicable		NA		NA		NA							NR
2147187	Not applicable		NA		NA		NA							NR
167631	Not applicable		NA		NA		NA							NR
2152764	Not applicable		NA		NA		NA							NR
767342	Not applicable		NA		NA		NA							NR
160619	Not applicable		NA		NA		NA							NR
160620	Not applicable		NA		NA		NA							NR
768180	Not applicable		NA		NA		NA							NR
768283	Not applicable		NA		NA		NA							NR
768183	Not applicable		NA		NA		NA							NR
2152765	Not applicable		NA		NA		NA							NR
768284	Not applicable		NA		NA		NA							NR
768181	Not applicable		NA		NA		NA							NR
768182	Not applicable		NA		NA		NA							NR
768286	Not applicable		NA		NA		NA							NR
742988	Not applicable		NA		NA		NA							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2057502	Not applicable		NA		NA		NA		334					mg/L CaCO3
44241	Not applicable		NA		NA		NA							NR
768399	Not applicable		NA		NA		NA							NR
160622	Not applicable		NA		NA		NA							NR
768396	Not applicable		NA		NA		NA							NR
768462	Not applicable		NA		NA		NA							NR
2152738	Not applicable		NA		NA		NA							NR
2152737	Not applicable		NA		NA		NA							NR
2152736	Not applicable		NA		NA		NA							NR
18686	Not applicable		NA		NA		NA							NR
18685	Not applicable		NA		NA		NA							NR
18688	Not applicable		NA		NA		NA							NR
18684	Not applicable		NA		NA		NA							NR
18683	Not applicable		NA		NA		NA							NR
18687	Not applicable		NA		NA		NA							NR
742079	Not applicable		NA		NA		NA							NR
768457	Not applicable		NA		NA		NA							NR
768402	Not applicable		NA		NA		NA							NR
768460	Not applicable		NA		NA		NA							NR
768398	Not applicable		NA		NA		NA							NR
160621	Not applicable		NA		NA		NA							NR
32466	Not applicable		NA		NA		NA							NR
119478	Not applicable		NA		NA		NA							NR
2153763	Not applicable		NA		NA		NA		180					mg/L CaCO3
2153676	Not applicable		NA		NA		NA		180					mg/L CaCO3
740759	Not applicable		NA		NA		NA		180					mg/L CaCO3
740760	Not applicable		NA		NA		NA		180					mg/L CaCO3
740732	Not applicable		NA		NA		NA		180					mg/L CaCO3
2153700	Not applicable		NA		NA		NA		180					mg/L CaCO3
2153697	Not applicable		NA		NA		NA		180					mg/L CaCO3
740761	Not applicable		NA		NA		NA		180					mg/L CaCO3
2063733	Not applicable		NA		NA		NA							NR
2063726	Not applicable		NA		NA		NA							NR
2063735	Not applicable		NA		NA		NA							NR
740765	Not applicable		NA		NA		NA		140					mg/L CaCO3
740777	Not applicable		NA		NA		NA		140					mg/L CaCO3
740778	Not applicable		NA		NA		NA		140					mg/L CaCO3
19522	Not applicable		NA		NA		NA							NR
741717	Not applicable		NA		NA		NA		140					mg/L CaCO3
196145	Not applicable		NA		NA		NA		10					mg/L CaCO3
40507	Not applicable		NA		NA		NA				6314		11900	mg/L CaCO3
2153801	Not applicable		NA		NA		NA		140					mg/L CaCO3
126054	Not reported		NR		NR		NR							NR
126052	Not reported		NR		NR		NR							NR
126053	Not reported		NR		NR		NR							NR
18689	Not applicable		NA		NA		NA							NR
2054808	Not applicable		NA		NA		NA							NR
2054805	Not applicable		NA		NA		NA							NR
2054806	Not applicable		NA		NA		NA							NR
2054807	Not applicable		NA		NA		NA							NR
2054803	No significance		0.05		NR		NR							NR
2054804	Significant		0.05		NR		NR							NR
18693	Not applicable		NA		NA		NA							NR
18691	Not applicable		NA		NA		NA							NR
18690	Not applicable		NA		NA		NA							NR
18692	Not applicable		NA		NA		NA							NR
2153798	Not applicable		NA		NA		NA		140					mg/L CaCO3
740767	Not applicable		NA		NA		NA		140					mg/L CaCO3
184730	Not reported		NR		NR		NR							NR
2152710	Not applicable		NA		NA		NA							NR
759027	Not significant at all concentrations		0.05		NR		NR				744		749	mg/L CaCO3
759028	Not significant at all concentrations		0.05		NR		NR				744		749	mg/L CaCO3
99472	Not applicable		NA		NA		NA							NR
99476	Not applicable		NA		NA		NA							NR
99478	Not applicable		NA		NA		NA							NR
61681	Not applicable		NA		NA		NA							NR
99477	Not applicable		NA		NA		NA							NR
61680	Not applicable		NA		NA		NA							NR
160623	Not applicable		NA		NA		NA							NR
741718	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153836	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153835	Not applicable		NA		NA		NA		140					mg/L CaCO3
768541	Not applicable		NA		NA		NA							NR
768539	Not applicable		NA		NA		NA							NR
160624	Not applicable		NA		NA		NA							NR
160625	Not applicable		NA		NA		NA							NR
742032	Not applicable		NA		NA		NA							NR
742060	Not applicable		NA		NA		NA							NR
742031	Not applicable		NA		NA		NA							NR
740738	Not applicable		NA		NA		NA		140					mg/L CaCO3
742933	Not applicable		NA		NA		NA							NR
742078	Not applicable		NA		NA		NA							NR
742890	Significant at all concentrations	<	0.05		NR		NR		150					mg/L CaCO3
741711	Significant at all concentrations	<	0.05		NR		NR		70					mg/L CaCO3
741932	Not significant at all concentrat	<	0.05		NR		NR		70					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
740701	Significant at all concentrations	<	0.05		NR		NR		150					mg/L CaCO3
740730	Not applicable		NA		NA		NA		140					mg/L CaCO3
55003	Not applicable		NA		NA		NA							NR
740744	Not applicable		NA		NA		NA		140					mg/L CaCO3
2153802	Not applicable		NA		NA		NA		140					mg/L CaCO3
740734	Not applicable		NA		NA		NA		140					mg/L CaCO3
740779	Not applicable		NA		NA		NA		140					mg/L CaCO3
2064902	Not applicable		NA		NA		NA							NR
2060129	No significance		0.05		NR		NR							Mod Hard
2060130	Not applicable		NA		NA		NA							Mod Hard
793903	Significant at all concentrations	<	0.05		NR		NR		44					mg/L CaCO3
761758	Not applicable		NA		NA		NA							NR
761759	Not applicable		NA		NA		NA							NR
17106	Not applicable		NA		NA		NA		45.3					mg/L CaCO3
13816	Not applicable		NA		NA		NA		45.3					mg/L CaCO3
759476	Significant at all concentrations		0.05		NR		NR		170					mg/L CaCO3
759475	Significant at all concentrations		0.05		NR		NR		170					mg/L CaCO3
2254703	No significance	>	0.05		NR		NR							NR
2254689	Significant	>	0.05		NR		NR							NR
2254694	Significant	>	0.05		NR		NR							NR
2254764	No significance	>	0.05		NR		NR							NR
2254701	No significance	>	0.05		NR		NR							NR
2254763	No significance	>	0.05		NR		NR							NR
2254782	No significance	>	0.05		NR		NR							NR
2254746	Significant	>	0.05		NR		NR							NR
2255473	No significance	>	0.05		NR		NR							NR
2254766	No significance	>	0.05		NR		NR							NR
2254699	No significance	>	0.05		NR		NR							NR
2254707	No significance	>	0.05		NR		NR							NR
2254702	No significance	>	0.05		NR		NR							NR
2254695	No significance	>	0.05		NR		NR							NR
2254762	Significant	>	0.05		NR		NR							NR
2254700	Significant	>	0.05		NR		NR							NR
2254684	Significant	>	0.05		NR		NR							NR
2254691	No significance	>	0.05		NR		NR							NR
2254690	No significance	>	0.05		NR		NR							NR
2254759	No significance	>	0.05		NR		NR							NR
767230	Not significant at all concentrat	>	0.05		NR		NR							NR
767232	Not significant at all concentrat	>	0.05		NR		NR							NR
2153175	Not applicable		NA		NA		NA							NR
2153081	Not applicable		NA		NA		NA							NR
2153082	Not applicable		NA		NA		NA							NR
2153174	Not applicable		NA		NA		NA							NR
759472	Not significant at all concentrations		0.05		NR		NR		170					mg/L CaCO3
759471	Not significant at all concentrations		0.05		NR		NR		170					mg/L CaCO3
2153176	Not applicable		NA		NA		NA							NR
2153177	Not applicable		NA		NA		NA							NR
2153102	Not applicable		NA		NA		NA							NR
2153101	Not applicable		NA		NA		NA							NR
767204	Significant at all concentrations	<	0.01		NR		NR							NR
767205	Not significant at all concentrat	>	0.05		NR		NR							NR
741875	No significance	<	0.05		NR		NR							NR
2152821	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152822	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152820	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152823	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
2152824	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
759400	Significant	<	0.05		NR		NR							NR
759401	No significance		0.033		NR		NR							NR
759403	Not significant at all concentrations		0.386		NR		NR							NR
767972	Not reported		NR		NR		NR							NR
767971	Not reported		NR		NR		NR							NR
767883	Not reported		NR		NR		NR							NR
767884	Not reported		NR		NR		NR							NR
767957	Not reported		NR		NR		NR							NR
767958	Not reported		NR		NR		NR							NR
766861	Not reported		NR		NR		NR							NR
766860	Not reported		NR		NR		NR							NR
767901	Not reported		NR		NR		NR							NR
767902	Not reported		NR		NR		NR							NR
767553	Not applicable		NA		NA		NA							NR
742896	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741947	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741679	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
761582	Not applicable		NA		NA		NA							NR
741938	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
767860	Not reported		NR		NR		NR							NR
767861	Not reported		NR		NR		NR							NR
767868	Not reported		NR		NR		NR							NR
767869	Not reported		NR		NR		NR							NR
766869	Not reported		NR		NR		NR							NR
766868	Not reported		NR		NR		NR							NR
2153272	Not applicable		NA		NA		NA		80					mg/L CaCO3
2153273	Not applicable		NA		NA		NA		80					mg/L CaCO3
767875	Not reported		NR		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
767874	Not reported		NR		NR		NR							NR
2152726	No significance		NR		NR		NR		98					mg/L CaCO3
2152725	Not applicable		NA		NA		NA		98					mg/L CaCO3
2152727	Significant		NR		NR		NR		98					mg/L CaCO3
767893	Not reported		NR		NR		NR							NR
767894	Not reported		NR		NR		NR							NR
2152721	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152731	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
767877	Not reported		NR		NR		NR							NR
767876	Not reported		NR		NR		NR							NR
767858	Not reported		NR		NR		NR							NR
767859	Not reported		NR		NR		NR							NR
2152855	Not applicable		NA		NA		NA		10					mg/L CaCO3
2152873	Not applicable		NA		NA		NA		10					mg/L CaCO3
767552	Not applicable		NA		NA		NA		90					mg/L CaCO3
2153276	Not applicable		NA		NA		NA		160					mg/L CaCO3
2153275	Not applicable		NA		NA		NA		160					mg/L CaCO3
2153278	Not applicable		NA		NA		NA		320					mg/L CaCO3
2153279	Not applicable		NA		NA		NA		320					mg/L CaCO3
741688	No significance	<	0.05		NR		NR				54*		72*	mg/L CaCO3
742568	Significant	<	0.05		NR		NR				54*		72*	mg/L CaCO3
741661	Not applicable		NA		NA		NA				54*		72*	mg/L CaCO3
207720	Not applicable		NA		NA		NA		102		94		104	mg/L CaCO3
2146818	No significance	<	0.05		NR		NR		286*					mg/L CaCO3
2146819	Significant	<	0.05		NR		NR		286*					mg/L CaCO3
741952	Significant at all concentrations	<	0.5		NR		NR				40*		48*	mg/L CaCO3
761594	Not applicable		NA		NA		NA							NR
741936	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
761578	Not applicable		NA		NA		NA							NR
761586	Not applicable		NA		NA		NA							NR
741950	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
761580	Not applicable		NA		NA		NA							NR
742564	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
741953	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
742900	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741944	Significant	<	0.5		NR		NR				40*		48*	mg/L CaCO3
742898	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741951	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
741929	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
761575	Not applicable		NA		NA		NA							NR
761574	Not applicable		NA		NA		NA							NR
761587	Not applicable		NA		NA		NA							NR
741937	No significance	<	0.5		NR		NR				40*		48*	mg/L CaCO3
742892	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
742894	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
742895	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
741957	Significant		NR		NR		NR				40*		48*	mg/L CaCO3
742891	No significance		NR		NR		NR				40*		48*	mg/L CaCO3
761576	Not applicable		NA		NA		NA							NR
761590	Not applicable		NA		NA		NA							NR
2148464	Not applicable		NA		NA		NA		44					mg/L
2148463	Not applicable		NA		NA		NA		44					mg/L
2148479	Not applicable		NA		NA		NA		44					mg/L
2148480	Not applicable		NA		NA		NA		44					mg/L
2148473	Not applicable		NA		NA		NA		93					mg/L
2148474	Not applicable		NA		NA		NA		93					mg/L
767853	Not reported		NR		NR		NR							NR
767852	Not reported		NR		NR		NR							NR
767956	Not reported		NR		NR		NR							NR
767955	Not reported		NR		NR		NR							NR
767850	Not reported		NR		NR		NR							NR
767851	Not reported		NR		NR		NR							NR
766862	Not reported		NR		NR		NR							NR
766863	Not reported		NR		NR		NR							NR
767866	Not reported		NR		NR		NR							NR
767867	Not reported		NR		NR		NR							NR
766870	Not reported		NR		NR		NR							NR
766871	Not reported		NR		NR		NR							NR
767892	Not reported		NR		NR		NR							NR
767891	Not reported		NR		NR		NR							NR
767885	Not reported		NR		NR		NR							NR
767886	Not reported		NR		NR		NR							NR
767963	Not reported		NR		NR		NR							NR
767964	Not reported		NR		NR		NR							NR
2153269	Not applicable		NA		NA		NA		40					mg/L CaCO3
2153270	Not applicable		NA		NA		NA		40					mg/L CaCO3
767899	Not reported		NR		NR		NR							NR
767900	Not reported		NR		NR		NR							NR
767965	Not reported		NR		NR		NR							NR
767966	Not reported		NR		NR		NR							NR
2153267	Not applicable		NA		NA		NA		20					mg/L CaCO3
2152881	Not applicable		NA		NA		NA		20					mg/L CaCO3
767974	Not reported		NR		NR		NR							NR
767973	Not reported		NR		NR		NR							NR
251022	Significant		NR		NR		NR							NR

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
251024	Significant		NR		NR		NR							NR
120834	Not applicable		NA		NA		NA							NR
120851	Not applicable		NA		NA		NA							NR
120833	Not applicable		NA		NA		NA							NR
251019	No significance		NR		NR		NR							NR
251014	Significant		NR		NR		NR							NR
741538	Not applicable		NA		NA		NA		101		100		103	mg/L CaCO3
741566	Not significant at all concentrations		0.05		NR		NR		101		100		103	mg/L CaCO3
120830	Not applicable		NA		NA		NA							NR
120832	Not applicable		NA		NA		NA							NR
120852	Not applicable		NA		NA		NA							NR
120853	Not applicable		NA		NA		NA							NR
120850	Not applicable		NA		NA		NA							NR
251020	Significant		NR		NR		NR							NR
120836	Not applicable		NA		NA		NA							NR
251023	No significance		NR		NR		NR							NR
251017	No significance		NR		NR		NR							NR
120856	No significance		NR		NR		NR							NR
120849	Not applicable		NA		NA		NA							NR
251016	Significant		NR		NR		NR							NR
251013	No significance		NR		NR		NR							NR
120846	Not applicable		NA		NA		NA							NR
120835	Not applicable		NA		NA		NA							NR
120848	Not applicable		NA		NA		NA							NR
251010	Significant		NR		NR		NR							NR
251015	No significance		NR		NR		NR							NR
251011	No significance		NR		NR		NR							NR
251021	No significance		NR		NR		NR							NR
120847	Not applicable		NA		NA		NA							NR
120854	Not applicable		NA		NA		NA							NR
120831	Not applicable		NA		NA		NA							NR
251018	Significant		NR		NR		NR							NR
251012	Significant		NR		NR		NR							NR
742893	No significance	<	0.5		NR		NR				40*		48*	mg/L CaCO3
741958	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
761585	Not applicable		NA		NA		NA							NR
761579	Not applicable		NA		NA		NA							NR
741948	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
761577	Not applicable		NA		NA		NA							NR
761588	Not applicable		NA		NA		NA							NR
761589	Not applicable		NA		NA		NA							NR
761572	Not applicable		NA		NA		NA							NR
761573	Not applicable		NA		NA		NA							NR
742901	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741949	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
761584	Not applicable		NA		NA		NA							NR
761591	Not applicable		NA		NA		NA							NR
761595	Not applicable		NA		NA		NA							NR
741943	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
741648	No significance		NR		NR		NR				40*		48*	mg/L CaCO3
742563	Significant		NR		NR		NR				40*		48*	mg/L CaCO3
761583	Not applicable		NA		NA		NA							NR
761593	Not applicable		NA		NA		NA							NR
761581	Not applicable		NA		NA		NA							NR
761592	Not applicable		NA		NA		NA							NR
742899	Not applicable		NA		NA		NA				40*		48*	mg/L CaCO3
742565	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741649	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741945	Significant at all concentrations	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741946	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741959	Significant	<	0.05		NR		NR				40*		48*	mg/L CaCO3
741942	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
742897	No significance	<	0.05		NR		NR				40*		48*	mg/L CaCO3
761753	Not applicable		NA		NA		NA							NR
761752	Not applicable		NA		NA		NA							NR
741696	Significant	<	0.05		NR		NR				54*		72*	mg/L CaCO3
741654	Not applicable		NA		NA		NA				54*		72*	mg/L CaCO3
741659	No significance	<	0.05		NR		NR				54*		72*	mg/L CaCO3
741546	Not significant at all concentrations		0.05		NR		NR		169		166		172	mg/L CaCO3
741530	Not applicable		NA		NA		NA		169		166		172	mg/L CaCO3
2164764	No significance	<	0.05		NR		NR		149.6					mg/L
2164766	Significant	<	0.05		NR		NR		149.6					mg/L
2164761	No significance	<	0.05		NR		NR		149.6					mg/L
2164763	No significance	<	0.05		NR		NR		149.6					mg/L
2164765	No significance	<	0.05		NR		NR		149.6					mg/L
2164767	Significant	<	0.05		NR		NR		149.6					mg/L
2164768	Significant	<	0.05		NR		NR		149.6					mg/L
2164769	Significant	<	0.05		NR		NR		149.6					mg/L
2164770	Significant	<	0.05		NR		NR		149.6					mg/L
2164762	No significance	<	0.05		NR		NR		149.6					mg/L
2152714	No significance		NR		NR		NR		170					mg/L CaCO3
2152713	Not applicable		NA		NA		NA		170					mg/L CaCO3
2152715	Significant		NR		NR		NR		170					mg/L CaCO3
2152734	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
2152733	Not applicable		NA		NA		NA				80		100	mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mean Op	Significance Level Mean	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
2152735	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
2152732	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2164729	No significance	<	0.05		NR		NR		149.6					mg/L
2164728	Significant	<	0.05		NR		NR		149.6					mg/L
201550	No significance	<	0.05		NR		NR		96.3					mg/L CaCO3
201552	Not applicable		NA		NA		NA		96.3					mg/L CaCO3
201549	Not applicable		NA		NA		NA		96.3					mg/L CaCO3
201548	Significant	<	0.05		NR		NR		96.3					mg/L CaCO3
201547	No significance	<	0.05		NR		NR		96.3					mg/L CaCO3
201551	Significant	<	0.05		NR		NR		96.3					mg/L CaCO3
2160498	Not significant at all concentrat	<=	0.05		NR		NR							NR
773634	Not significant at all concentrat	>	0.3		NR		NR							NR
773635	Not significant at all concentrat	>	0.3		NR		NR							NR
2152784	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152783	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152786	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
2152785	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
2163917	Not significant at all concentrat	>	0.05		NR		NR							NR
2163920	Not significant at all concentrat	>	0.05		NR		NR							NR
2163918	Not significant at all concentrat	>	0.05		NR		NR							NR
2163919	Not significant at all concentrat	>	0.05		NR		NR							NR
2163916	Not significant at all concentrat	>	0.05		NR		NR							NR
2254781	Significant	>	0.05		NR		NR							NR
2254792	No significance	>	0.05		NR		NR							NR
2254801	No significance	>	0.05		NR		NR							NR
2254784	No significance	>	0.05		NR		NR							NR
2254788	Significant	>	0.05		NR		NR							NR
2254793	No significance	>	0.05		NR		NR							NR
2254797	Significant	>	0.05		NR		NR							NR
2254804	No significance	>	0.05		NR		NR							NR
2254803	Significant	>	0.05		NR		NR							NR
2254798	No significance	>	0.05		NR		NR							NR
2254785	No significance	>	0.05		NR		NR							NR
2254805	No significance	>	0.05		NR		NR							NR
2254789	No significance	>	0.05		NR		NR							NR
2254802	No significance	>	0.05		NR		NR							NR
2254800	Significant	>	0.05		NR		NR							NR
2254810	No significance	>	0.05		NR		NR							NR
2254813	No significance	>	0.05		NR		NR							NR
767224	Not significant at all concentrat	>	0.05		NR		NR							NR
767225	Significant at all concentrations	<	0.05		NR		NR							NR
2152796	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152810	Significant	<	0.01		NR		NR				80		100	mg/L CaCO3
2152808	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152807	Not applicable		NA		NA		NA				80		100	mg/L CaCO3
2152809	No significance	<	0.01		NR		NR				80		100	mg/L CaCO3
2153137	Not applicable		NA		NA		NA							NR
759367	Not significant at all concentrations		0.618		NR		NR							NR
2148468	Not applicable		NA		NA		NA		44					mg/L
2148476	Not applicable		NA		NA		NA		44					mg/L
2148475	Not applicable		NA		NA		NA		44					mg/L
2148470	Not applicable		NA		NA		NA		93					mg/L
2148469	Not applicable		NA		NA		NA		93					mg/L
759076	Not applicable		NA		NA		NA							NR
759077	Not applicable		NA		NA		NA							NR
759074	Not reported		NR		NR		NR							NR
759075	Not reported		NR		NR		NR							NR
2017032	Significant		NR		NR		NR		40					mg/L
761597	Not applicable		NA		NA		NA							NR
2148467	Not applicable		NA		NA		NA		44					mg/L
2017033	No significance		NR		NR		NR		40					mg/L
2017036	Not applicable		NA		NA		NA		40					mg/L
2017034	Not applicable		NA		NA		NA		40					mg/L
2017035	Not applicable		NA		NA		NA		40					mg/L
2017043	Significant		NR		NR		NR		80					mg/L
2017044	No significance		NR		NR		NR		80					mg/L
2017047	Not applicable		NA		NA		NA		80					mg/L
2017046	Not applicable		NA		NA		NA		80					mg/L
766735	Not reported		NR		NR		NR							NR
766734	Not reported		NR		NR		NR							NR
766738	Not reported		NR		NR		NR							NR
766737	Not reported		NR		NR		NR							NR
766855	Not reported		NR		NR		NR							NR
767589	Not applicable		NA		NA		NA		105*					mg/L CaCO3
767588	Not applicable		NA		NA		NA		105*					mg/L CaCO3
767590	Significant		0.05		NR		NR		105*					mg/L CaCO3
767591	No significance		0.05		NR		NR		105*					mg/L CaCO3
766354	Significant at all concentrations	<	0.05		NR		NR		92*					mg/L CaCO3
766229	Not applicable		NA		NA		NA		92*					mg/L CaCO3
766344	Significant at all concentrations	<	0.05		NR		NR		92*					mg/L CaCO3
766355	Significant at all concentrations	<	0.05		NR		NR		92*					mg/L CaCO3
766230	Significant	<	0.05		NR		NR		92*					mg/L CaCO3
766231	No significance	<	0.05		NR		NR		92*					mg/L CaCO3
766351	Significant at all concentrations	<	0.05		NR		NR		92*					mg/L CaCO3
766356	Significant at all concentrations	<	0.05		NR		NR		92*					mg/L CaCO3

Result Number	Statistical Significance	Significance Level Mea	Significance Level Mea	Significance Level Min Op	Significance Level Min	Significance Level Max Op	Significance Level Max	Hardness Mean Op	Hardness Mean	Hardness Min Op	Hardness Min	Hardness Max Op	Hardness Max	Hardness Units
766232	Significant	<	0.05		NR		NR		92*					mg/L CaCO3
766233	No significance	<	0.05		NR		NR		92*					mg/L CaCO3
766234	Not applicable		NA		NA		NA		92*					mg/L CaCO3
2017051	Significant		NR		NR		NR		160					mg/L
2017054	Not applicable		NA		NA		NA		160					mg/L
2017053	Not applicable		NA		NA		NA		160					mg/L
2017055	Not applicable		NA		NA		NA		160					mg/L
2017052	No significance		NR		NR		NR		160					mg/L
2017061	No significance		NR		NR		NR		320					mg/L
2017063	Not applicable		NA		NA		NA		320					mg/L
2017064	Not applicable		NA		NA		NA		320					mg/L
2017062	Not applicable		NA		NA		NA		320					mg/L
2017060	Significant		NR		NR		NR		320					mg/L
2017045	Not applicable		NA		NA		NA		80					mg/L
761751	Not applicable		NA		NA		NA							NR
761750	Not applicable		NA		NA		NA							NR
786725	Not significant at all concentrat	<	0.05		NR		NR							NR
786731	Not significant at all concentrat	<	0.05		NR		NR							NR
786730	Not significant at all concentrat	<	0.05		NR		NR							NR
786726	Not significant at all concentrat	<	0.05		NR		NR							NR
786727	Not significant at all concentrat	<	0.05		NR		NR							NR
786729	Not significant at all concentrat	<	0.05		NR		NR							NR
786728	Not significant at all concentrat	<	0.05		NR		NR							NR
2017147	Not applicable		NA		NA		NA		80					mg/L
2017150	No significance		NR		NR		NR		80					mg/L
2017151	Significant		NR		NR		NR		80					mg/L
2017148	Not applicable		NA		NA		NA		80					mg/L
2017149	Not applicable		NA		NA		NA		80					mg/L
767570	Significant		0.05		NR		NR		105*					mg/L CaCO3
767571	No significance		0.05		NR		NR		105*					mg/L CaCO3
767573	Not applicable		NA		NA		NA		105*					mg/L CaCO3
767572	Not applicable		NA		NA		NA		105*					mg/L CaCO3
759086	Not reported		NR		NR		NR							NR
759088	Not applicable		NA		NA		NA							NR
759089	Not applicable		NA		NA		NA							NR
759087	Not reported		NR		NR		NR							NR
2163934	Not significant at all concentrat	>	0.05		NR		NR							NR
2163936	Not significant at all concentrat	>	0.05		NR		NR							NR
2163933	Not significant at all concentrat	>	0.05		NR		NR							NR
2163935	Not significant at all concentrat	>	0.05		NR		NR							NR
2163932	Not significant at all concentrat	>	0.05		NR		NR							NR
759464	Not significant at all concentrations		0.05		NR		NR		170					mg/L CaCO3
759022	Not significant at all concentrations		0.05		NR		NR				256		1468	mg/L CaCO3
759463	Not significant at all concentrations		0.05		NR		NR		170					mg/L CaCO3
759484	Not significant at all concentrations		0.05		NR		NR				256		1468	mg/L CaCO3
767210	Not significant at all concentrat	>	0.05		NR		NR							NR
767211	Significant at all concentrations	<	0.01		NR		NR							NR
2153133	Not applicable		NA		NA		NA							NR
22951	Not applicable		NA		NA		NA		45.3					mg/L CaCO3
2148185	Significant	<	0.05		NR		NR							NR
2148186	Not significant at all concentrat	<	0.05		NR		NR							NR
2148187	No significance	<	0.05		NR		NR							NR
2152768	Significant		NR		NR		NR							NR
2152767	No significance		NR		NR		NR							NR
2152766	Not applicable		NA		NA		NA							NR
761756	Not applicable		NA		NA		NA							NR
761757	Not applicable		NA		NA		NA							NR
2148354	Significant at all concentrations	<	0.01		NR		NR							NR
48480	Not applicable		NA		NA		NA		45.3					mg/L CaCO3
2152741	Significant		NR		NR		NR							NR
2152740	No significance		NR		NR		NR							NR
2152739	Not applicable		NA		NA		NA							NR
2148178	Significant at all concentrations	<	0.05		NR		NR							NR
2148142	No significance	<	0.05		NR		NR							NR
2148177	Significant at all concentrations	<	0.05		NR		NR							NR
2148149	No significance	<	0.05		NR		NR							NR
2148148	Significant	<	0.05		NR		NR							NR
2148139	Significant	<	0.05		NR		NR							NR
2148141	Significant	<	0.05		NR		NR							NR
2148137	No significance	<	0.05		NR		NR							NR
2254841	Not significant at all concentrat	>	0.05		NR		NR							NR
2254825	Not significant at all concentrat	>	0.05		NR		NR							NR
2254852	Not significant at all concentrat	>	0.05		NR		NR							NR
2254826	No significance	>	0.05		NR		NR							NR
2254842	No significance	>	0.05		NR		NR							NR
2254853	No significance	>	0.05		NR		NR							NR
2254861	No significance	>	0.05		NR		NR							NR
2254847	Significant	>	0.05		NR		NR							NR
2254814	No significance	>	0.05		NR		NR							NR
2254817	Significant	>	0.05		NR		NR							NR
2254859	Not significant at all concentrat	>	0.05		NR		NR							NR

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
793900	DNUM/7//DOSES/0.6/0.69/0.8/0.9/1.0/1.2	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
793901	DNUM/7//DOSES/0.6/0.69/0.8/0.9/1.0/1.2	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
2060109		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060110		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060142		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060141		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
718597	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718595	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718596	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
728144	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
96887		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
43171		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96886		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96891		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96893		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
761771	DOSES/NA mg/L//TESTID/11//OEF/MICROT	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxic	Prepared for Presentation at American Insti	1988
761770	DOSES/NA mg/L//TESTID/11//OEF/MICROT	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxic	Prepared for Presentation at American Insti	1988
96897		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96894		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96902		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
43166		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
729236	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718611	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718612	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
2154061		157604	Collins,S.	Toxicity of Deicing Salt Components to Early	M.S. Thesis, Saint Mary's University, Canada	2010
2154065		157604	Collins,S.	Toxicity of Deicing Salt Components to Early	M.S. Thesis, Saint Mary's University, Canada	2010
759445	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759439	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759438	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759418	DNUM/9//DOSES/1.3/1.9/2.7/3.8/5.5/7.8/1	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759397	DNUM/9//DOSES/1.3/1.9 to 2.5/2.7/3.3 to	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759421	DNUM/9//DOSES/1.3/1.9/2.7/3.8/5.5/7.8/1	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759437	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759444	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759436	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
2152812		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152813		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152815		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152811		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152814		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
201556		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2160501		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairomo	Ecotoxicology21:601-614	2012
2160499		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairomo	Ecotoxicology21:601-614	2012
201555		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201557		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
748411	LIFESTG/LENGTHS 5.6MM//CA/39.1* ppm/	107726	Alonso,A., and J.A. Camargo	Ameliorating Effect of Chloride on Nitrite To	Arch. Environ. Contam. Toxicol.54(2): 259-2	2008
773639	DNUM/4//DOSES/1/10/100 mg/L//TESTID/	95838	Park,J.W., J. Rinchard, F. Liu, T.A. Anderson,	The Thyroid Endocrine Disruptor Perchlorat	Ecotoxicol. Environ. Saf.63(3): 343-352	2006
773638	DNUM/4//DOSES/1/10/100 mg/L//TESTID/	95838	Park,J.W., J. Rinchard, F. Liu, T.A. Anderson,	The Thyroid Endocrine Disruptor Perchlorat	Ecotoxicol. Environ. Saf.63(3): 343-352	2006
2152819		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152817		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152816		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152818		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2164559		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2162413	AP FREQ/REPLACED ONE TIME AT THE MID	163897	Shinn,C., A. Marco, and L. Serrano	Influence of Low Levels of Water Salinity on	Chemosphere92(9): 1154-1160	2013
741641	DNUM/4//DOSES/1/2/4 g/L//TESTID/2//	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
741652	DNUM/4//DOSES/1/2/4 g/L//TESTID/1//	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
741651	DNUM/4//DOSES/1/2/4 g/L//TESTID/1//	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
2165532		164463	Harless,M.L.	Effects of Chemical Deicers on Amphibian C	Ph.D Thesis, Michigan Technological Univer	2012
2165533	SITE/SNOUT-VENT//	164463	Harless,M.L.	Effects of Chemical Deicers on Amphibian C	Ph.D Thesis, Michigan Technological Univer	2012
2060023		118548	Karraker,N.E.	Are Embryonic and Larval Green Frogs (Ran	Herpetol. Conserv. Biol.2(1): 35-41	2007
2165525	SITE/SNOUT-VENT//	164463	Harless,M.L.	Effects of Chemical Deicers on Amphibian C	Ph.D Thesis, Michigan Technological Univer	2012
2154068		157604	Collins,S.	Toxicity of Deicing Salt Components to Early	M.S. Thesis, Saint Mary's University, Canada	2010
2165524		164463	Harless,M.L.	Effects of Chemical Deicers on Amphibian C	Ph.D Thesis, Michigan Technological Univer	2012
741597	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
741576	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
741623	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
202204	WTAT/89 MG//	56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
741685	DNUM/2//DOSES/4.56 g/L//TESTID/4//OEF	105178	Vosyliene,M.Z., P. Baltrenas, and A. Kazlaus	Toxicity of Road Maintenance Salts to Rainb	Ekologija2:15-20	2006
251448	TESTID/3//DOSES/117000/306000/643000/	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
251447	TESTID/3//DOSES/117000/306000/643000/	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
251464	TESTID/6//DOSES/254000/488000/955000/	56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
251446	TESTID/3//DOSES/117000/306000/643000/	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
2152749		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152748		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152747		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152750		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
202202		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
202203	WTAT/104 MG//	56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
2163091	CONC1/HIGHEST 2 CONCS NOT ANALYZED D	163898	Santos,B., R. Ribeiro, I. Domingues, R. Pereir	Salinity and Copper Interactive Effects on Pe	Environ. Toxicol. Chem.32(8): 1864-1872	2013
761549	DOSES/NA g/L//TESTID/1//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761548	DOSES/NA g/L//TESTID/1//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761567	DOSES/NA g/L//TESTID/10//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
784790	DNUM/6//DOSES/0.05/0.10/0.20/0.30/0.4	106784	Pistole,D.H., J.D. Peles, and K. Taylor	Influence of Metal Concentrations, Percent	Comp. Biochem. Physiol. C Comp. Pharmac	2008
761560	DOSES/NA g/L//TESTID/7//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761555	DOSES/NA g/L//TESTID/4//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
761550	DOSES/NA g/L//TESTID/2//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761564	DOSES/NA g/L//TESTID/9//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
784789	DNUM/6//DOSES/0.05/0.10/0.20/0.30/0.4	106784	Pistole,D.H., J.D. Peles, and K. Taylor	Influence of Metal Concentrations, Percent	Comp. Biochem. Physiol. C Comp. Pharmac	2008
761558	DOSES/NA g/L//TESTID/6//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761565	DOSES/NA g/L//TESTID/9//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761553	DOSES/NA g/L//TESTID/3//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761552	DOSES/NA g/L//TESTID/3//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761568	DOSES/NA g/L//TESTID/11//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761556	DOSES/NA g/L//TESTID/5//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761566	DOSES/NA g/L//TESTID/10//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761569	DOSES/NA g/L//TESTID/11//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761561	DOSES/NA g/L//TESTID/7//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761563	DOSES/NA g/L//TESTID/8//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761557	DOSES/NA g/L//TESTID/5//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761551	DOSES/NA g/L//TESTID/2//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761562	DOSES/NA g/L//TESTID/8//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761571	DOSES/NA g/L//TESTID/12//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761554	DOSES/NA g/L//TESTID/4//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761570	DOSES/NA g/L//TESTID/12//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
14424		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
42862		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
14380		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
42867		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96882		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
108590		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
768151	DOSES/NA g/L//TESTID/50//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768152	DOSES/NA g/L//TESTID/50//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768129	DOSES/NA g/L//TESTID/45//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768130	DOSES/NA g/L//TESTID/45//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768092	DOSES/NA g/L//TESTID/37//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768093	DOSES/NA g/L//TESTID/37//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768111	DOSES/NA g/L//TESTID/42//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768112	DOSES/NA g/L//TESTID/42//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768142	DOSES/NA g/L//TESTID/48//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768141	DOSES/NA g/L//TESTID/48//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768162	DOSES/NA g/L//TESTID/52//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768161	DOSES/NA g/L//TESTID/52//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768087	DOSES/NA g/L//TESTID/36//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768086	DOSES/NA g/L//TESTID/36//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768094	DOSES/NA g/L//TESTID/38//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768095	DOSES/NA g/L//TESTID/38//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768149	DOSES/NA g/L//TESTID/49//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768150	DOSES/NA g/L//TESTID/49//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768079	DOSES/NA g/L//TESTID/34//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768078	DOSES/NA g/L//TESTID/34//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768160	DOSES/NA g/L//TESTID/51//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768159	DOSES/NA g/L//TESTID/51//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768084	DOSES/NA g/L//TESTID/35//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768085	DOSES/NA g/L//TESTID/35//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768077	DOSES/NA g/L//TESTID/33//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768076	DOSES/NA g/L//TESTID/33//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768140	DOSES/NA g/L//TESTID/47//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768139	DOSES/NA g/L//TESTID/47//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152753		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152752		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152754		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152755		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
768070	DOSES/NA g/L//TESTID/32//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768071	DOSES/NA g/L//TESTID/32//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768069	DOSES/NA g/L//TESTID/31//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768068	DOSES/NA g/L//TESTID/31//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768119	DOSES/NA g/L//TESTID/43//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768120	DOSES/NA g/L//TESTID/43//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768109	DOSES/NA g/L//TESTID/41//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768110	DOSES/NA g/L//TESTID/41//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
741831	TIME/MEASURED DURING RECOVERY//DNU	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
741780	TIME/MEASURED DURING RECOVERY//DNU	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
741815	TIME/MEASURED DURING RECOVERY//DNU	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
742694	TIME/MEASURED DURING RECOVERY//DNU	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
741814	DNUM/2//DOSES/2 g/L//TESTID/10//	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
761559	DOSES/NA g/L//TESTID/6//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761764	DOSES/NA mg/L//TESTID/8//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761765	DOSES/NA mg/L//TESTID/8//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
2163911		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163912		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163908		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
768103	DOSES/NA g/L//TESTID/40//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768102	DOSES/NA g/L//TESTID/40//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768131	DOSES/NA g/L//TESTID/46//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768132	DOSES/NA g/L//TESTID/46//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768122	DOSES/NA g/L//TESTID/44//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768121	DOSES/NA g/L//TESTID/44//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768101	DOSES/NA g/L//TESTID/39//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768100	DOSES/NA g/L//TESTID/39//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768061	DOSES/NA g/L//TESTID/29//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
768060	DOSES/NA g/L//TESTID/29//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768062	DOSES/NA g/L//TESTID/30//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768063	DOSES/NA g/L//TESTID/30//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
748412	LIFESTG/LENGTH 6.4CM//CA/39.1* ppm//C	107726	Alonso,A., and J.A. Camargo	Ameliorating Effect of Chloride on Nitrite To	Arch. Environ. Contam. Toxicol.54(2): 259-2	2008
747196	DNUM/2//DOSES/284 mg/L//TESTID/1//CO	56635	Schuytema,G.S., and A.V. Nebeker	Comparative Effects of Ammonium and Nitr	Arch. Environ. Contam. Toxicol.36(2): 200-2	1999
747204	DNUM/2//DOSES/284 mg/L//TESTID/1//CO	56635	Schuytema,G.S., and A.V. Nebeker	Comparative Effects of Ammonium and Nitr	Arch. Environ. Contam. Toxicol.36(2): 200-2	1999
2058030		154143	Denoel,M., M. Bichot, G.F. Ficetola, J. Delco	Cumulative Effects of Road De-Icing Salt on	Aquat. Toxicol.99(2): 275-280	2010
2164834	CONC1/ONLY CONC TESTED//	164045	Ferrari,L., F.R. De la Torre, and A. Salibian	Water-Balance Response of Rhinella arenar	Braz. J. Biol.70(1): 171-179	2010
2164835	CONC1/ONLY CONC TESTED//	164045	Ferrari,L., F.R. De la Torre, and A. Salibian	Water-Balance Response of Rhinella arenar	Braz. J. Biol.70(1): 171-179	2010
84264		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
84263		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
60460		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
10560		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
60461		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
83065		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
10559		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
83066		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
759372	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759371	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759332	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759386	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759387	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759374	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759373	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759388	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759385	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
765903	DNUM/2//DOSES/1500 mg/L//TESTID/1//C	110510	Soucek,D.J.	Sodium Sulfate Impacts Feeding, Specific Dy	Aquat. Toxicol.83(4): 315-322	2007
765901	DNUM/2//DOSES/1500 mg/L//TESTID/1//C	110510	Soucek,D.J.	Sodium Sulfate Impacts Feeding, Specific Dy	Aquat. Toxicol.83(4): 315-322	2007
765902	DNUM/2//DOSES/1500 mg/L//TESTID/1//C	110510	Soucek,D.J.	Sodium Sulfate Impacts Feeding, Specific Dy	Aquat. Toxicol.83(4): 315-322	2007
765900	DNUM/2//DOSES/1500 mg/L//TESTID/1//C	110510	Soucek,D.J.	Sodium Sulfate Impacts Feeding, Specific Dy	Aquat. Toxicol.83(4): 315-322	2007
2163928		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Rar	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163924		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Rar	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
767596	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
2163927		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Rar	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
761763	DOSES/NA mg/L//TESTID/7//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761599	DNUM/6//DOSES/854/1181/1259/1355/13	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
767595	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767597	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767598	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
761762	DOSES/NA mg/L//TESTID/7//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
766857	DNUM/8//DOSES/594.9/710.4/851.7/873.4	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2017310	CONC1/CI = NC TO 2079//	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017309		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017307		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017311	CONC1/CI = NC TO 1905//	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017321	CONC1/CI = NC TO 1492//	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017308		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017320	CONC1/CI = NC TO 1649//	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017319		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017317		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017318		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
747209	DNUM/2//DOSES/343 mg/L//TESTID/2//CO	56635	Schuytema,G.S., and A.V. Nebeker	Comparative Effects of Ammonium and Nitr	Arch. Environ. Contam. Toxicol.36(2): 200-2	1999
747215	DNUM/2//DOSES/343 mg/L//TESTID/2//CO	56635	Schuytema,G.S., and A.V. Nebeker	Comparative Effects of Ammonium and Nitr	Arch. Environ. Contam. Toxicol.36(2): 200-2	1999
759025	SO4/10* mg/L//DNUM/6//DOSES/55/96 to	115904	E.G. and G. Bionomics	The Effects of Sulfate on Eggs and Fry of Rai	Res.Rep.No.BW-78-1-006, Submitted to Sm	1978
2173770	CONC1/ONLY CONC TESTED//	83190	Luo,S.Q., M.C. Plowman, S.M. Hopfer, and F	Mg2+ -Deprivation Enhances and Mg2+ -Su	Ann. Clin. Lab. Sci.23(2): 121-129	1993
759026	SO4/10* mg/L//DNUM/2//DOSES/850 mg/L	115904	E.G. and G. Bionomics	The Effects of Sulfate on Eggs and Fry of Rai	Res.Rep.No.BW-78-1-006, Submitted to Sm	1978
761769	DOSES/NA mg/L//TESTID/10//OEF/MICROT	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761768	DOSES/NA mg/L//TESTID/10//OEF/MICROT	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
2084608		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
2084613		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
116971		11011	Fisher,S.W., P. Stromberg, K.A. Bruner, and	Molluscicidal Activity of Potassium to the Ze	Aquat. Toxicol.20:219-234	1991
2084590		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
15729		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
23442		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
24311		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
2745		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
15730		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
15731		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
764342	DOSES/NA ppm//TESTID/10//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764344	DOSES/NA ppm//TESTID/11//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764560	DOSES/NA ppm//TESTID/24//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764348	DOSES/NA ppm//TESTID/13//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764346	DOSES/NA ppm//TESTID/12//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764556	DOSES/NA ppm//TESTID/22//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764558	DOSES/NA ppm//TESTID/23//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
187927		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187925		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187921		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187923		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187920		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187919		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
2148456		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
2148457		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
2148455		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
2148462		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2148461		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
2148458	TESTID/4//OEF/PH, HARDNESS////	106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
187922		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
2148459		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
2148460		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
187926		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187924		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
768170	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160280	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
793899	DNUM/7//DOSES/0.6/0.69/0.8/0.9/1.0/1.2	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
793902	DNUM/7//DOSES/0.6/0.69/0.8/0.9/1.0/1.2	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
768254	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2060131		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060128		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
160281	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768261	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768319	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768351	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768315	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768353	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768312	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768357	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768251	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768257	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
727030	DNUM/6-8//DOSES/0.01 to 500 mg/l//TEST	102662	Mohammed,A.	Comparative Sensitivities of the Tropical Cla	Toxicol. Environ. Chem.89(2): 347-352	2007
762358	DNUM/6-8//DOSES/~0.01 to ~100 mg/L//TE	101029	Mohammed,A., and J.B.R. Agard	Comparative Sensitivity of Three Tropical Cl	J. Environ. Sci. Health, Part A, Environ. Sci. E	2006
2056433		156444	Trimble,A.J., J.B. Belden, S.A. Mueting, and	Determining Modifications to Bifenthrin Tox	Chemosphere80(1): 53-59	2010
165611		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165609		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165610		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165622		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165615		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165614		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165621		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165613		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165616		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165620		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165612		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165617		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165608		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165619		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165607		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165623		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165618		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
2152543		118678	Sotero-Santos,R.B., O. Rocha, and J. Povinel	Toxicity of Ferric Chloride Sludge to Aquatic	Chemosphere68(4): 628-636	2007
2152542		118678	Sotero-Santos,R.B., O. Rocha, and J. Povinel	Toxicity of Ferric Chloride Sludge to Aquatic	Chemosphere68(4): 628-636	2007
2152541		118678	Sotero-Santos,R.B., O. Rocha, and J. Povinel	Toxicity of Ferric Chloride Sludge to Aquatic	Chemosphere68(4): 628-636	2007
2146823		161068	Novelli,A., B.H. Vieira, D. Cordeiro, L.T.D. Ca	Lethal Effects of Abamectin on the Aquatic	Chemosphere86(1): 36-40	2012
15436		6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
16498		6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
2146826		161068	Novelli,A., B.H. Vieira, D. Cordeiro, L.T.D. Ca	Lethal Effects of Abamectin on the Aquatic	Chemosphere86(1): 36-40	2012
768484	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768515	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768422	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768419	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
233426	TESTID/7//MSMT/NR//DOSES/NR//SOURCE	80861	Bernot,R.J., M.A. Brueseke, M.A. Evans-Whi	Acute and Chronic Toxicity of Imidazolium-B	Environ. Toxicol. Chem.24(1): 87-92	2005
233425	TESTID/7//MSMT/NR//DOSES/NR//SOURCE	80861	Bernot,R.J., M.A. Brueseke, M.A. Evans-Whi	Acute and Chronic Toxicity of Imidazolium-B	Environ. Toxicol. Chem.24(1): 87-92	2005
727031	DNUM/6-8//DOSES/0.01 to 500 mg/l//TEST	102662	Mohammed,A.	Comparative Sensitivities of the Tropical Cla	Toxicol. Environ. Chem.89(2): 347-352	2007
2060108		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060111		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060143		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060140		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
119482		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Sal	Proc. La. Acad. Sci.23:77-85	1961
31878		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Sal	Proc. La. Acad. Sci.23:77-85	1961
18170		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18166		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18167		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18169		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18168		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
768482	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768483	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
759474	DNUM/2//DOSES/24 mg/L//TESTID/7//CON	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
767301	CA/27.2 mg/L//MG/9.2 mg/L//NA/32.8 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
759477	DNUM/2//DOSES/24 mg/L//TESTID/8//CON	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
767309	CA/37.0 mg/L//MG/3.2 mg/L//NA/32.8 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767300	CA/17.4 mg/L//MG/15.1 mg/L//NA/32.8 mg	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
160282	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768506	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768494	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768485	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160283	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768513	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768508	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768421	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
793895	DOSES/0.6 to 3.0 g/L//TESTID/3//	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
793894	DOSES/0.6 to 3.0 g/L//TESTID/2//	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
793893	DOSES/0.6 to 3.0 g/L//TESTID/1//	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Ch	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
2084612		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
2084609		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
2084591		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
762369	DNUM/6-8//DOSES/~0.01 to ~100 mg/L//TE	101029	Mohammed,A., and J.B.R. Agard	Comparative Sensitivity of Three Tropical Cl	J. Environ. Sci. Health. Part A, Environ. Sci. E	2006
2153704	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153706	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
114855		11011	Fisher,S.W., P. Stromberg, K.A. Bruner, and	Molluscicidal Activity of Potassium to the Ze	Aquat. Toxicol.20:219-234	1991
181632		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181627		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181631		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
183876		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181630		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181637		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181620		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181625		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181636		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181624		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181621		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181635		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181634		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181626		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181622		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
8825		4175	Waller,D.L., J.J. Rach, W.G. Cope, L.L. Markir	Toxicity of Candidate Molluscicides to Zebra	J. Great Lakes Res.19(4): 695-702	1993
2153767	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153705	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
181628		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181623		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181629		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
13892		4175	Waller,D.L., J.J. Rach, W.G. Cope, L.L. Markir	Toxicity of Candidate Molluscicides to Zebra	J. Great Lakes Res.19(4): 695-702	1993
181633		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
181619		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
2084619		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
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2064059		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
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221427		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
165600		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165601		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165602		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165598		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
168351	NR	17943	Smith,M.E., J.M. Lazorchak, L.E. Herrin, S. B	A Reformulated, Reconstituted Water for Te	Environ. Toxicol. Chem.16(6): 1229-1233	1997
2056432		156444	Trimble,A.J., J.B. Belden, S.A. Mueting, and	Determining Modifications to Bifenthrin Tox	Chemosphere80(1): 53-59	2010
165603		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165599		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
221426		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
165604		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165605		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165606		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
165597		17119	Burton,G.A.J., T.J. Norberg-King, C.G. Ingers	Interlaboratory Study of Precision: Hyalella	Environ. Toxicol. Chem.15(8): 1335-1343	1996
168352		17943	Smith,M.E., J.M. Lazorchak, L.E. Herrin, S. B	A Reformulated, Reconstituted Water for Te	Environ. Toxicol. Chem.16(6): 1229-1233	1997
221428		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
221422		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
221425		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
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221429		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
221424		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
221421		52121	McNulty,E.W., F.J. Dwyer, M.R. Ellersieck, E.	Evaluation of Ability of Reference Toxicity T	Environ. Toxicol. Chem.18(3): 544-548	1999
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16499		6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
2153843	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153875	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153891	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
64914		4175	Waller,D.L., J.J. Rach, W.G. Cope, L.L. Markir	Toxicity of Candidate Molluscicides to Zebra	J. Great Lakes Res.19(4): 695-702	1993
2153890	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
181639		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
2153877	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
234000	TESTID/47//MSMT/NR//DOSES/NR//SOURC	76251	Keller,A.E.	Personal Communication to U.S. EPA: Wate	Memo to R.Pepin and C.Roberts,U.S.EPA Re	2000
40518	CONTR/NO MORT//	8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-20	1954
2153878	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153893	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153845	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
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40519	CONTR/NO MORT//	8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-20	1954
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2153879	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153894	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
18172		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18174		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18173		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18175		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
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Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
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2271240		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271247		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2264909		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271238		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271239		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
762359	DNUM/6-8//DOSES/~0.01 to ~100 mg/L//TE	101029	Mohammed,A., and J.B.R. Agard	Comparative Sensitivity of Three Tropical Cl	J. Environ. Sci. Health, Part A, Environ. Sci. E	2006
181641		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbus	1995
181645		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbus	1995
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193908		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193897		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193921		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193898		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193891		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193924		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193913		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193920		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193881		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193877		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193896		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193904		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193889		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193909		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193910		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193899		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193879		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193922		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193894		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193919		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193886		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193928		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193882		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193903		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193933		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193887		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193923		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193890		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193934		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193925		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193911		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193884		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193918		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193893		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193907		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193878		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193901		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193900		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193895		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193912		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193902		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193916		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193915		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193892		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193883		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193888		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193929		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193906		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193930		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193932		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193885		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193926		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193917		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193914		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
193905		14535	Anderson,K.B., R.E. Sparks, and A.A. Paparo	Rapid Assessment of Water Quality, Using t	WRC Res.Rep.No.133, Project No.B-097-ILL,	1978
2081278		5955	Anderson,K.B.	Musculium transversum in the Illinois River	M.S.Thesis, Western Illinois University, Mac	1977
2081284		5955	Anderson,K.B.	Musculium transversum in the Illinois River	M.S.Thesis, Western Illinois University, Mac	1977
2081280		5955	Anderson,K.B.	Musculium transversum in the Illinois River	M.S.Thesis, Western Illinois University, Mac	1977
2081282		5955	Anderson,K.B.	Musculium transversum in the Illinois River	M.S.Thesis, Western Illinois University, Mac	1977
16497	CONTR/11% MORTALITY//	6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
15435	CONTR/11 % MORTALITY//	6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
181642		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbus	1995
141012		4175	Waller,D.L., J.J. Rach, W.G. Cope, L.L. Markir	Toxicity of Candidate Molluscicides to Zebra	J. Great Lakes Res.19(4): 695-702	1993
181640		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbus	1995
718593	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
2153840	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
718598	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718594	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
36690		4175	Waller,D.L., J.J. Rach, W.G. Cope, L.L. Markir	Toxicity of Candidate Molluscicides to Zebra	J. Great Lakes Res.19(4): 695-702	1993
2153841	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153867	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
15733		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
2746		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
24099		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
15728		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
15732		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
2747		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
2084611		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
2153898	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153897	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
196202		5683	Academy of Natural Sciences	The Sensitivity of Aquatic Life to Certain Ch	Final Rep.No.RG-3965(C2R1), U.S.Public He	1960
13426		949	Patrick,R., J.,Jr. Cairns, and A. Scheier	The Relative Sensitivity of Diatoms, Snails, a	Prog. Fish-Cult.30(3): 137-140	1968
2316118		170980	Dos Santos,E.A., C. Da Cruz, S.P. Carraschi, J	Atrazine Levels in the Jaboticabal Water Str	Arh. Hig. Rada Toksikol.66(1): 73-82	2015
96900		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
160285	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
181638		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
96905		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
160286	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
96896		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96890		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
2153866	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153882	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153899	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153883	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
96889		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
2153865	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
160284	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
43169		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
43165		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
43170		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
768557	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
43174		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
768549	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
96901		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
96908		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
43164		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and S	Environ. Toxicol. Chem.15(3): 353-359	1996
768554	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2084588		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
2084620		100653	Mosslacher,F.	Sensitivity of Groundwater and Surface Wat	Arch. Hydrobiol.149(1): 51-66	2000
2153839	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153887	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
727826	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718609	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
718610	LIFESTG/POST SWIM UP, INITIAL BW RANGE	100026	Lazorchak,J.M., and M.E. Smith	Rainbow Trout (Oncorhynchus mykiss) and	Arch. Environ. Contam. Toxicol.53(3): 397-4	2007
2153884	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153837	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
181644		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
2153853	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153880	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153847	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
181643		19613	Durand-Hoffman,M.E.	Analysis of Physiological and Toxicological E	M.S.Thesis, Ohio State University, Columbu	1995
767040	DNUM/3//DOSES/1000/1250 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alex	Egypt. J. Bilharz.19:75-88	1997
234001	TESTID/48//MSMT/NR//DOSES/NR//SOURC	76251	Keller,A.E.	Personal Communication to U.S. EPA: Wate	Memo to R.Pepin and C.Roberts,U.S.EPA Re	2000
759169	DNUM/3//DOSES/1000/2000 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alex	Egypt. J. Bilharz.19:75-88	1997
764615	DOSES/NA ppm//TESTID/30//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
767364	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767366	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767346	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767410	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160288	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767362	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767348	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767347	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767402	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160287	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767405	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767461	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767465	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767365	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767407	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
764850	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival an	Environ. Entomol.25(5): 1202-1208	1996
759182	DOSES/NA mg/L//TESTID/8//OEF/LEACHATE	116913	Meyer,J.S., D.A. Sanchez, J.A. Brookman, D.	Chemistry and Aquatic Toxicity of Raw Oil S	Environ. Toxicol. Chem.4:559-572	1985
767488	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767485	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160289	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767471	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160290	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767487	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767490	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
759473	DNUM/2//DOSES/360 mg/L//TESTID/6//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759470	DNUM/2//DOSES/360 mg/L//TESTID/5//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
24910		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24907		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24908		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24906		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24909		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2064012		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064016		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064015		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
763381	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival an	Environ. Entomol.25(5): 1202-1208	1996

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
763382	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival and	Environ. Entomol.25(5): 1202-1208	1996
763506	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival and	Environ. Entomol.25(5): 1202-1208	1996
763384	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival and	Environ. Entomol.25(5): 1202-1208	1996
763505	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival and	Environ. Entomol.25(5): 1202-1208	1996
763383	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival and	Environ. Entomol.25(5): 1202-1208	1996
220044		40155	Jaworska,M., A. Gorczyca, J. Sepiol, and P. T	Effect of Metal Ions on the Entomopathoge	Water Air Soil Pollut.93:157-166	1997
24911		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24914		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24912		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24913		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
24915		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2153117		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153118		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153181	CA/RECALCULATED//	159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153180	CA/RECALCULATED//	159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
89658		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
61287		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
61288		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
61289		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
89662		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
89660		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
160291	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
759181	DOSES/NA mg/L//TESTID/7//OEF/LEACHAT	116913	Meyer,J.S., D.A. Sanchez, J.A. Brookman, D.	Chemistry and Aquatic Toxicity of Raw Oil S	Environ. Toxicol. Chem.4:559-572	1985
767519	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160292	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160293	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
97577		12315	Abraham,T.J., K.Y.M. Salih, and J. Chacko	Effects of Heavy Metals on the Filtration Ra	Indian J. Mar. Sci.15(3): 195-196	1986
2061006		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2055980		156799	Zhuang,P., X. Shi, R. Wang, L. Zhang, G. Feng	Fluoride Toxicity to Chinese Sturgeon (Acipe	J. Appl. Ichthyol.27(2): 524-527	2011
741747	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741782	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741753	DNUM/4//DOSES/1000/5000/10000 mg/l//	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741540	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741556	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
742902	DNUM/3//DOSES/1.7/3.4 %//TESTID/9//	99598	Ritchie,S.A.	Efficacy of Australian Quarantine Procedure	Am. Mosq. Control Assoc. J.17(2): 114-117	2001
742923	DNUM/3//DOSES/1.7/3.4 %//TESTID/10//	99598	Ritchie,S.A.	Efficacy of Australian Quarantine Procedure	Am. Mosq. Control Assoc. J.17(2): 114-117	2001
798968	DNUM/3//DOSES/1.7/3.7 %//TESTID/13//	99598	Ritchie,S.A.	Efficacy of Australian Quarantine Procedure	Am. Mosq. Control Assoc. J.17(2): 114-117	2001
741577	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
742533	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741572	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
742535	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
742696	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741545	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741548	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741573	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
742534	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741580	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741539	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741578	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741571	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741544	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741543	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741555	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741554	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
742532	TIME/ADULT EMERGENCE//DNUM/8//DOS	107043	Kardatzke,J.T.	Effect of Sodium Chloride on Larval Snow-M	Mosq. News40:153-160	1980
741741	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741740	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741787	DNUM/4//DOSES/1000/5000/10000 mg/l//	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
2060991		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2154070		157604	Collins,S.	Toxicity of Deicing Salt Components to Early	M.S. Thesis, Saint Mary's University, Canada	2010
2059519		118580	Karraker,N.E., and G.R. Ruthig	Effect of Road Deicing Salt on the Susceptib	Environ. Res.109(1): 40-45	2009
2059522		118580	Karraker,N.E., and G.R. Ruthig	Effect of Road Deicing Salt on the Susceptib	Environ. Res.109(1): 40-45	2009
2061032		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2014049		109479	Madsen,H.C.K., K. Buchmann, and S. Meller	Treatment of Trichodiniasis in Eel (Anguilla	Aquaculture186(3/4): 221-231	2000
148555		17210	Buchmann,K., A. Felsing, and H.C. Slotved	Effects of Metrifonate, Sodium Chloride and	Bull. Eur. Assoc. Fish Pathol.12(2): 57-60	1992
2455		593	Hinton,M.J., and A.G. Eversole	Toxicity of Ten Commonly Used Chemicals t	Proc. Annu. Conf. Southeast. Assoc. Fish Wi	1978
12210		592	Hinton,M.J., and A.G. Eversole	Toxicity of Ten Chemicals Commonly Used i	Proc World Maricul Soc10:554-560	1979
231580	TESTID/13//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231578	TESTID/13//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231574	TESTID/12//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231577	TESTID/12//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231575	TESTID/12//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231576	TESTID/12//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231579	TESTID/13//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231581	TESTID/13//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
2162899	CONC1/ONLY CONC TESTED//	164116	Hakalahti-Siren,T., V.N. Mikheev, and E.T. V	Control of Freshwater Fish Louse Argulus co	Dis. Aquat. Org.82:67-77	2008
2162871	ORG LIFESTAGE/JV, AD//	164116	Hakalahti-Siren,T., V.N. Mikheev, and E.T. V	Control of Freshwater Fish Louse Argulus co	Dis. Aquat. Org.82:67-77	2008
741874	TIME/OTHER DURATIONS REPORTED//DNU	52919	Padmavathi,P., and M.K.D. Prasad	An Effective and Economically Feasible Trea	J. Environ. Biol.19(3): 193-203	1998
231569	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231568	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231571	TESTID/11//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231567	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231573	TESTID/11//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231572	TESTID/11//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231563	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
231566	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231570	TESTID/11//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231565	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231564	TESTID/10//MSMT/NR//DOSES/NR//SOURC	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
2060990		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2164637		163939	Forwood,J.M., J.O. Harris, and M.R. Devene	Efficacy of Current and Alternative Bath Tre	Aquaculture416/417(0): 65-71	2013
764333	DOSES/NA ppm//TESTID/5//OEF/MIXTURE,	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764325	DOSES/NA ppm//TESTID/1//OEF/MIXTURE/	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764330	DOSES/NA ppm//TESTID/4//OEF/MIXTURE,	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764326	DOSES/NA ppm//TESTID/2//OEF/MIXTURE,	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764329	DOSES/NA ppm//TESTID/3//OEF/MIXTURE,	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
2060979		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2060983		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2152847		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
741752	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
764481	DOSES/NA ppm//TESTID/20//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
2060992		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
742917		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
742918		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
742037	TESTID/1//OEF/PH, HARDNESS////	106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
742036		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
742919	TESTID/4//OEF/PH, HARDNESS////	106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
742006		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
187909		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187905		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187907		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187903		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187902		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187908		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187901		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187906		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
187904		19999	Cressman III,C.P., and P.L. Williams	Reference Toxicants for Toxicity Testing Usi	ASTM Spec. Tech. Publ.6:518-532	1997
742038		106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
742016	TESTID/2//OEF/PH, HARDNESS////	106214	Khanna,N., C.P. Cressman III, C.P. Tatara, an	Tolerance of the Nematode Caenorhabditis	Arch. Environ. Contam. Toxicol.32(1): 110-1	1997
196818		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196801		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196817		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196799		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196831		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196814		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196791		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196837		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196776		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196783		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196795		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196828		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196816		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196838		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
167864		5230	Adelman,I.R., L.L.,Jr. Smith, and G.D. Siesen	Acute Toxicity of Sodium Chloride, Pentachl	J. Fish. Res. Board Can.33(2): 203-208	1976
167863		5230	Adelman,I.R., L.L.,Jr. Smith, and G.D. Siesen	Acute Toxicity of Sodium Chloride, Pentachl	J. Fish. Res. Board Can.33(2): 203-208	1976
75451	12 H PHOTO//NOT FED//AERATED//DECHLO	10487	Threader,R.W., and A.H. Houston	Use of NaCl as a Reference Toxicant for Gol	Can. J. Fish. Aquat. Sci.40(1): 89-92	1983
196826		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196803		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196841		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196788		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196784		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196793		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196805		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196842		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196846		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196775		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196834		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196808		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196827		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196836		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196845		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196777		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196823		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196780		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196790		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196804		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196785		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196811		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196797		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196825		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196824		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196830		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196844		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196778		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196807		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196802		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196810		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196813		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196822		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196789		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
196794		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196798		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196786		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196821		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196782		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196796		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196800		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196812		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196833		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196779		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196792		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196815		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196835		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196829		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196843		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196820		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196774		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196806		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196832		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196781		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196840		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196819		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196787		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196809		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fath	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
26112		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
759442	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759441	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759395	DNUM/9//DOSES/1.3/1.9 to 2.5/2.7/3.3 to	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759417	DNUM/9//DOSES/1.3/1.9/2.7/3.8/5.5/7.8/1	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759449	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759396	DNUM/9//DOSES/1.3/1.9 to 2.5/2.7/3.3 to	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
741761	TIME/OTHER DURATION REPORTED//DNUM	105302	Kefford,B.J., C.G. Palmer, L. Pakhomova, and	Comparing Test Systems to Measure the Sal	Water SA30(4): 499-506	2004
759448	DNUM/9//DOSES/1.3/1.9/2.2/2.5/2.7/3.3/3	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
2060993		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741687	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
742567	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
207718	CONC/FROM GRAPH//	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
741686	DNUM/6//DOSES/0.479/0.879/1.27/1.79/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
207719	CONC/FROM GRAPH//	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
207716	CONC/FROM GRAPH//	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
741695	DNUM/6//DOSES/0.479/0.879/1.27/1.79/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
2146816		161067	Allert,A.L., C.L. Cole-Neal, and J.F. Fairchild	Toxicity of Chloride Under Winter Low-Flow	Bull. Environ. Contam. Toxicol.89(2): 296-30	2012
2146817		161067	Allert,A.L., C.L. Cole-Neal, and J.F. Fairchild	Toxicity of Chloride Under Winter Low-Flow	Bull. Environ. Contam. Toxicol.89(2): 296-30	2012
2146815		161067	Allert,A.L., C.L. Cole-Neal, and J.F. Fairchild	Toxicity of Chloride Under Winter Low-Flow	Bull. Environ. Contam. Toxicol.89(2): 296-30	2012
741660	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
207721	CONC/FROM GRAPH//	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
741699	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
207717	CONC/FROM GRAPH//	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
767855	DOSES/NA g/L//TESTID/8//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152825		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767904	DOSES/NA g/L//TESTID/20//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767903	DOSES/NA g/L//TESTID/20//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075467		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
766865	DOSES/NA g/L//TESTID/4//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766864	DOSES/NA g/L//TESTID/4//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2153271		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767897	DOSES/NA g/L//TESTID/19//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767898	DOSES/NA g/L//TESTID/19//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767961	DOSES/NA g/L//TESTID/23//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767962	DOSES/NA g/L//TESTID/23//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2153268		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767879	DOSES/NA g/L//TESTID/14//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767880	DOSES/NA g/L//TESTID/14//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767896	DOSES/NA g/L//TESTID/18//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767895	DOSES/NA g/L//TESTID/18//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075442		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075434		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
767873	DOSES/NA g/L//TESTID/13//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767872	DOSES/NA g/L//TESTID/13//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075468		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
767959	DOSES/NA g/L//TESTID/22//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767960	DOSES/NA g/L//TESTID/22//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767871	DOSES/NA g/L//TESTID/12//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767870	DOSES/NA g/L//TESTID/12//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767968	DOSES/NA g/L//TESTID/24//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767967	DOSES/NA g/L//TESTID/24//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075410		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075471		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2153274		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
766873	DOSES/NA g/L//TESTID/6//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766872	DOSES/NA g/L//TESTID/6//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766866	DOSES/NA g/L//TESTID/5//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766867	DOSES/NA g/L//TESTID/5//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767889	DOSES/NA g/L//TESTID/17//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767890	DOSES/NA g/L//TESTID/17//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2152724	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152722	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152723	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
767856	DOSES/NA g/L//TESTID/9//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767857	DOSES/NA g/L//TESTID/9//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767969	DOSES/NA g/L//TESTID/25//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767970	DOSES/NA g/L//TESTID/25//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767847	DOSES/NA g/L//TESTID/3//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767846	DOSES/NA g/L//TESTID/3//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152874		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767953	DOSES/NA g/L//TESTID/21//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767954	DOSES/NA g/L//TESTID/21//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767887	DOSES/NA g/L//TESTID/16//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767888	DOSES/NA g/L//TESTID/16//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2153277		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153280		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767881	DOSES/NA g/L//TESTID/15//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767882	DOSES/NA g/L//TESTID/15//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767975	DOSES/NA g/L//TESTID/26//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767976	DOSES/NA g/L//TESTID/26//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075466		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075469		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075470		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2074934		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075402		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
767864	DOSES/NA g/L//TESTID/11//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767865	DOSES/NA g/L//TESTID/11//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075426		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
767863	DOSES/NA g/L//TESTID/10//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767862	DOSES/NA g/L//TESTID/10//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2075418		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
741671	DNUM/5//DOSES/0.75/1.5/3.0/4.5 g/L//TES	103812	Sarma,S.S.S., S. Nandini, J. Morales-Ventura	Effects of NaCl Salinity on the Population Dy	Aquat. Ecol.40:349-360	2006
767849	DOSES/NA g/L//TESTID/7//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767848	DOSES/NA g/L//TESTID/7//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767854	DOSES/NA g/L//TESTID/8//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
251007	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
250997	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120843	TESTID/33//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251000	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120826	TESTID/22//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120844	TESTID/34//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251003	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120840	TESTID/30//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251001	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
250999	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251009	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120842	TESTID/32//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
742530		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Water	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
741547		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Water	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
120829	TESTID/25//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120855	TESTID/36//COMPEP/1//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251004	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251002	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120845	TESTID/35//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120837	TESTID/27//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251008	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120827	TESTID/23//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120841	TESTID/31//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120824	TESTID/20//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
250998	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120839	TESTID/29//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120828	TESTID/24//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120825	TESTID/21//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120838	TESTID/28//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251006	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251005	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.5	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
160319	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768266	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768264	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768272	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768175	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768340	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768268	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768173	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160320	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
741288	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
741435	TESTID/2//	101084	Epsey,Huston & Associates Inc.	The Effects of the Total Hardness on Potassi	EPA/OTS Doc.#40-8442161O:2 p.	1989
2060999		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741635	LIFESTG/INITIAL BW, AVG LENGTH 148MM/	12133	Dheer,J.M.S., T.R. Dheer, and C.L. Mahajan	Haematological and Haematopoietic Respon	J. Fish Biol.28(1): 119-128	1986
741678	LIFESTG/INITIAL BW, AVG LENGTH 148MM/	12133	Dheer,J.M.S., T.R. Dheer, and C.L. Mahajan	Haematological and Haematopoietic Respon	J. Fish Biol.28(1): 119-128	1986
155066	EFCT %/FROM GRAPH//	17845	Goetsch,P.A., and C.G. Palmer	Salinity Tolerances of Selected Macroinvert	Arch. Environ. Contam. Toxicol.32(1): 32-41	1997
157997	EFCT %/FROM GRAPH//	17845	Goetsch,P.A., and C.G. Palmer	Salinity Tolerances of Selected Macroinvert	Arch. Environ. Contam. Toxicol.32(1): 32-41	1997
2152838		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2060247	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060217	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2060213	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060209	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060237	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060223	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060221	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060216	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060210	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060201	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060275	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060220	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060259	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060254	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060211	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060236	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060225	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060214	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060270	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060228	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060212	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060222	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060218	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2211037		80777	Dean,K.E., R.M. Palachek, J.M. Noel, R. Warl	Development of Freshwater Water-Quality (	Environ. Toxicol. Chem.23(6): 1441-1451	2004
2060996		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741489	TIME/ADDITIONAL DURATIONS REPORTED/	19119	Komarudin,O., M. Shariff, and F. Shaharom	Toxicity of Sodium Chloride to Clarias batrac	In: M.Shariff, R.P.Subasinghe, and J.R.Arthu	1992
2162289		163945	Magondu,E.W., J. Rasowo, E. Oyoo-Okoth, a	Evaluation of Sodium Chloride (NaCl) for Po	Aquaculture319(1/2): 307-310	2011
2162290		163945	Magondu,E.W., J. Rasowo, E. Oyoo-Okoth, a	Evaluation of Sodium Chloride (NaCl) for Po	Aquaculture319(1/2): 307-310	2011
2211025		80777	Dean,K.E., R.M. Palachek, J.M. Noel, R. Warl	Development of Freshwater Water-Quality (	Environ. Toxicol. Chem.23(6): 1441-1451	2004
2211024		80777	Dean,K.E., R.M. Palachek, J.M. Noel, R. Warl	Development of Freshwater Water-Quality (	Environ. Toxicol. Chem.23(6): 1441-1451	2004
16495		6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
26114		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
26113		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
764830	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival and	Environ. Entomol.25(5): 1202-1208	1996
2152592		111908	Lee,F.C.	Effect of Various Sodium Chloride Concentra	Mosq. News33(1): 78-83	1973
2152588		111908	Lee,F.C.	Effect of Various Sodium Chloride Concentra	Mosq. News33(1): 78-83	1973
2152587		111908	Lee,F.C.	Effect of Various Sodium Chloride Concentra	Mosq. News33(1): 78-83	1973
742887	DNUM/5//DOSES/0.01/0.05/0.1/0.25 M//T	105804	Pappas,L.G., and C.D. Pappas	Laboratory Studies on the Significance of Na	Mosq. News43(2): 153-155	1983
2060198	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060148	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060190	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060157	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060168	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060189	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060161	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060191	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
741331	CL/20.7* mg/L//DNUM/4//DOSES/1000/25	108161	Froelich,S.L., and T. Engelhardt	Comparative Effects of Formalin and Salt Tr	Prog. Fish-Cult.58(3): 209-211	1996
741388	CL/20.7* mg/L//DNUM/4//DOSES/1000/25	108161	Froelich,S.L., and T. Engelhardt	Comparative Effects of Formalin and Salt Tr	Prog. Fish-Cult.58(3): 209-211	1996
76295		16033	Lange,M., W. Gebauer, J. Markl, and R. Nag	Comparison of Testing Acute Toxicity on Em	Chemosphere30(11): 2087-2102	1995
2057566	CONC1/ONLY CONC TESTED//	150277	Craig,P.M., C.M. Wood, and G.B. McClelland	Water Chemistry Alters Gene Expression an	Environ. Sci. Technol.44(6): 2156-2162	2010
742566	DNUM/6//DOSES/0.479/0.879/1.27/1.79/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741698	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741697	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphnia	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741610	TESTID/1//	105302	Kefford,B.J., C.G. Palmer, L. Pakhomova, and	Comparing Test Systems to Measure the Sal	Water SA30(4): 499-506	2004
18462		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18463		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18461		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18464		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2152826		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
759179	DOSES/NA mg/L//TESTID/5//OEF/LEACHATE	116913	Meyer,J.S., D.A. Sanchez, J.A. Brookman, D.E	Chemistry and Aquatic Toxicity of Raw Oil Sh	Environ. Toxicol. Chem.4:559-572	1985
2164732		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphnia	Ecotoxicology22(4): 693-706	2013
2164727		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphnia	Ecotoxicology22(4): 693-706	2013
2164731		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphnia	Ecotoxicology22(4): 693-706	2013
2152707	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152709	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152708	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
119469		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Salt	Proc. La. Acad. Sci.23:77-85	1961
31699		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Salt	Proc. La. Acad. Sci.23:77-85	1961
84498		13712	Arambasic,M.B., S. Bjelic, and G. Subakov	Acute Toxicity of Heavy Metals (Copper, Lea	Water Res.29(2): 497-503	1995
144221		14713	Harris,G.	The Comparative Toxicity of Crude and Refi	Rep. Ser. No. EE-152, Environment Canada,	1994
144220		14713	Harris,G.	The Comparative Toxicity of Crude and Refi	Rep. Ser. No. EE-152, Environment Canada,	1994
144218		14713	Harris,G.	The Comparative Toxicity of Crude and Refi	Rep. Ser. No. EE-152, Environment Canada,	1994
144219		14713	Harris,G.	The Comparative Toxicity of Crude and Refi	Rep. Ser. No. EE-152, Environment Canada,	1994
144222		14713	Harris,G.	The Comparative Toxicity of Crude and Refi	Rep. Ser. No. EE-152, Environment Canada,	1994
768428	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768533	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768500	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160322	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768426	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768527	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768431	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768498	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
741531		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
742529		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
768489	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768475	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768531	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
768450	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768496	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768523	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768530	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2210504	CONC1/ONLY CONC TESTED//	165478	EA Engineering Science and Technology	Results of Acute and Chronic Toxicity Testin	Report 2900, EA Engineering, Science, and T	1998
768520	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768445	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768499	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768488	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768467	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768526	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160321	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768521	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768486	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2210505	CONC1/ONLY CONC TESTED//	165478	EA Engineering Science and Technology	Results of Acute and Chronic Toxicity Testin	Report 2900, EA Engineering, Science, and T	1998
742069	DNUM/2//DOSES/1770 mg/L//TESTID/11//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742931	DNUM/2//DOSES/1770 mg/L//TESTID/10//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742926	DNUM/2//DOSES/1770 mg/L//TESTID/7//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
767302	CA/27.2 mg/L//MG/9.2 mg/L//NA/32.8 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
772103	CA/17.4 mg/L//MG/15.1 mg/L//NA/32.8 m	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
742068	DNUM/2//DOSES/1770 mg/L//TESTID/8//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742927	DNUM/2//DOSES/1770 mg/L//TESTID/9//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
767308	CA/37.0 mg/L//MG/3.2 mg/L//NA/32.8 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
742008	DNUM/8//DOSES/2/4/6/7/8/9/10 g/L//TES	106213	Martinez-Jeronimo,F., and L. Martinez-Jero	Chronic Effect of NaCl Salinity on a Freshwa	Ecotoxicol. Environ. Saf.67(3): 411-416	2007
742019	DNUM/8//DOSES/2/4/6/7/8/9/10 g/L//TES	106213	Martinez-Jeronimo,F., and L. Martinez-Jero	Chronic Effect of NaCl Salinity on a Freshwa	Ecotoxicol. Environ. Saf.67(3): 411-416	2007
18460		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
201545		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2055828		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
201558		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
741434	TESTID/1//	101084	Epsey,Huston & Associates Inc.	The Effects of the Total Hardness on Potass	EPA/OTS Doc.#40-84421610:2 p.	1989
201566		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2055812		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2055826		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2055829		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2055827		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2160493		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160450		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160469		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160475		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160472		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160470		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160473		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160471		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160484		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160481		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160489		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160490		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160465		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160464		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160460		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2160468		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairom	Ecotoxicology21:601-614	2012
2060988		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2061001		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
740690		76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740662		76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2060989		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741563	TIME/OTHER DURATIONS ALSO REPORTED/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
803856	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
2052775		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
231524	TESTID/2//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231523	TESTID/2//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231527	TESTID/2//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231525	TESTID/2//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231526	TESTID/2//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
2060997		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2060994		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2060995		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2060998		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741834	TIME/OTHER DURATIONS REPORTED//DNU	105302	Kefford,B.J., C.G. Palmer, L. Pakhomova, an	Comparing Test Systems to Measure the Sa	Water SA30(4): 499-506	2004
2062416		118575	DiMaggio,M.A., C.L. Ohs, and B.D. Petty	Salinity Tolerance of the Seminole Killifish, F	Aquaculture293(1/2): 74-80	2009
2062417		118575	DiMaggio,M.A., C.L. Ohs, and B.D. Petty	Salinity Tolerance of the Seminole Killifish, F	Aquaculture293(1/2): 74-80	2009
2064155		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064156		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064154		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
773637	DNUM/7//DOSES/100/300/500/800/1000/	95838	Park,J.W., J. Rinchard, F. Liu, T.A. Anderson,	The Thyroid Endocrine Disruptor Perchlorat	Ecotoxicol. Environ. Saf.63(3): 343-352	2006
118481		6176	Newman,M.C., and M.S. Aplin	Enhancing Toxicity Data Interpretation and	Aquat. Toxicol.23(2): 85-96	1992
2061031		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2061000		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741789	DNUM/4//DOSES/1000/5000/10000 mg///	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
742663	DNUM/5//DOSES/1000/2500/5000/10000	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
2053816		157748	Sornom,P., V. Felten, V. Medoc, S. Sroda, P.	Effect of Gender on Physiological and Behav	Environ. Pollut.158:1288-1295	2010
2053813		157748	Sornom,P., V. Felten, V. Medoc, S. Sroda, P.	Effect of Gender on Physiological and Behav	Environ. Pollut.158:1288-1295	2010
2053818		157748	Sornom,P., V. Felten, V. Medoc, S. Sroda, P.	Effect of Gender on Physiological and Behav	Environ. Pollut.158:1288-1295	2010
2053814		157748	Sornom,P., V. Felten, V. Medoc, S. Sroda, P.	Effect of Gender on Physiological and Behav	Environ. Pollut.158:1288-1295	2010
2053819		157748	Sornom,P., V. Felten, V. Medoc, S. Sroda, P.	Effect of Gender on Physiological and Behav	Environ. Pollut.158:1288-1295	2010

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2061002		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2053817		157748	Sornom,P., V. Felten, V. Medoc, S. Sroda, P.	Effect of Gender on Physiological and Behav	Environ. Pollut.158:1288-1295	2010
2061005		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2061007		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2061010		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2061034		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
231537	TESTID/4//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231535	TESTID/4//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231533	TESTID/4//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231536	TESTID/4//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231534	TESTID/4//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
2075474		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075475		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
763487	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival an	Environ. Entomol.25(5): 1202-1208	1996
763489	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival an	Environ. Entomol.25(5): 1202-1208	1996
763488	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival an	Environ. Entomol.25(5): 1202-1208	1996
763486	CA/19.7 to 20.5 mg/L//MG/3.5 to 3.8 mg/L/	116267	Mullens,B.A., and K.A. Luhring	Salinity and Pollution Effects on Survival an	Environ. Entomol.25(5): 1202-1208	1996
2152842		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2164556		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164551		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164548		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164558		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164547		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164553		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164549		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164555		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164557		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164550		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164552		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2164554		163937	Bartlett,A.J., Q. Rochfort, L.R. Brown, and J.	Causes of Toxicity to Hyalella azteca in a Sto	Sci. Total Environ.414:238-247	2012
2061030		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
738141	DNUM/2//DOSES/0.1 %//TESTID/1//CONC/	72412	Castillo,G., and L. Schafer	Evaluation of a Bioassay Battery for Water T	Environ. Toxicol.15(4): 331-337	2000
16496		6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
2076800		158865	Brown,M.G., E.K. Dobbs, J.W. Snodgrass, an	Ameliorative Effects of Sodium Chloride on	Environ. Toxicol. Chem.31(4): 836-842	2012
2162414	AP FREQ/REPLACED ONE TIME AT THE MIDP	163897	Shinn,C., A. Marco, and L. Serrano	Influence of Low Levels of Water Salinity on	Chemosphere92(9): 1154-1160	2013
741673	DNUM/4//DOSES/1/2/4 g/L//TESTID/1//	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
740725	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
741674	DNUM/4//DOSES/1/2/4 g/L//TESTID/2//EF(	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
741642	DNUM/4//DOSES/1/2/4 g/L//TESTID/2//EF(	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
742661	DNUM/2//DOSES/0.5 %//TESTID/1//OEF/F(	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741737	DNUM/2//DOSES/0.17 %//TESTID/2//CONC	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
742662	DNUM/2//DOSES/0.17 %//TESTID/7//OEF/F	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741772	DNUM/3//DOSES/0.085/0.17 %//TESTID/5/	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741735	DNUM/2//DOSES/0.17 %//TESTID/4//OEF/F	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741774	DNUM/2//DOSES/0.17 %//TESTID/8//OEF/(	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741738	DNUM/2//DOSES/0.17 %//TESTID/3//OEF/(	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741773	DNUM/2//DOSES/0.085 %//TESTID/6//OEF/	107550	Lewis,S.D.	Effect of Selected Concentrations of Sodium	Proc. Conf. Southeastern Assoc. Game Fish2	1971
741650	DNUM/4//DOSES/1/2/4 g/L//TESTID/1//	11233	Weirich,C.R., and T.R. Tiersch	Effects of Environmental Sodium Chloride o	J. World Aquac. Soc.28(3): 289-296	1997
741710	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740689	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2152606	CONC1/ONLY CONC TESTED//	156176	Edwards,W.J., L. Babcock-Jackson, and D.A.	Prevention of the Spread of Zebra Mussels I	N. Am. J. Aquacult.62(3): 229-236	2000
2055947	CONC1/ONLY CONC TESTED//	157469	Wang,T.N., S.A. Bailey, D.F. Reid, T.H. Johen	Efficacy of NaCl Brine for Treatment of Balla	J. Great Lakes Res.38:72-77	2012
2055953	CONC1/ONLY CONC TESTED//	157469	Wang,T.N., S.A. Bailey, D.F. Reid, T.H. Johen	Efficacy of NaCl Brine for Treatment of Balla	J. Great Lakes Res.38:72-77	2012
2164711		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164613		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164645		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164646		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164618		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164696		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164695		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164692		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164693		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164628		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164699		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164700		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164640		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164641		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164627		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164710		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164623		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164625		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2052772		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052780		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052781		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052782		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052783		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
741564	TIME/OTHER DURATIONS ALSO REPORTED/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
2052773		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052774		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052786		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052785		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
741584	DNUM/6-7//DOSES/0.5 to 8.0 g/L//TESTID/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
803857	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
2052779		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052784		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2224815		160209	Hazelton,P.D., W.G. Cope, T.J. Pandolfo, S. N	Partial Life-Cycle and Acute Toxicity of Perfl	Environ. Toxicol. Chem.31(7): 1611-1620	2012
2052777		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052778		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052770		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052776		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
2052771		157679	Gillis,P.L.	Assessing the Toxicity of Sodium Chloride to	Environ. Pollut.159(6): 1702-1708	2011
741568	TIME/OTHER DURATIONS ALSO REPORTED/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
803860	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
741594	DNUM/6-7//DOSES/0.5 to 8.0 g/L//TESTID/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
2224806		160209	Hazelton,P.D., W.G. Cope, T.J. Pandolfo, S. N	Partial Life-Cycle and Acute Toxicity of Perfl	Environ. Toxicol. Chem.31(7): 1611-1620	2012
2164655		163939	Forwood,J.M., J.O. Harris, and M.R. Devene	Efficacy of Current and Alternative Bath Tre	Aquaculture416/417(0): 65-71	2013
2164658		163939	Forwood,J.M., J.O. Harris, and M.R. Devene	Efficacy of Current and Alternative Bath Tre	Aquaculture416/417(0): 65-71	2013
2164654	EFCT%/FROM GRAPH//	163939	Forwood,J.M., J.O. Harris, and M.R. Devene	Efficacy of Current and Alternative Bath Tre	Aquaculture416/417(0): 65-71	2013
2164657		163939	Forwood,J.M., J.O. Harris, and M.R. Devene	Efficacy of Current and Alternative Bath Tre	Aquaculture416/417(0): 65-71	2013
2164656		163939	Forwood,J.M., J.O. Harris, and M.R. Devene	Efficacy of Current and Alternative Bath Tre	Aquaculture416/417(0): 65-71	2013
196203		5683	Academy of Natural Sciences	The Sensitivity of Aquatic Life to Certain Che	Final Rep.No.RG-3965(C2R1), U.S.Public Hea	1960
2210845		80777	Dean,K.E., R.M. Palachek, J.M. Noel, R. Warl	Development of Freshwater Water-Quality	Environ. Toxicol. Chem.23(6): 1441-1451	2004
18184		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
40512	AERATION//CONTR/NO MORT//	8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-2	1954
201540		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
13417		949	Patrick,R., J.,Jr. Cairns, and A. Scheier	The Relative Sensitivity of Diatoms, Snails, a	Prog. Fish-Cult.30(3): 137-140	1968
740684	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740724	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
220765		60643	Reed,P., and R. Evans	Acute Toxicity of Chlorides, Sulfates and Tot	Contract Report 283, State Water Survey Di	1981
2224820		160209	Hazelton,P.D., W.G. Cope, T.J. Pandolfo, S. N	Partial Life-Cycle and Acute Toxicity of Perfl	Environ. Toxicol. Chem.31(7): 1611-1620	2012
2224821		160209	Hazelton,P.D., W.G. Cope, T.J. Pandolfo, S. N	Partial Life-Cycle and Acute Toxicity of Perfl	Environ. Toxicol. Chem.31(7): 1611-1620	2012
231519	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231583	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231522	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231584	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231582	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231521	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231518	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231520	TESTID/1//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
203677		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
203678		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2154076		157604	Collins,S.	Toxicity of Deicing Salt Components to Early	M.S. Thesis, Saint Mary's University, Canada	2010
2165531		164463	Harless,M.L.	Effects of Chemical Deicers on Amphibian C	Ph.D Thesis, Michigan Technological Univer	2012
2060018	EFCT%/FROM GRAPH//	118548	Karraker,N.E.	Are Embryonic and Larval Green Frogs (Ran	Herpetol. Conserv. Biol.2(1): 35-41	2007
2060020	EFCT%/FROM GRAPH//	118548	Karraker,N.E.	Are Embryonic and Larval Green Frogs (Ran	Herpetol. Conserv. Biol.2(1): 35-41	2007
2059995	EFCT%/FROM GRAPH//	118548	Karraker,N.E.	Are Embryonic and Larval Green Frogs (Ran	Herpetol. Conserv. Biol.2(1): 35-41	2007
2059533		118580	Karraker,N.E., and G.R. Ruthig	Effect of Road Deicing Salt on the Susceptib	Environ. Res.109(1): 40-45	2009
2076801		158865	Brown,M.G., E.K. Dobbs, J.W. Snodgrass, an	Ameliorative Effects of Sodium Chloride on	Environ. Toxicol. Chem.31(4): 836-842	2012
741963	CHAR/PICKLING SALT//LIFESTG/TESTED AT L	106483	Sanzo,D., and S.J. Hecnar	Effects of Road De-icing Salt (NaCl) on Larva	Environ. Pollut.140(2): 247-256	2006
741964	CHAR/PICKLING SALT//LIFESTG/TESTED AT L	106483	Sanzo,D., and S.J. Hecnar	Effects of Road De-icing Salt (NaCl) on Larva	Environ. Pollut.140(2): 247-256	2006
2165523		164463	Harless,M.L.	Effects of Chemical Deicers on Amphibian C	Ph.D Thesis, Michigan Technological Univer	2012
2152829		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2060317	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060288	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060318	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060291	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060289	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060315	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060319	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060292	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060307	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060302	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060309	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060290	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060276	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060293	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060306	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
18185		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
764505	DOSES/NA ppm//TESTID/21//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis and	Proc. Egypt. Acad. Sci.16:37-48	1961
18186		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
741739	LIFESTG/STENONEMA INTEGRUM//DNUM/	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
2164605		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164606		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164588		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164587		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164592		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164591		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164600		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164599		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164608		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164609		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164603		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164602		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164594		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
2164595		163450	Echols,B.S., R.J. Currie, D.S. Cherry, and J.R.	Seasonal Availability and Sensitivity of Two	Environ. Monit. Assess.185(2): 1341-1353	2013
741589	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
741627	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
741624	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
742550	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
741596	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
742551	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
742549	TIME/OTHER DURATIONS REPORTED//DNU	106875	Velasco-Santamaria,Y.M., and P.E. Cruz-Cas	Behavioural and Gill Histopathological Effec	Environ. Toxicol. Pharmacol.25(3): 365-372	2008
141462		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271253		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271251		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271252		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
2271250		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
141461		16745	Padhye,A.D., and H.V. Ghate	Sodium Chloride and Potassium Chloride To	Herpetol. J.2(1): 18-23	1992
742574	DNUM/5//DOSES/6.4/12.6/15/25.6 mS/cm/	105302	Kefford,B.J., C.G. Palmer, L. Pakhomova, and	Comparing Test Systems to Measure the Sal	Water SA30(4): 499-506	2004
6172	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802494	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802495	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6170	CONTR/< 10 % MORT///	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6174	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802493	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6169	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6173	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802503	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802499	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802492	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6167	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802504	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802500	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802501	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802490	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802497	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6171	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802505	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802496	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
6168	CONTR/< 10 % MORT//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802502	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802506	DNUM/11//DOSES/NA ppm//TESTID/28//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
802491	DNUM/11//DOSES/NA ppm//TESTID/27//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gam	1973
2075478		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
16494	CONTR/11 % MORT//	6244	Hamilton,R.W., J.K. Buttner, and R.G. Brune	Lethal Levels of Sodium Chloride and Potass	Environ. Entomol.4(6): 1003-1006	1975
2061004		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2061033		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2060335	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060352	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060360	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060336	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060333	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060327	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060350	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060361	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060325	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060342	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060326	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060329	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060354	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2061036		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
205755	WTAT/101 MG//COMPEP/1//ETIME/90 D//	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
202197	ETIME/56 D//	56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
740665	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
251449	TESTID/3//DOSES/117000/306000/643000/	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
741684	DNUM/6//TESTID/2//OEF/MIXTURE-ROAD	105178	Vosyliene,M.Z., P. Baltrenas, and A. Kazlaus	Toxicity of Road Maintenance Salts to Rainb	Ekologija2:15-20	2006
741683	DNUM/6//TESTID/2//OEF/MIXTURE-ROAD	105178	Vosyliene,M.Z., P. Baltrenas, and A. Kazlaus	Toxicity of Road Maintenance Salts to Rainb	Ekologija2:15-20	2006
205757	COMPEP/2//WTAT/551 MG//ETIME/90 D//	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
205758	WTAT/553 MG//COMPEP/2//ETIME/90 D//	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
205754	ETIME/90 D//	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
205753		58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
759632	DNUM/5//DOSES/6500/7500/8500/10000	115901	Beatty,D.D.	An Experimental Study of the Toxicity of So	M.S.Thesis, University of Wyoming, Laramie	1959
205752		58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
740723	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
205756	COMPEP/1//ETIME/90 D//	58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
740663	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
203282		56900	Kostecki,P.T., and J.J. Jones	The Effect of Osmotic and Ion-Osmotic Stres	Comp. Biochem. Physiol. A Comp. Physiol.74	1983
202198		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
202199		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
2152827		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
202205		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
202206		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
202200		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
202201		56474	Spehar,R.L.	Criteria Document Data. Memorandum to D	Memo to D.J.Call, U.S.EPA, Duluth, MN /Cer	1986
205759		58703	Spehar,R.L.	Criteria Document Data	Memo to C.Stephan, U.S.EPA, Duluth, MN:2	1987
2061009		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mclea	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2163188	CONC1/ONLY CONC TESTED//	164118	Duncan,A.B., S. Fellous, R. Accot, M. Alart, K	Parasite-Mediated Protection Against Osmo	FEMS Microbiol. Ecol.74(2): 353-360	2010
2163192	CONC1/ONLY CONC TESTED//	164118	Duncan,A.B., S. Fellous, R. Accot, M. Alart, K	Parasite-Mediated Protection Against Osmo	FEMS Microbiol. Ecol.74(2): 353-360	2010
2163194	CONC1/ONLY CONC TESTED//	164118	Duncan,A.B., S. Fellous, R. Accot, M. Alart, K	Parasite-Mediated Protection Against Osmo	FEMS Microbiol. Ecol.74(2): 353-360	2010
2163190	CONC1/ONLY CONC TESTED//	164118	Duncan,A.B., S. Fellous, R. Accot, M. Alart, K	Parasite-Mediated Protection Against Osmo	FEMS Microbiol. Ecol.74(2): 353-360	2010
2163088		163898	Santos,B., R. Ribeiro, I. Domingues, R. Pereir	Salinity and Copper Interactive Effects on Pe	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2163089		163898	Santos,B., R. Ribeiro, I. Domingues, R. Pereir	Salinity and Copper Interactive Effects on Pe	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2163090		163898	Santos,B., R. Ribeiro, I. Domingues, R. Pereir	Salinity and Copper Interactive Effects on Pe	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2163087		163898	Santos,B., R. Ribeiro, I. Domingues, R. Pereir	Salinity and Copper Interactive Effects on Pe	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2162431	AP FREQ/REPLACED ONE TIME AT THE MIDP	163897	Shinn,C., A. Marco, and L. Serrano	Influence of Low Levels of Water Salinity on	Chemosphere92(9): 1154-1160	2013

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2163112		163898	Santos,B., R. Ribeiro, I. Domingues, R. Perei	Salinity and Copper Interactive Effects on P	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2163110		163898	Santos,B., R. Ribeiro, I. Domingues, R. Perei	Salinity and Copper Interactive Effects on P	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2163109		163898	Santos,B., R. Ribeiro, I. Domingues, R. Perei	Salinity and Copper Interactive Effects on P	Environ. Toxicol. Chem.32(8): 1864-1872	2013
2163111		163898	Santos,B., R. Ribeiro, I. Domingues, R. Perei	Salinity and Copper Interactive Effects on P	Environ. Toxicol. Chem.32(8): 1864-1872	2013
740693	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
741709	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
201543		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201542		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
231546	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231545	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231550	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231549	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231554	TESTID/7//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231544	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231553	TESTID/7//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231547	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231542	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231551	TESTID/7//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231548	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231540	TESTID/5//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231543	TESTID/6//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231539	TESTID/5//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231538	TESTID/5//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231552	TESTID/7//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231541	TESTID/5//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
741736	TIME/OTHER DURATION REPORTED//DNUM	105302	Kefford,B.J., C.G. Palmer, L. Pakhomova, and	Comparing Test Systems to Measure the Sal	Water SA30(4): 499-506	2004
196750		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196772		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196755		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196735		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196726		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196768		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196767		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196736		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196713		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196744		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196769		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196724		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196765		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196763		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
740694	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
759180	DOSES/NA mg/L//TESTID/6//OEF/LEACHAT	116913	Meyer,J.S., D.A. Sanchez, J.A. Brookman, D.	Chemistry and Aquatic Toxicity of Raw Oil S	Environ. Toxicol. Chem.4:559-572	1985
740696	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740697	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
196745		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196714		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196748		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196728		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196741		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196756		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196734		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196729		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196760		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196759		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196761		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196731		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196738		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196839		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196770		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196720		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196718		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196753		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196766		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196757		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196723		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196732		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196740		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
768104	DOSES/NA g/L//TESTID/40//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768105	DOSES/NA g/L//TESTID/40//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
201560		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
768072	DOSES/NA g/L//TESTID/32//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768073	DOSES/NA g/L//TESTID/32//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152828		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
768158	DOSES/NA g/L//TESTID/51//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768157	DOSES/NA g/L//TESTID/51//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
201562		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
768067	DOSES/NA g/L//TESTID/31//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768066	DOSES/NA g/L//TESTID/31//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768059	DOSES/NA g/L//TESTID/29//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768058	DOSES/NA g/L//TESTID/29//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768096	DOSES/NA g/L//TESTID/38//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768097	DOSES/NA g/L//TESTID/38//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
201537		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
768128	DOSES/NA g/L//TESTID/45//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768127	DOSES/NA g/L//TESTID/45//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
196716		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196749		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196722		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196751		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196711		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196737		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196712		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196764		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196742		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196746		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196733		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196758		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196773		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196725		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196752		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196715		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196730		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196727		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196771		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196721		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196739		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196754		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196717		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196747		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196743		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196762		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
196719		2145	Adelman,I.R., and L.L.,Jr. Smith	Standard Test Fish Development. Part I. Fat	EPA-600/3-76-061A, U.S.EPA, Duluth, MN:7	1976
768144	DOSES/NA g/L//TESTID/48//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768143	DOSES/NA g/L//TESTID/48//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768090	DOSES/NA g/L//TESTID/37//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768091	DOSES/NA g/L//TESTID/37//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2055548		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2055549		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2055550		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
2055542		157749	Robison,A.L.	Influence of Predation-Based Chemical Cue	M.S Thesis, Oklahoma State University, OK:	2011
741400	DNUM/2//DOSES/2 g/L//TESTID/1//	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
741744	TIME/MEASURED DURING RECOVERY.//DN	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
742666	TIME/MEASURED DURING RECOVERY.//DN	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
2163907		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163914		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
768089	DOSES/NA g/L//TESTID/36//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768088	DOSES/NA g/L//TESTID/36//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768124	DOSES/NA g/L//TESTID/44//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768123	DOSES/NA g/L//TESTID/44//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768163	DOSES/NA g/L//TESTID/52//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768164	DOSES/NA g/L//TESTID/52//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768153	DOSES/NA g/L//TESTID/50//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768154	DOSES/NA g/L//TESTID/50//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768098	DOSES/NA g/L//TESTID/39//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768099	DOSES/NA g/L//TESTID/39//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768074	DOSES/NA g/L//TESTID/33//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768075	DOSES/NA g/L//TESTID/33//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767563	DOSES/NA mg/L//TESTID/14//OEF/EFFLUEN	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
768080	DOSES/NA g/L//TESTID/34//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768081	DOSES/NA g/L//TESTID/34//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
742059	DNUM/2//DOSES/4490 mg/L//TESTID/17//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742029	DNUM/2//DOSES/4490 mg/L//TESTID/12//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742057	DNUM/2//DOSES/4490 mg/L//TESTID/15//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742070	DNUM/2//DOSES/4490 mg/L//TESTID/18//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
784793	TESTID/7//	106784	Pistole,D.H., J.D. Peles, and K. Taylor	Influence of Metal Concentrations, Percent	Comp. Biochem. Physiol. C Comp. Pharmac	2008
742077	DNUM/2//DOSES/4490 mg/L//TESTID/21//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742932	DNUM/2//DOSES/4490 mg/L//TESTID/19//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
742058	DNUM/2//DOSES/4490 mg/L//TESTID/16//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Den	1989
160325	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160324	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
68599		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
42865		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
167862		5230	Adelman,I.R., L.L.,Jr. Smith, and G.D. Siesen	Acute Toxicity of Sodium Chloride, Pentachl	J. Fish. Res. Board Can.33(2): 203-208	1976
167861		5230	Adelman,I.R., L.L.,Jr. Smith, and G.D. Siesen	Acute Toxicity of Sodium Chloride, Pentachl	J. Fish. Res. Board Can.33(2): 203-208	1976
14383		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
96885		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
42866		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
768114	DOSES/NA g/L//TESTID/42//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768113	DOSES/NA g/L//TESTID/42//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768108	DOSES/NA g/L//TESTID/41//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768107	DOSES/NA g/L//TESTID/41//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
201538		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
768083	DOSES/NA g/L//TESTID/35//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768082	DOSES/NA g/L//TESTID/35//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768138	DOSES/NA g/L//TESTID/47//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768137	DOSES/NA g/L//TESTID/47//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768147	DOSES/NA g/L//TESTID/49//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768148	DOSES/NA g/L//TESTID/49//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768064	DOSES/NA g/L//TESTID/30//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768065	DOSES/NA g/L//TESTID/30//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
768134	DOSES/NA g/L//TESTID/46//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768133	DOSES/NA g/L//TESTID/46//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768117	DOSES/NA g/L//TESTID/43//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
768118	DOSES/NA g/L//TESTID/43//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
201561		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
767566	DOSES/NA mg/L//TESTID/15//OEF/EFFLUEN	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
96881		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
768559	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
69057		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
160323	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
42423		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
96906		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
96907		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
14389		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
2210509	CONC1/ONLY CONC TESTED//	165478	EA Engineering Science and Technology	Results of Acute and Chronic Toxicity Testin	Report 2900, EA Engineering, Science, and T	1998
768558	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
68598		16510	Pickering,Q.H., J.M. Lazorchak, and K.L. Win	Subchronic Sensitivity of One-, Four-, and Se	Environ. Toxicol. Chem.15(3): 353-359	1996
742691	TIME/MEASURED DURING RECOVERY//DNU	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
741410	DNUM/2//DOSES/2.2 g/L//TESTID/2//CONC	102785	Diamond,J., M. Bowersox, H. Latimer, C. Bar	Effects of Pulsed Contaminant Exposures or	Arch. Environ. Contam. Toxicol.49(4): 511-5	2005
742027	DNUM/2//DOSES/4490 mg/L//TESTID/20//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
742030	DNUM/2//DOSES/4490 mg/L//TESTID/14//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
742026	DNUM/2//DOSES/4490 mg/L//TESTID/13//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
231532	TESTID/3//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231528	TESTID/3//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231531	TESTID/3//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231530	TESTID/3//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231529	TESTID/3//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
26115		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
26116		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2060321	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060324	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060323	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2061003		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
747953	DNUM/2//DOSES/284 mg/L//TESTID/1//CO	56635	Schuytema,G.S., and A.V. Nebeker	Comparative Effects of Ammonium and Nitr	Arch. Environ. Contam. Toxicol.36(2): 200-2	1999
741586	CONC1/ONLY CONC TESTED//	103247	Umeda,N., H. Nibe, T. Hara, and N. Hirazaw	Effects of Various Treatments on Hatching o	Aquaculture253(1-4): 148-153	2006
741559	CONC1/ONLY CONC TESTED//	103247	Umeda,N., H. Nibe, T. Hara, and N. Hirazaw	Effects of Various Treatments on Hatching o	Aquaculture253(1-4): 148-153	2006
742665	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741795	DNUM/4//DOSES/1000/5000/10000 mg/l//	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
742664	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741756	DNUM/4//DOSES/1000/5000/10000 mg/l//	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741783	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741751	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
2060370	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060369	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060365	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060367	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060362	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060368	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2060371	CONTR/B,C//	112901	ENVIRON International Corp.	Chloride Toxicity Test Results	Project No.20-22235A, Report Prepared for	2009
2058029		154143	Denoel,M., M. Bichot, G.F. Ficetola, J. Delco	Cumulative Effects of Road De-Icing Salt on	Aquat. Toxicol.99(2): 275-280	2010
2061008		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2170552	CONC1/ONLY CONC TESTED//	164438	McDermott,A.J., and B.D. Petty	Use of Iodized Versus Non-Iodized Sodium C	J. Appl. Aquacult.23(4): 351-357	2011
740692	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740691	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
41933	CONTR/0 % MORT//TIME/NEARLY IMMEDIA	2700	Stangenberg,M.	The Influence of the Chemical Composition	Limnologica9(3): 421-426	1975
41934	CONTR/0 % MORT, POND WATER//CODE/IN	2700	Stangenberg,M.	The Influence of the Chemical Composition	Limnologica9(3): 421-426	1975
740686	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740685	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2061035		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
2075473		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075472		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
231556	TESTID/8//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231560	TESTID/9//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231561	TESTID/9//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231559	TESTID/9//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231557	TESTID/8//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231558	TESTID/8//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231562	TESTID/9//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
231555	TESTID/8//MSMT/NR//DOSES/NR//SOURCE	2050	Wurtz,C.B., and C.H. Bridges	Preliminary Results From Macro-Invertebra	Proc. Pa. Acad. Sci.35:51-56	1961
741781	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
84265		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
83067		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
10561		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
84260		16355	Diamond,J.M., E.L. Winchester, D.G. Mackle	Use of the Mayfly Stenonema modestum (H	Environ. Toxicol. Chem.11(3): 415-425	1992
2061027		115450	Santagata,S., K. Bacela, D.F. Reid, K.A. Mcle	Concentrated Sodium Chloride Brine Solutio	Environ. Toxicol. Chem.28(2): 346-353	2009
741743	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741788	DNUM/4//DOSES/1000/5000/10000 mg/l//	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
741742	DNUM/5//DOSES/1000/2500/5000/10000 r	68238	Blasius,B.J., and R.W. Merritt	Field and Laboratory Investigations on the E	Environ. Pollut.120(2): 219-231	2002
161742		17845	Goetsch,P.A., and C.G. Palmer	Salinity Tolerances of Selected Macroinvert	Arch. Environ. Contam. Toxicol.32(1): 32-41	1997
161744	EFCT %/FROM GRAPH//	17845	Goetsch,P.A., and C.G. Palmer	Salinity Tolerances of Selected Macroinvert	Arch. Environ. Contam. Toxicol.32(1): 32-41	1997
2075476		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2075477		158924	Soucek,D.J., T.K. Linton, C.D. Tarr, A. Dickins	Influence of Water Hardness and Sulfate on	Environ. Toxicol. Chem.30(4): 930-938	2011
2152833		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
803853	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
741562	TIME/OTHER DURATIONS ALSO REPORTED/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
741561	TIME/OTHER DURATIONS ALSO REPORTED/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
741583	DNUM/6-7//DOSES/0.5 to 8.0 g/L//TESTID/	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
803850	DNUM/6-7//DOSES/0.25 to 8.0 g/L//TESTID	100597	Bringolf,R.B., W.G. Cope, C.B. Eads, P.R. Laz	Acute and Chronic Toxicity of Technical-Gra	Environ. Toxicol. Chem.26(10): 2086-2093	2007
2064226		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064225		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064223		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
211034	CONTR/B,C//	56731	Goss,G.G., and C.M. Wood	The Effects of Acid and Acid/Aluminum Exp	J. Fish Biol.32(1): 63-76	1988
67863		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
67862		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18178		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18176		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18177		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18179		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
764340	DOSES/NA ppm//TESTID/9//OEF/MIXTURE,	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
764585	DOSES/NA ppm//TESTID/28//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
759286	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759285	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759267	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759268	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759266	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759265	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
766604	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766435	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766426	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767351	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766436	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
2017050		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017049		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017048		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017057		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017059		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017058		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017040		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017042		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017041		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017029		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017030		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017031		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766228	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766227	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766225	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766224	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766221	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766222	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766223	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766226	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
759078	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759072	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759073	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
761596	DNUM/6//DOSES/854/1181/1259/1355/13	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
767459	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766432	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767457	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766427	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
160330	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767456	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767412	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767375	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766430	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767380	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767353	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766418	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766433	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767350	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766428	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767411	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766419	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766437	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766431	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766215	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
160331	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
766429	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766434	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767454	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766216	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
767376	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
766576	CL/273.7 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766609	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766554	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766567	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766580	CL/491 mg/L//DNUM/6-7//DOSES/NA mg/L	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766565	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766607	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766556	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766720	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
766574	CL/101.5 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766740	DNUM/7//DOSES/7742/989/1299/1713/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766739	DNUM/7//DOSES/7742/989/1299/1713/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766717	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766577	CL/281.3 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766560	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766603	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766575	CL/102.8 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766581	CL/491.7 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766722	CL/25 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766573	CL/100.4 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766730	DNUM/7//DOSES/780/1011/1318/1727/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766731	DNUM/7//DOSES/780/1011/1318/1727/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766578	CL/288.3 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766595	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766586	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766610	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766745	DNUM/7//DOSES/7742/989/1299/1713/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766555	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766566	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766718	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766570	CL/25.1 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766723	CL/100 mg/L//DNUM/6-7//DOSES/NA mg/L	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766605	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766591	CL/34 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766724	CL/300 mg/L//DNUM/6-7//DOSES/NA mg/L	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766572	CL/24.9 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766548	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766606	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766585	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766588	CL/34 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766608	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766551	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766563	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
767585	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767586	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767587	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
766854	DNUM/8//DOSES/594.9/710.4/851.7/873.4	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766592	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766726	CL/500 mg/L//DNUM/6-7//DOSES/NA mg/L	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766748	DNUM/7//DOSES/780/1011/1318/1727/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EP	2005
766587	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766612	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766561	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766590	CL/34 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766593	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766594	CL/1.9 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766571	CL/24.6 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766584	CL/497.7 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Regu	Environ. Toxicol. Chem.26(4): 773-779	2007
766217	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766218	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
18144		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18145		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
84497		13712	Arambasic,M.B., S. Bjelic, and G. Subakov	Acute Toxicity of Heavy Metals (Copper, Lea	Water Res.29(2): 497-503	1995
767473	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
759175	DOSES/NA mg/L//TESTID/1//OEF/LEACHAT	116913	Meyer,J.S., D.A. Sanchez, J.A. Brookman, D.B	Chemistry and Aquatic Toxicity of Raw Oil S	Environ. Toxicol. Chem.4:559-572	1985
767575	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767574	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
119467		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Salt	Proc. La. Acad. Sci.23:77-85	1961
767294	DOSES/NA mg/L//TESTID/6//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767307	CA/37.0 mg/L//MG/3.2 mg/L//NA/32.8 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767306	DOSES/NA mg/L//TESTID/18//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767296	DOSES/NA mg/L//TESTID/8//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767303	CA/27.2 mg/L//MG/9.2 mg/L//NA/32.8 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767295	DOSES/NA mg/L//TESTID/7//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767298	DOSES/NA mg/L//TESTID/10//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767576	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
18452		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18147		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18453		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18454		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18451		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18450		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18146		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
759091	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759090	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759092	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
767297	DOSES/NA mg/L//TESTID/9//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767305	DOSES/NA mg/L//TESTID/17//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767299	CA/17.4 mg/L//MG/15.1 mg/L//NA/32.8 mg	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767496	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767494	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767475	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160332	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of M	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767491	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
160333	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767505	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767507	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
31684		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Sal	Proc. La. Acad. Sci.23:77-85	1961
2064207		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064204		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064206		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064205		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
764940	DNUM/2//DOSES/25 mg/L//TESTID/37//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
764943	DNUM/2//DOSES/635 mg/L//TESTID/40//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
764942	DNUM/2//DOSES/367 mg/L//TESTID/39//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
764936	DNUM/2//DOSES/24 mg/L//TESTID/3//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
766638	CL/26.6 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766642	CL/24.9 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766639	CL/25.4 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766712	CL/25 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766716	CL/500 mg/L//DNUM/6-7//DOSES/NA mg/L	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766618	CL/33.9 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766713	CL/33 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766641	CL/25.5 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766616	CL/33.6 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766625	CL/303.7 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766633	CL/25.1 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766631	CL/25.9 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766640	CL/25.5 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766644	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766627	CL/525.5 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766617	CL/33.7 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766624	CL/310.2 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766619	CL/108 mg/L//DNUM/6-7//DOSES/NA mg/L	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766714	CL/100 mg/L//DNUM/6-7//DOSES/NA mg/L	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766715	CL/300 mg/L//DNUM/6-7//DOSES/NA mg/L	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766629	CL/25.5 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766710	CL/15 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766623	CL/308 mg/L//DNUM/6-7//DOSES/NA mg/L	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
2017143		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017146		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017113		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017144		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766643	CL/25 mg/L//DNUM/6-7//DOSES/NA mg/L/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766630	CL/25.6 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766635	CL/25.6 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766711	CL/20 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766637	CL/25.3 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766622	CL/105.7 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
767601	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
766709	CL/10 mg/L//DNUM/6-7//DOSES/NA mg/L/	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766628	CL/445 mg/L//DNUM/6-7//DOSES/NA mg/L	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766626	CL/485 mg/L//DNUM/6-7//DOSES/NA mg/L	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766636	CL/24.9 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766632	CL/26.1 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766634	CL/26.3 mg/L//DNUM/6-7//DOSES/NA mg/	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
766621	CL/105.5 mg/L//DNUM/6-7//DOSES/NA mg	96313	Soucek,D.J.	Comparison of Hardness- and Chloride-Reg	Environ. Toxicol. Chem.26(4): 773-779	2007
2017145		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
764945	DNUM/2//DOSES/138 mg/L//TESTID/42//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
764947	DNUM/2//DOSES/642 mg/L//TESTID/44//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
767290	DOSES/NA mg/L//TESTID/2//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767310	CA/35.9 mg/L//MG/3.1 mg/L//NA/27.7 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767293	DOSES/NA mg/L//TESTID/5//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767291	DOSES/NA mg/L//TESTID/3//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767311	CA/26.3 mg/L//MG/8.9 mg/L//NA/27.7 mg/	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767312	CA/16.8 mg/L//MG/14.6 mg/L//NA/27.7 mg	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767289	DOSES/NA mg/L//TESTID/1//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
767599	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767600	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
759093	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759094	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759095	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
767292	DOSES/NA mg/L//TESTID/4//	97393	Davies,T.D., and K.J. Hall	Importance of Calcium in Modifying the Acu	Environ. Toxicol. Chem.26(6): 1243-1247	2007
766440	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766446	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766416	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766367	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766441	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766438	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766365	CA/17.6 mg/L//MG/12.1 mg/L//NA/26.3 mg	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766439	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766444	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766443	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766442	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766415	CA/32.7 mg/L//MG/6.1 mg/L//NA/26.3 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766445	CA/17.6* mg/L//MG/12.1* mg/L//NA/26.3	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766659	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766663	CL/5 mg/L//DNUM/6//DOSES/NA mg/L//TE	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766664	CL/5 mg/L//DNUM/6//DOSES/NA mg/L//TE	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
766658	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766666	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766662	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766657	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766656	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766665	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766661	CL/25 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
200196		5683	Academy of Natural Sciences	The Sensitivity of Aquatic Life to Certain Ch	Final Rep.No.RG-3965(C2R1), U.S.Public He	1960
40509	CONTR/NO MORT//	8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-2	1954
40508	CONTR/NO MORT//	8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-2	1954
18180		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-13	1965
13415		949	Patrick,R., J.,Jr. Cairns, and A. Scheier	The Relative Sensitivity of Diatoms, Snails, a	Prog. Fish-Cult.30(3): 137-140	1968
126071		930	Cairns,J.,Jr., and A. Scheier	The Relationship of Bluegill Sunfish Body Si	In: Proc.13th Ind.Waste Conf.,Series No.95,	1959
126072		930	Cairns,J.,Jr., and A. Scheier	The Relationship of Bluegill Sunfish Body Si	In: Proc.13th Ind.Waste Conf.,Series No.95,	1959
126070		930	Cairns,J.,Jr., and A. Scheier	The Relationship of Bluegill Sunfish Body Si	In: Proc.13th Ind.Waste Conf.,Series No.95,	1959
764588	DOSES/NA ppm//TESTID/29//OEF/MIXTURE	116751	Gohar,H.A.F., and H. El-Gindy	Tolerance of Vector Snails of Bilharziasis an	Proc. Egypt. Acad. Sci.16:37-48	1961
18150		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-13	1965
18151		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-13	1965
18152		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-13	1965
18149		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-13	1965
6211	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41636	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802675	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802668	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41641	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802670	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802671	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6217	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41642	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802677	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802667	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41640	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802664	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802665	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6214	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802678	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6216	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802669	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6215	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41635	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6212	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802672	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6213	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802663	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41637	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802674	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802676	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41638	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802673	DNUM/11//DOSES/NA ppm//TESTID/50//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
41639	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
6218	CONTR/< 10 % MORTALITY//	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
802666	DNUM/11//DOSES/NA ppm//TESTID/49//O	2012	Hughes,J.S.	Acute Toxicity of Thirty Chemicals to Striped	Proc. Annu. Conf. Western Assoc. State Gar	1973
759029	DNUM/3//DOSES/7500/10000 ppm//TESTI	115901	Beatty,D.D.	An Experimental Study of the Toxicity of So	M.S.Thesis, University of Wyoming, Laramie	1959
2017191		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766856	DNUM/8//DOSES/594.9/710.4/851.7/873.4	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
761598	DNUM/6//DOSES/854/1181/1259/1355/13	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
2017213		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017209		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017210		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017212		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017211		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
764930	DNUM/2//DOSES/214 mg/L//TESTID/27//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
764935	DNUM/2//DOSES/906 mg/L//TESTID/32//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
764929	DNUM/2//DOSES/160 mg/L//TESTID/26//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
2017182		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017178		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017181		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017180		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017179		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
764932	DNUM/2//DOSES/24 mg/L//TESTID/29//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
2017190		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017188		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017189		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
767594	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
759176	DOSES/NA mg/L//TESTID/2//OEF/LEACHATE	116913	Meyer,J.S., D.A. Sanchez, J.A. Brookman, D.	Chemistry and Aquatic Toxicity of Raw Oil S	Environ. Toxicol. Chem.4:559-572	1985
767593	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
2017168		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017172		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017171		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017170		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017169		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
764934	DNUM/2//DOSES/474 mg/L//TESTID/31//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
2163930		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Rar	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163923		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Rar	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
160335	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
160334	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160336	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
764928	DNUM/2//DOSES/24 mg/L//TESTID/25//	87256	Brix,K.V., J.S. Volosin, W.J. Adams, R.J. Reas	Effect of Sulfate Concentration on Acute To	Final Report TR - 111878 to the Electric Pow	1998
2017192		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
767592	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
18153		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18148		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2017315		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017301		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017306		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017304		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017313		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017316		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017314		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017312		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
747208	DNUM/2//DOSES/343 mg/L//TESTID/2//CO	56635	Schuytema,G.S., and A.V. Nebeker	Comparative Effects of Ammonium and Nitr	Arch. Environ. Contam. Toxicol.36(2): 200-2	1999
2017303		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017305		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766706	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TE	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766705	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TE	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766363	LIFESTG/POSTERIOR MARGIN//CA/17.6 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766707	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766364	LIFESTG/POSTERIOR MARGIN//CA/17.6 mg/	116417	Soucek,D.J., and A.J. Kennedy	Effects of Hardness, Chloride, and Acclimati	Environ. Toxicol. Chem.24(5): 1204-1210	2005
766703	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TE	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766704	CL/2 mg/L//DNUM/6//DOSES/NA mg/L//TE	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
766708	CL/33 mg/L//DNUM/6//DOSES/NA mg/L//T	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chro	Third Quarterly Report, Submitted to U.S.EF	2005
161740	EFCT %/FROM GRAPH//	17845	Goetsch,P.A., and C.G. Palmer	Salinity Tolerances of Selected Macroinvert	Arch. Environ. Contam. Toxicol.32(1): 32-41	1997
161739		17845	Goetsch,P.A., and C.G. Palmer	Salinity Tolerances of Selected Macroinvert	Arch. Environ. Contam. Toxicol.32(1): 32-41	1997
2052622	CONTR/B,C//	118808	Bendhack,F., and E.C. Urbinati	Mitigating Stress Effects During Transportat	J. Appl. Ichthyol.25(2): 201-205	2009
160500	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767397	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767360	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767399	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767463	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160498	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767462	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767317	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160497	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
2148118	EFCT%/FROM GRAPH//CONC1/ONLY CONC	160588	Duis,K., and A. Oberemm	Aluminium and Calcium - Key Factors Deter	Limnologica31(1): 3-10	2001
2148117	EFCT%/FROM GRAPH//CONC1/ONLY CONC	160588	Duis,K., and A. Oberemm	Aluminium and Calcium - Key Factors Deter	Limnologica31(1): 3-10	2001
2148116	EFCT%/FROM GRAPH//CONC1/ONLY CONC	160588	Duis,K., and A. Oberemm	Aluminium and Calcium - Key Factors Deter	Limnologica31(1): 3-10	2001
2148115	EFCT%/FROM GRAPH//CONC1/ONLY CONC	160588	Duis,K., and A. Oberemm	Aluminium and Calcium - Key Factors Deter	Limnologica31(1): 3-10	2001
759021	CHAR/56% TO 71% SULFATE//SO4/160* mg	115903	E.G. and G. Bionomics	The Chronic Toxicity of Sulfate to the Water	Res.Rep.No.BN-79-10-546, Submitted to Sm	1979
767483	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767467	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160499	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767469	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767484	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
759462	DNUM/2//DOSES/360 mg/L//TESTID/1//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759465	DNUM/2//DOSES/360 mg/L//TESTID/2//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
2063748		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2063749		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2063750		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
196198		5683	Academy of Natural Sciences	The Sensitivity of Aquatic Life to Certain Ch	Final Rep.No.RG-3965(C2R1), U.S.Public He	1960
26240		949	Patrick,R., J.,Jr. Cairns, and A. Scheier	The Relative Sensitivity of Diatoms, Snails, a	Prog. Fish-Cult.30(3): 137-140	1968
759023	SO4/10* mg/L//DNUM/6//DOSES/55/96 to	115904	E.G. and G. Bionomics	The Effects of Sulfate on Eggs and Fry of Rai	Res.Rep.No.BW-78-1-006, Submitted to Sm	1978
759024	SO4/10* mg/L//DNUM/6//DOSES/55/96 to	115904	E.G. and G. Bionomics	The Effects of Sulfate on Eggs and Fry of Rai	Res.Rep.No.BW-78-1-006, Submitted to Sm	1978
160503	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160502	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767512	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767515	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160501	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
749018	CHAR/POTASSIUM OXIDE, 18% SULFUR//DC	113019	Ragab,F.M.A., and N.M. Shoukry	Influence of Certain Fertilizers on the Activit	J. Egypt. Soc. Parasitol.36(3): 959-977	2006
748589	CHAR/POTASSIUM OXIDE, 18% SULFUR//DN	113019	Ragab,F.M.A., and N.M. Shoukry	Influence of Certain Fertilizers on the Activit	J. Egypt. Soc. Parasitol.36(3): 959-977	2006
748332	CHAR/POTASSIUM OXIDE, 18% SULFUR//DC	113019	Ragab,F.M.A., and N.M. Shoukry	Influence of Certain Fertilizers on the Activit	J. Egypt. Soc. Parasitol.36(3): 959-977	2006
767446	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767354	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767421	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767385	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767443	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767357	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767427	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767390	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160505	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160504	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767387	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767437	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767432	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767382	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2147175	ORG LIFESTAGE/LAST INSTAR//	107733	Camargo,J.A., and J.V. Ward	Ameliorating Effect of Sodium Chloride on t	ASTM Spec. Tech. Publ.2:62-72	1993
759765	DNUM/2//DOSES/340 mg/L//TESTID/2//OE	116265	Camargo,J.A., and J.V. Ward	Differential Sensitivity of Dugesia dorotocep	Arch. Environ. Contam. Toxicol.23(1): 59-63	1992
2147174	ORG LIFESTAGE/EARLY INSTAR//	107733	Camargo,J.A., and J.V. Ward	Ameliorating Effect of Sodium Chloride on t	ASTM Spec. Tech. Publ.2:62-72	1993
767501	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767482	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767477	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
767508	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767480	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767479	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160506	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
767503	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
767510	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160507	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
114033		11011	Fisher,S.W., P. Stromberg, K.A. Bruner, and	Molluscicidal Activity of Potassium to the Ze	Aquat. Toxicol.20:219-234	1991
759759	DNUM/2//DOSES/95 mg/L//TESTID/1//OEF	116265	Camargo,J.A., and J.V. Ward	Differential Sensitivity of Dugesia dorotocep	Arch. Environ. Contam. Toxicol.23(1): 59-63	1992
40514		8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-2	1954
160510	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160509	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160508	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
748333	CHAR/POTASSIUM OXIDE, 18% SULFUR//DC	113019	Ragab,F.M.A., and N.M. Shoukry	Influence of Certain Fertilizers on the Activit	J. Egypt. Soc. Parasitol.36(3): 959-977	2006
748588	CHAR/POTASSIUM OXIDE, 18% SULFUR//DC	113019	Ragab,F.M.A., and N.M. Shoukry	Influence of Certain Fertilizers on the Activit	J. Egypt. Soc. Parasitol.36(3): 959-977	2006
22954		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
22953		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
22952		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
167635		18605	Tatara,C.P., M.C. Newman, J.T. McCloskey, a	Predicting Relative Metal Toxicity with Ion C	Aquat. Toxicol.39(3-4): 279-290	1997
160513	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768177	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768178	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768277	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160514	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768176	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
22960	O EFCT CONT/MEDIAN LETHALCONC//CON	5339	Baudouin,M.F., and P. Scoppa	Acute Toxicity of Various Metals to Freshwa	Bull. Environ. Contam. Toxicol.12(6): 745-75	1974
160516	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
25475		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
25474		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
25476		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
768454	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768393	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768501	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768392	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768395	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768451	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160515	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768390	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768456	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768503	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2064007		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064009		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2064004		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2054796		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054792		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054794		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054791		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054795		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054793		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
121880	EFCT/TERATOGENS COUNTED AS LETHAL//	11838	Birge,W.J., J.A. Black, A.G. Westerman, and	Aquatic Toxicity Tests on Inorganic Element	In: C.Gale (Ed.), EPA-600/9-80-022, Oil Shale	1980
22955		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
22957		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
22956		5421	Boutet,C., and C. Chaisemartin	Specific Toxic Properties of Metallic Salts in	Comptes Rendus Seances Soc. Biol. Fil.167(	1973
160517	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160518	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160519	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
740705	DNUM/2//DOSES/14.12 mg/l//TESTID/3//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
740706	DNUM/2//DOSES/32.71 mg/l//TESTID/4//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
741940	DNUM/2//DOSES/32.71 mg/l//TESTID/4//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
741939	DNUM/2//DOSES/14.12 mg/l//TESTID/3//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
2163065	CONTR/B,C// CONC1/ONLY CONC TESTED//	164119	Sanchez Navarro,B., N.K. Michiels, H.R. Kohl	Differential Expression of Heat Shock Protei	Hydrobiologia636:393-400	2009
2064918	CONTR/C,O,O=TAP WATER// CONC1/ONLY	2868	Wooldridge,C.R., and D.P. Wooldridge	Internal Damage in an Aquatic Beetle Expos	Ann. Entomol. Soc. Am.62(4): 921-933	1969
2173768	CONC1/ONLY CONC TESTED//	83190	Luo,S.Q., M.C. Plowman, S.M. Hopfer, and F	Mg2+ -Deprivation Enhances and Mg2+ -Su	Ann. Clin. Lab. Sci.23(2): 121-129	1993
2173772	CONC1/ONLY CONC TESTED//	83190	Luo,S.Q., M.C. Plowman, S.M. Hopfer, and F	Mg2+ -Deprivation Enhances and Mg2+ -Su	Ann. Clin. Lab. Sci.23(2): 121-129	1993
741341	TIME/EMERGENCE TO ADULT//DNUM/11//	107041	Kardatzke,J.T.	Effect of Addition of Calcium Chloride to La	Mosq. News41:11-12	1981
741319	TIME/EMERGENCE TO ADULT//DNUM/11//	107041	Kardatzke,J.T.	Effect of Addition of Calcium Chloride to La	Mosq. News41:11-12	1981
741323	TIME/EMERGENCE TO ADULT//DNUM/11//	107041	Kardatzke,J.T.	Effect of Addition of Calcium Chloride to La	Mosq. News41:11-12	1981
741305	TIME/EMERGENCE TO ADULT//DNUM/11//	107041	Kardatzke,J.T.	Effect of Addition of Calcium Chloride to La	Mosq. News41:11-12	1981
742028	TIME/EMERGENCE TO ADULT//DNUM/11//	107041	Kardatzke,J.T.	Effect of Addition of Calcium Chloride to La	Mosq. News41:11-12	1981
741324	TIME/EMERGENCE TO ADULT//DNUM/11//	107041	Kardatzke,J.T.	Effect of Addition of Calcium Chloride to La	Mosq. News41:11-12	1981
2147187		110666	Olasehinde,G.I., and J.P.O. Oyerinde	Effect of Calcium Chloride on Growth and S	Res. J. Parasitol.2(2): 82-86	2007
167631		18605	Tatara,C.P., M.C. Newman, J.T. McCloskey, a	Predicting Relative Metal Toxicity with Ion C	Aquat. Toxicol.39(3-4): 279-290	1997
2152764	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
767342	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160619	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160620	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768180	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768283	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768183	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2152765	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
768284	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768181	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768182	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768286	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relations	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
742988	DNUM/6//DOSES/4190/4310/4810/5250/5	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2057502	CONC1/ONLY CONC TESTED//	150277	Craig,P.M., C.M. Wood, and G.B. McClelland	Water Chemistry Alters Gene Expression an	Environ. Sci. Technol.44(6): 2156-2162	2010
44241		5339	Baudouin,M.F., and P. Scoppa	Acute Toxicity of Various Metals to Freshwa	Bull. Environ. Contam. Toxicol.12(6): 745-75	1974
768399	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160622	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
768396	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768462	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
2152738	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152737	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152736	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
18686		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18685		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18688		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18684		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18683		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18687		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
742079	DNUM/6//DOSES/410/470/580/660/760 m	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
768457	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768402	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768460	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768398	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160621	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
32466		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Sal	Proc. La. Acad. Sci.23:77-85	1961
119478		2465	Dowden,B.F.	Cumulative Toxicities of Some Inorganic Sal	Proc. La. Acad. Sci.23:77-85	1961
2153763	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153676	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740759	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740760	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740732	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153700	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153697	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740761	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2063733		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2063726		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
2063735		508	Wallen,I.E., W.C. Greer, and R. Lasater	Toxicity to Gambusia affinis of Certain Pure	Sewage Ind. Wastes29(6): 695-711	1957
740765	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740777	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740778	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
19522		949	Patrick,R., J.,Jr. Cairns, and A. Scheier	The Relative Sensitivity of Diatoms, Snails, a	Prog. Fish-Cult.30(3): 137-140	1968
741717	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
196145		5683	Academy of Natural Sciences	The Sensitivity of Aquatic Life to Certain Che	Final Rep.No.RG-3965(C2R1), U.S.Public Hea	1960
40507		8037	Trama,F.B.	The Acute Toxicity of Some Common Salts o	Proc. Acad. Nat. Sci. Philadelphia106:185-20	1954
2153801	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
126054		930	Cairns,J.,Jr., and A. Scheier	The Relationship of Bluegill Sunfish Body Siz	In: Proc.13th Ind.Waste Conf.,Series No.95,	1959
126052		930	Cairns,J.,Jr., and A. Scheier	The Relationship of Bluegill Sunfish Body Siz	In: Proc.13th Ind.Waste Conf.,Series No.95,	1959
126053		930	Cairns,J.,Jr., and A. Scheier	The Relationship of Bluegill Sunfish Body Siz	In: Proc.13th Ind.Waste Conf.,Series No.95,	1959
18689		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2054808		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054805		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054806		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054807		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054803		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
2054804		154088	Harless,M.L., C.J. Huckins, J.B. Grant, and T.	Effects of Six Chemical Deicers on Larval Wo	Environ. Toxicol. Chem.30(7): 1637-1641	2011
18693		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18691		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18690		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
18692		915	Dowden,B.F., and H.J. Bennett	Toxicity of Selected Chemicals to Certain An	J. Water Pollut. Control Fed.37(9): 1308-131	1965
2153798	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740767	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
184730		19887	Seals,C., C.J. Kempton, J.R.,Jr. Tomasso, and	Environmental Calcium Does not Affect Pro	Prog. Fish-Cult.56(4): 269-272	1994
2152710	CONC1/ONLY CONC TESTED//	67697	Richards,J.G., and R.C. Playle	Protective Effects of Calcium Against the Ph	Can. J. Zool.77(7): 1035-1047	1999
759027	SO4/10* mg/L//DNUM/2//DOSES/850 mg/L	115904	E.G. and G. Bionomics	The Effects of Sulfate on Eggs and Fry of Rai	Res.Rep.No.BW-78-1-006, Submitted to Sm	1978
759028	SO4/10* mg/L//DNUM/2//DOSES/850 mg/L	115904	E.G. and G. Bionomics	The Effects of Sulfate on Eggs and Fry of Rai	Res.Rep.No.BW-78-1-006, Submitted to Sm	1978
99472		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
99476		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
99478		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
61681		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
99477		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
61680		12497	Tsuji,S., Y. Tonogai, Y. Ito, and S. Kanoh	The Influence of Rearing Temperatures on t	Jpn. J. Toxicol. Environ. Health32(1): 46-53	1986
160623	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
741718	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153836	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153835	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
768541	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
768539	CA/14.0* mg/L//MG/12.0* mg/L//NA/26.3*	14761	Mount,D.R., and D.D. Gulley	Development of a Salinity/Toxicity Relation	Final Rep.GRI-92/0301, ENSR Contract No.5	1992
160624	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
160625	HARD/MODERATELYHARD//	18272	Mount,D.R., D.D. Gulley, J.R. Hockett, T.D. G	Statistical Models to Predict the Toxicity of	Environ. Toxicol. Chem.16(10): 2009-2019	1997
742032	DNUM/6//DOSES/1760/2000/2260/2540/2	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
742060	DNUM/2//DOSES/2840 mg/L//TESTID/24//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
742031	DNUM/2//DOSES/2840 mg/L//TESTID/23//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
740738	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
742933	DNUM/2//DOSES/2840 mg/L//TESTID/22//	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
742078	DNUM/6//DOSES/1760/2000/2260/2540/2	19549	Price,E.E.	Response of Freshwater and Saltwater Toxi	Ph.D.Thesis, University of North Texas, Dent	1989
742890	DNUM/2//DOSES/62.94 mg/l//TESTID/2//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
741711	DNUM/2//DOSES/24.95 mg/l//TESTID/1//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
741932	DNUM/2//DOSES/24.95 mg/l//TESTID/1//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
740701	DNUM/2//DOSES/62.94 mg/l//TESTID/2//O	84868	Silva,L.V.F., J.I. Golombieski, and B. Baldisse	Incubation of Silver Catfish, Rhamdia queler	Aquaculture228(1-4): 279-287	2003
740730	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
55003		2700	Stangenberg,M.	The Influence of the Chemical Composition	Limnologica9(3): 421-426	1975
740744	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2153802	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740734	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
740779	CONC1/ONLY CONC TESTED//	76054	Waller,D.L., S.W. Fisher, and H. Dabrowska	Prevention of Zebra Mussel Infestation and	Prog. Fish-Cult.58(2): 77-84	1996
2064902	CONTR/C,O,O=TAP WATER// CONC1/ONLY	2868	Wooldridge,C.R., and D.P. Wooldridge	Internal Damage in an Aquatic Beetle Expos	Ann. Entomol. Soc. Am.62(4): 921-933	1969
2060129		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
2060130		118322	Lazorchak,J.M., M.E. Smith, and H.J. Haring	Development and Validation of a Daphnia m	Environ. Toxicol. Chem.28(5): 1028-1034	2009
793903	DNUM/7//DOSES/0.6/0.69/0.8/0.9/1.0/1.2	62282	Utz,L.R.P., and M.B.C. Bohrer	Acute and Chronic Toxicity of Potassium Chl	Bull. Environ. Contam. Toxicol.66(3): 379-38	2001
761758	DOSES/NA mg/L//TESTID/5//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761759	DOSES/NA mg/L//TESTID/5//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
17106	O EFCT CONT/ACTIVITY//	2022	Biesinger,K.E., and G.M. Christensen	Effects of Various Metals on Survival, Growt	J. Fish. Res. Board Can.29(12): 1691-1700	1972
13816	O EFCT CONT/ACTIVITY//	2022	Biesinger,K.E., and G.M. Christensen	Effects of Various Metals on Survival, Growt	J. Fish. Res. Board Can.29(12): 1691-1700	1972
759476	DNUM/2//DOSES/24 mg/L//TESTID/8//CON	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759475	DNUM/2//DOSES/24 mg/L//TESTID/7//CON	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
2254703	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254689	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254694	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254764	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254701	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254763		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254782	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254746		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2255473	CONC1/HIGHER CONCS NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254766	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254699		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254707	EFCT%/FROM GRAPH//CONC1/ALL HIGHER	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254702	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254695	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254762	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254700		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254684	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254691	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254690	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254759		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
767230	DNUM/3//DOSES/1000/1250 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
767232	DNUM/3//DOSES/1000/1250 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
2153175	CA/RECALCULATED//	159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153081		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153082		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153174	CA/RECALCULATED//	159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
759472	DNUM/2//DOSES/360 mg/L//TESTID/6//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759471	DNUM/2//DOSES/360 mg/L//TESTID/5//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
2153176	CA/RECALCULATED//	159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153177	CA/RECALCULATED//	159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153102		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
2153101		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
767204	DNUM/3//DOSES/1000/2000 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
767205	DNUM/3//DOSES/1000/2000 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
741875	DNUM/13//DOSES/5/10/15/20/25/30/40/5	52919	Padmavathi,P., and M.K.D. Prasad	An Effective and Economically Feasible Trea	J. Environ. Biol.19(3): 193-203	1998
2152821		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152822		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152820		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152823		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152824		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
759400	DNUM/9//DOSES/1.3/1.9 to 2.5/2.7/3.3 to	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759401	DNUM/9//DOSES/1.3/1.9 to 2.5/2.7/3.3 to	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
759403	DNUM/9//DOSES/1.3/1.9 to 2.5/2.7/3.3 to	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
767972	DOSES/NA g/L//TESTID/25//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767971	DOSES/NA g/L//TESTID/25//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767883	DOSES/NA g/L//TESTID/15//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767884	DOSES/NA g/L//TESTID/15//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767957	DOSES/NA g/L//TESTID/22//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767958	DOSES/NA g/L//TESTID/22//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766861	DOSES/NA g/L//TESTID/3//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766860	DOSES/NA g/L//TESTID/3//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767901	DOSES/NA g/L//TESTID/20//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767902	DOSES/NA g/L//TESTID/20//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767553	DOSES/NA mg/L//TESTID/10//OEF/EFFLUEN	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
742896	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741947	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741679	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761582	DOSES/NA g/L//TESTID/18//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741938	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
767860	DOSES/NA g/L//TESTID/10//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767861	DOSES/NA g/L//TESTID/10//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767868	DOSES/NA g/L//TESTID/12//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767869	DOSES/NA g/L//TESTID/12//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766869	DOSES/NA g/L//TESTID/5//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766868	DOSES/NA g/L//TESTID/5//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2153272		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153273		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767875	DOSES/NA g/L//TESTID/13//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
767874	DOSES/NA g/L//TESTID/13//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152726	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152725	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152727	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
767893	DOSES/NA g/L//TESTID/18//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767894	DOSES/NA g/L//TESTID/18//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152721		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152731		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767877	DOSES/NA g/L//TESTID/14//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767876	DOSES/NA g/L//TESTID/14//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767858	DOSES/NA g/L//TESTID/9//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767859	DOSES/NA g/L//TESTID/9//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2152855		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152873		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767552	DOSES/NA mg/L//TESTID/9//OEF/EFFLUENT	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
2153276		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153275		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153278		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153279		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
741688	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
742568	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741661	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
207720	CONC/FROM GRAPH//	45168	Cowgill,U.M., and D.P. Milazzo	The Response of the Three Brood Ceriodaph	Arch. Environ. Contam. Toxicol.21(1): 35-40	1991
2146818		161067	Allert,A.L., C.L. Cole-Neal, and J.F. Fairchild	Toxicity of Chloride Under Winter Low-Flow	Bull. Environ. Contam. Toxicol.89(2): 296-30	2012
2146819		161067	Allert,A.L., C.L. Cole-Neal, and J.F. Fairchild	Toxicity of Chloride Under Winter Low-Flow	Bull. Environ. Contam. Toxicol.89(2): 296-30	2012
741952	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761594	DOSES/NA g/L//TESTID/24//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741936	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761578	DOSES/NA g/L//TESTID/16//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761586	DOSES/NA g/L//TESTID/20//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741950	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761580	DOSES/NA g/L//TESTID/17//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
742564	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741953	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742900	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741944	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742898	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741951	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741929	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761575	DOSES/NA g/L//TESTID/14//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761574	DOSES/NA g/L//TESTID/14//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761587	DOSES/NA g/L//TESTID/20//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741937	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742892	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742894	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742895	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741957	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742891	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761576	DOSES/NA g/L//TESTID/15//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761590	DOSES/NA g/L//TESTID/22//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
2148464		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148463		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148479		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148480		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148473		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148474		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
767853	DOSES/NA g/L//TESTID/8//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767852	DOSES/NA g/L//TESTID/8//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767956	DOSES/NA g/L//TESTID/21//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767955	DOSES/NA g/L//TESTID/21//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767850	DOSES/NA g/L//TESTID/7//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767851	DOSES/NA g/L//TESTID/7//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766862	DOSES/NA g/L//TESTID/4//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766863	DOSES/NA g/L//TESTID/4//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767866	DOSES/NA g/L//TESTID/11//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767867	DOSES/NA g/L//TESTID/11//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766870	DOSES/NA g/L//TESTID/6//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
766871	DOSES/NA g/L//TESTID/6//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767892	DOSES/NA g/L//TESTID/17//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767891	DOSES/NA g/L//TESTID/17//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767885	DOSES/NA g/L//TESTID/16//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767886	DOSES/NA g/L//TESTID/16//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767963	DOSES/NA g/L//TESTID/23//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767964	DOSES/NA g/L//TESTID/23//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2153269		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153270		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767899	DOSES/NA g/L//TESTID/19//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767900	DOSES/NA g/L//TESTID/19//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767965	DOSES/NA g/L//TESTID/24//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767966	DOSES/NA g/L//TESTID/24//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
2153267		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152881		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
767974	DOSES/NA g/L//TESTID/26//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767973	DOSES/NA g/L//TESTID/26//	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
251022	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
251024	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120834	TESTID/23//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120851	TESTID/32//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120833	TESTID/22//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251019	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251014	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
741538		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
741566		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
120830	TESTID/20//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120832	TESTID/21//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120852	TESTID/33//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120853	TESTID/34//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120850	TESTID/31//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251020	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120836	TESTID/25//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251023	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251017	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120856	TESTID/36//COMPEP/3//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120849	TESTID/30//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251016	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251013	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120846	TESTID/27//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120835	TESTID/24//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120848	TESTID/29//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251010	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251015	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251011	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251021	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120847	TESTID/28//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120854	TESTID/35//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
120831	TESTID/26//	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251018	TESTID/37//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
251012	TESTID/36//DOSES/<0.3/0.3/0.5/0.9/1.5/2.	11152	DeGraeve,G.M., J.D. Cooney, B.H. Marsh, T.	Variability in the Performance of the 7-D Ce	Environ. Toxicol. Chem.11(6): 851-866	1992
742893	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741958	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761585	DOSES/NA g/L//TESTID/19//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761579	DOSES/NA g/L//TESTID/16//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741948	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761577	DOSES/NA g/L//TESTID/15//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761588	DOSES/NA g/L//TESTID/21//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761589	DOSES/NA g/L//TESTID/21//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761572	DOSES/NA g/L//TESTID/13//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761573	DOSES/NA g/L//TESTID/13//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
742901	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741949	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761584	DOSES/NA g/L//TESTID/19//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761591	DOSES/NA g/L//TESTID/22//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761595	DOSES/NA g/L//TESTID/24//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
741943	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741648	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742563	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761583	DOSES/NA g/L//TESTID/18//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761593	DOSES/NA g/L//TESTID/23//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761581	DOSES/NA g/L//TESTID/17//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
761592	DOSES/NA g/L//TESTID/23//	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
742899	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742565	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741649	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741945	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741946	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741959	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
741942	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
742897	DNUM/5//DOSES/0.25/0.5/1.0/2.0 g/L//TES	71919	Aragao,M.A., and E.V. Pereira	Sensitivity of Ceriodaphnia dubia of Differer	Bull. Environ. Contam. Toxicol.70(6): 1247-1	2003
761753	DOSES/NA mg/L//TESTID/2//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761752	DOSES/NA mg/L//TESTID/2//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
741696	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741654	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741659	DNUM/7//DOSES/0.21/0.44/0.85/1.3/1.7/2	71674	Harmon,S.M., W.L. Specht, and G.T. Chandl	A Comparison of the Daphnids Ceriodaphni	Arch. Environ. Contam. Toxicol.45(1): 79-85	2003
741546		106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
741530	CL/<1 ug/L//DNUM/9//DOSES/13/22/36/61	106169	Cowgill,U.M., and D.P. Milazzo	The Sensitivity of Two Cladocerans to Wate	Arch. Environ. Contam. Toxicol.21(2): 218-2	1991
2164764		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164766		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164761		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164763		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164765		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164767		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164768		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164769		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164770		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164762		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2152714	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152713	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152715	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152734		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152733		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
2152735		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152732		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2164729		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
2164728		163942	Kolkmeier,M.A., and B.W. Brooks	Sublethal Silver and NaCl Toxicity in Daphni	Ecotoxicology22(4): 693-706	2013
201550		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201552		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201549		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201548		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201547		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
201551		45826	Birge,W.J., J.A. Black, A.G. Westerman, T.M.	Recommendations on Numerical Values for	University of Kentucky, Lexington, KY:73 p.	1985
2160498		158428	Bezirci,G., S.B. Akkas, K. Rinke, F. Yildirim, Z.	Impacts of Salinity and Fish-Exuded Kairomo	Ecotoxicology21:601-614	2012
773634	DNUM/4//DOSES/1/10/100 mg/L//TESTID/	95838	Park,J.W., J. Rinchard, F. Liu, T.A. Anderson,	The Thyroid Endocrine Disruptor Perchlorat	Ecotoxicol. Environ. Saf.63(3): 343-352	2006
773635	DNUM/4//DOSES/1/10/100 mg/L//TESTID/	95838	Park,J.W., J. Rinchard, F. Liu, T.A. Anderson,	The Thyroid Endocrine Disruptor Perchlorat	Ecotoxicol. Environ. Saf.63(3): 343-352	2006
2152784		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152783		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152786		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152785		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2163917		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163920	EFCT%/FROM GRAPH//	163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163918		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163919		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163916		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2254781	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254792	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254801	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254784	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254788	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254793	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254797		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254804	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254803	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254798		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254785	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254805	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254789	EFCT%/FROM GRAPH//CONC1/HIGHEST CO	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254802	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254800	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254810	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254813	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
767224	DNUM/3//DOSES/1000/2000 ppm//TESTID	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
767225	DNUM/3//DOSES/1000/2000 ppm//TESTID	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
2152796		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152810		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152808		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152807		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2152809		158449	Elphick,J.R.F., K.D. Bergh, and H.C. Bailey	Chronic Toxicity of Chloride to Freshwater S	Environ. Toxicol. Chem.30(1): 239-246	2011
2153137		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Acuatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
759367	DNUM/9//DOSES/0.8/1.1/1.4/1.9/2.5/3.4/4	114021	Slaughter,A.R., C.G. Palmer, and W.J. Muller	A Chronic Toxicity Test Protocol Using Carid	Afr. J. Aquat. Sci.33(1): 37-44	2008
2148468		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148476		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148475		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148470		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2148469		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
759076	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759077	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759074	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759075	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
2017032		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
761597	DNUM/6//DOSES/854/1181/1259/1355/13	116754	Stark,J.	Bioassay Report Chronic Toxicity Tests. Con	SF Analytical Laboratories Inc., Milwaukee,	1999
2148467		158925	Lasier,P.J., and I.R. Hardin	Observed and Predicted Reproduction of Ce	Environ. Toxicol. Chem.29(2): 347-358	2010
2017033		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017036		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017034		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017035		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017043		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017044		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017047	CONC1/Cl - NC TO 813//	153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017046		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
766735	DNUM/7//DOSES/780/1011/1318/1727/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chror	Third Quarterly Report, Submitted to U.S.EF	2005
766734	DNUM/7//DOSES/780/1011/1318/1727/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chror	Third Quarterly Report, Submitted to U.S.EF	2005
766738	DNUM/7//DOSES/7742/989/1299/1713/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chror	Third Quarterly Report, Submitted to U.S.EF	2005
766737	DNUM/7//DOSES/7742/989/1299/1713/22	116831	Illinois National History Survey	Effects of Water Quality on Acute and Chror	Third Quarterly Report, Submitted to U.S.EF	2005
766855	DNUM/8//DOSES/594.9/710.4/851.7/873.4	116830	Sanders,D.F.	Site Water Bioassays for Huff and Huff, Inco	IPS Environmental and Analytical Services, A	1993
767589	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767588	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767590	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767591	DNUM/6//DOSES/203/510/1060/3650/746	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
766354	DNUM/2//DOSES/1000 mg/L//TESTID/3/C	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766229	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766344	DNUM/2//DOSES/1000 mg/L//TESTID/3/C	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766355	DNUM/2//DOSES/1000 mg/L//TESTID/3/C	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766230	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766231	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766351	DNUM/2//DOSES/1000 mg/L//TESTID/3/C	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766356	DNUM/2//DOSES/1000 mg/L//TESTID/3/C	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007

Result Number	General Comments	Reference Number	Author	Title	Source	Publication Year
766232	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766233	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
766234	DNUM/7//DOSES/>500 to <3500 mg/L//TES	114662	Soucek,D.J.	Bioenergetic Effects of Sodium Sulfate on th	Ecotoxicology16(3): 317-325	2007
2017051		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017054		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017053		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017055		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017052		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017061		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017063		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017064		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017062		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017060		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017045		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
761751	DOSES/NA mg/L//TESTID/1//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761750	DOSES/NA mg/L//TESTID/1//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
786725	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
786731	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
786730	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
786726	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
786727	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
786729	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
786728	CA/0.909 mM//MG/0.141 mM//NA/6.513 r	104819	Bianchini,A., and C.M. Wood	Does Sulfide or Water Hardness Protect Aga	Ecotoxicol. Environ. Saf.71:32-40	2008
2017147		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017150		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017151		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017148		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
2017149		153684	Elphick,J.R., M. Davies, G. Gilron, E.C. Canar	An Aquatic Toxicological Evaluation of Sulfa	Environ. Toxicol. Chem.30(1): 247-253	2011
767570	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767571	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767573	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
767572	DNUM/6//DOSES/203/510/1060/3500/715	116817	Aquatic Toxicology Group	Brenda Mines Sulphate and Molybdenum T	Proj.Rep.No.2-11-825/826, Prepared for No	1998
759086	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759088	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759089	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
759087	DNUM/6//DOSES/200/500/1000/3000/600	116829	Pickard,J., P. McKee, and J. Stroiazzo	Site Specific Multi-Species Toxicity Testing o	In: W.A.Price, B.Hurt and C.Howell (Eds.), Pr	1999
2163934		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163936	EFCT%/FROM GRAPH//	163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163933		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163935		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
2163932		163896	Squires,A.J., M.G. Dube, and L.D. Rozon-Ran	Assessing the Sublethal Effects of In-River C	Environ. Toxicol. Chem.32(3): 662-672	2013
759464	DNUM/2//DOSES/360 mg/L//TESTID/2//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759022	CHAR/56% TO 71% SULFATE//SO4/160* mg	115903	E.G. and G. Bionomics	The Chronic Toxicity of Sulfate to the Water	Res.Rep.No.BN-79-10-546, Submitted to Sm	1979
759463	DNUM/2//DOSES/360 mg/L//TESTID/1//CO	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
759484	DNUM/6//DOSES/240/300/420/740/1600 r	107318	Leblanc,G.A., and D.C. Surprenant	The Influence of Mineral Salts on Fecundity	Hydrobiologia108:25-31	1984
767210	DNUM/3//DOSES/1000/2500 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
767211	DNUM/3//DOSES/1000/2500 ppm//TESTID/	116922	Mostafa,B.B.	Effect of Certain Salts on Biomphalaria alexa	Egypt. J. Bilharz.19:75-88	1997
2153133		159438	Van Dam,R.A., A.C. Hogan, C.D. McCullough	Aquatic Toxicity of Magnesium Sulfate, and	Environ. Toxicol. Chem.29(2): 410-421	2010
22951	O EFCT CONT/ACTIVITY//	2022	Biesinger,K.E., and G.M. Christensen	Effects of Various Metals on Survival, Growt	J. Fish. Res. Board Can.29(12): 1691-1700	1972
2148185	CONTR/C,O,O=EGTA, O=TAP WATER// OTIM	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148186	CONTR/C,O,O=EGTA, O=TAP WATER// EFCT	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148187	CONTR/C,O,O=EGTA, O=TAP WATER// OTIM	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2152768	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152767	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152766	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
761756	DOSES/NA mg/L//TESTID/4//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
761757	DOSES/NA mg/L//TESTID/4//OEF/MICROTO	116816	Taylor,P.A., A.J. Stewart, and L. Holt	Toxicity of Common Salts to Three Biotoxici	Prepared for Presentation at American Insti	1988
2148354	ETIME/1065 PPM CONC ONLY RUN FOR 4 W	106764	Mazuran,N., V. Hrsak, M. Tomic, and D. Pap	Effects of CaCl2 and CaBr2 on the Fecundity	Chemosphere38(10): 2345-2355	1999
48480		2022	Biesinger,K.E., and G.M. Christensen	Effects of Various Metals on Survival, Growt	J. Fish. Res. Board Can.29(12): 1691-1700	1972
2152741	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152740	TMETH/APHA, 1989//	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2152739	TMETH/APHA, 1989// CONC1/FROM GRAPH	119414	Cowgill,U.M., and D.P. Milazzo	Demographic Effects of Salinity, Water Hard	Arch. Hydrobiol.122(1): 33-56	1991
2148178	CONTR/C,O,O=EGTA, O=TAP WATER// EFCT	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148142	CONTR/C,O,O=EGTA, O=TAP WATER// EFCT	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148177	CONTR/C,O,O=EGTA, O=TAP WATER// OTIM	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148149	EFCT%/FROM GRAPH//	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148148	EFCT%/FROM GRAPH//	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148139	CONTR/C,O,O=EGTA, O=TAP WATER// OTIM	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148141	CONTR/C,O,O=EGTA, O=TAP WATER// EFCT	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2148137	CONTR/C,O,O=EGTA, O=TAP WATER// OTIM	118584	Zuccarelli,M.D., and R.L. Ingermann	Calcium-Induced Quiescence of Sperm Moti	J. Exp. Zool.307:590-599	2007
2254841	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254825	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254852		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254826	EFCT%/FROM GRAPH//CONC1/ALL OTHER C	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254842		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254853	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254861	CONC1/HIGHEST CONC NOT REPORTED//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254847		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254814	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254817	EFCT%/FROM GRAPH//	164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013
2254859		164683	Dziewulska,K., and J. Domagala	Effect of pH and Cation Concentrations on S	Theriogenology79:48-58	2013

Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Thursday, September 29, 2016 11:34 AM
To: Heather Ferguson
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

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3 Innwood Circle, Suite 220 • Little Rock, AR 72211 (501) 225-7779 • fax (501) 225-6738
hlf@ftn-assoc.com http://www.ftn-assoc.com

Heather Ferguson

From:	Heather Ferguson [hlf@ftn-assoc.com]
Sent:	Thursday, September 29, 2016 11:46 AM
To:	'Kesler, Karen'
Cc:	James Malcolm; Patrick Downey
Subject:	RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

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From:	Jim Malcolm [jtm@ftn-assoc.com]
Sent:	Thursday, September 29, 2016 1:43 PM
To:	'Heather Ferguson'; 'Kesler, Karen'
Cc:	'Patrick Downey'; James Malcolm
Subject:	RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

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Sent: Thursday, September 29, 2016 2:06 PM
To: Jim Malcolm
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Hi Jim,

Yes, the flight back went smoothly. Thank you for taking the time to show me around and really explain how the remediation process is going to work. It really helps me to have a greater understanding of how the whole system works. It was great to get to see it in person.

Thanks again,
Karen

From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Thursday, September 29, 2016 1:43 PM
To: 'Heather Ferguson' <hlf@ftn-assoc.com>; Kesler, Karen <Kesler.Karen@epa.gov>
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From:	Heather Ferguson [hlf@ftn-assoc.com]
Sent:	Wednesday, November 02, 2016 2:15 PM
To:	'Kesler, Karen'
Cc:	'Sarah Clem'; James Malcolm; Patrick Downey
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To: Heather Ferguson
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Sent: Friday, November 04, 2016 2:27 PM
To: 'Kesler, Karen'; 'Heather Ferguson'
Cc: 'Sarah Clem'; 'James Malcolm'; 'Crocker, Philip'
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas
Attachments: Kunz_et_al-2013-Environmental_Toxicology_and_Chemistry mussels.pdf; Lassier and Hardin 2010.pdf; Mount et al 1997.pdf; Mount_et_al-2016-Environmental_Toxicology_and_Chemistry(1).pdf; Soucek nad Kennedy 2005-Environmental_Toxicology_and_Chemistry several inverts.pdf; Soucek_et_al-2011-Environmental_Toxicology_and_Chemistry fingernail clams.pdf

Karen,

"More than one chemical" refers to a study (maybe 2) that looked at ions plus metals. In those studies the main toxicant was the metal so they were not relevant to this analysis. I have attached several studies that look at combinations of ions.

We hope that this provides sufficient information for you to complete your review.

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Pat Downey
Senior Project Manager
FTN Associates, Ltd.
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Environmental Toxicology and Chemistry, Vol. 32, No. 12, pp. 2826–2835, 2013

Printed in the USA

USE OF RECONSTITUTED WATERS TO EVALUATE EFFECTS OF ELEVATED MAJOR IONS ASSOCIATED WITH MOUNTAINTOP COAL MINING ON FRESHWATER INVERTEBRATES

JAMES L. KUNZ,*† JUSTIN M. CONLEY,‡ DAVID B. BUCHWALTER,‡ TERESA J. NORBERG-KING,§ NILE E. KEMBLE,† NING WANG,† and CHRISTOPHER G. INGERSOLL†

†US Geological Survey, Columbia Environmental Research Center, Columbia, Missouri

‡North Carolina State University, Raleigh, North Carolina

§US Environmental Protection Agency, Duluth, Minnesota

(Submitted 18 January 2013; Returned for Revision 2 April 2013; Accepted 21 August 2013)

Abstract: In previous laboratory chronic 7-d toxicity tests conducted with the cladoceran *Ceriodaphnia dubia*, surface waters collected from Appalachian sites impacted by coal mining have shown toxic effects associated with elevated total dissolved solids (TDS). The objective of the present study was to evaluate the effects of elevated major ions in chronic laboratory tests with *C. dubia* (7-d exposure), a unionid mussel (*Lampsilis siliquoidea*; 28-d exposure), an amphipod (*Hyalella azteca*; 28-d exposure), and a mayfly (*Centroptilum triangulifer*; 35-d exposure) in 3 reconstituted waters designed to be representative of 3 Appalachian sites impacted by coal mining. Two of the reconstituted waters had ionic compositions representative of alkaline mine drainage associated with mountaintop removal and valley fill-impacted streams (Winding Shoals and Boardtree, with elevated Mg, Ca, K, SO_4, HCO_3), and a third reconstituted water had an ionic composition representative of neutralized mine drainage (Upper Dempsey, with elevated Na, K, SO_4, and HCO_3). The waters with similar conductivities but, with different ionic compositions had different effects on the test organisms. The Winding Shoals and Boardtree reconstituted waters were consistently toxic to the mussel, the amphipod, and the mayfly. In contrast, the Upper Dempsey reconstituted water was toxic to the mussel, the amphipod, and the cladoceran but was not toxic to the mayfly. These results indicate that, although elevated TDS can be correlated with toxicity, the specific major ion composition of the water is important. Moreover, the choice of test organism is critical, particularly if a test species is to be used as a surrogate for a range of faunal groups. *Environ Toxicol Chem* 2013;32:2826–2835. © 2013 SETAC

Keywords: Invertebrate toxicology   Mussels   Mayfly   Major ion toxicity

INTRODUCTION

Salinization of freshwater as a result of increased concentrations of major cations or major anions is a growing global concern that can result from a wide variety of human activities [1]. Major ions contributing to elevated total dissolved solids (TDS; often estimated using conductivity as a surrogate measurement) may include various combinations of Ca, Mg, Na, K, sulfate (SO_4), chloride (Cl), and bicarbonate (HCO_3), as well as other ions [2]. In North America, examples of activities that result in increased TDS include mountaintop mining of coal (and resultant valley filling [3]), coal processing [4,5], and the use of de-icing agents and road salts [6]. Although previous work has highlighted the potential for elevated TDS to be toxic to aquatic organisms [2,7–9], general understanding of TDS toxicity is currently inadequate, given the complexity of ionic matrices constituting high-TDS–impacted surface waters and the diversity of aquatic organisms inhabiting these waters.

Elevated concentrations of TDS in streams and rivers are widespread throughout the coal mining regions of Appalachia associated with mountaintop removal and valley fill [10,11]. During mountaintop coal mining and other surface mining, overburden layers are removed to mine the underlying coal seams. The overburden is returned to the mined areas or is deposited in headwater valleys, forming valley fills [12]. Natural streams in this region are dilute, with conductivity generally below 100 μS/cm. However, conductivity is greater than 1000 μS/cm in streams with surface mining activities in the absence of other major TDS sources. Elevated conductivity found in surface mining streams can result from precipitation and ground water percolating through the pulverized overburden containing sulfate and carbonate materials, creating alkaline mine drainage [13].

Studies of macroinvertebrate communities from Kentucky, Virginia, West Virginia, and Pennsylvania impacted by mountaintop removal have shown that conductivity explains a substantial amount of the variance associated with various benthic assessment metrics [10]. Because macroinvertebrates inhabit dilute streams in the region, increased concentrations of major ions or ionic imbalance has been suggested to be contributing to this impairment of benthic communities. At other sites across North America, conductivity above 2000 μS/cm or TDS above about 1340 mg/L reportedly represents conditions that may adversely affect freshwater organisms [2,8,9]. In contrast, more than 90% of the sites in West Virginia and Kentucky receiving runoff water from coalfields exhibit impaired macroinvertebrate index of biotic integrity (IBI) scores when conductivity is greater than 500 μS/cm [10]. Mayflies (Ephemeroptera) are reportedly highly sensitive to TDS in these locations. Component major ions that elevate conductivity in alkaline mine drainage in these areas include Mg, Ca, K, HCO_3, and SO_4.

In the absence of any other toxicant, major ions can be acutely or chronically toxic to aquatic life [9]. However, the correlation between increasing TDS or conductivity and toxicity varies with

All Supplemental Data may be found in the online version of this article.

* Address correspondence to jkunz@usgs.gov

Published online in Wiley Online Library (wileyonlinelibrary.com).

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ionic composition; therefore, TDS or conductivity measurements alone may not provide a basis to estimate reliably the toxicity of samples with differing ionic balances [9]. Moreover, ionic strength and ionic imbalance can both contribute to the toxicity of water to freshwater organisms [14,15].

The toxicity of major ions has been evaluated in 24-h to 96-h exposures with 3 commonly tested freshwater species (the cladocerans *Ceriodaphnia dubia* and *Daphnia magna* and fathead minnow *Pimephales promelas*) [7]. The relative ion toxicity was $K > HCO_3 \approx Mg > Cl > SO_4$, with *C. dubia* tending to be more sensitive compared with *D. magna* or *P. promelas* [7]. However, laboratory toxicity tests with reconstituted waters have not been conducted with test organisms more representative of taxa inhabiting freshwater Appalachian streams impacted by mountaintop removal and valley fill, including mayflies and mussels [13].

The objective of the present study was to evaluate the effects of elevated major ions in chronic laboratory tests with 4 aquatic invertebrates exposed to dilutions of 3 reconstituted waters designed to be representative of 3 Appalachian sites impacted by coal mining in southwestern West Virginia with high TDS downstream of valley fill: Winding Shoals Branch, Boardtree Branch, and Upper Dempsey Branch [13]. These 3 test sites were chosen from among multiple field-collected site waters previously demonstrated to be toxic to *C. dubia* in chronic 7-d laboratory exposures and exhibit impaired populations of benthic invertebrates [13]. Two of these waters (Winding Shoals and Boardtree) had ionic signatures representative of alkaline mine drainage associated with streams affected by mountaintop removal and valley fill with elevated Mg, Ca, K, HCO_3, and SO_4), whereas Upper Dempsey had a somewhat different ionic composition, representing neutralized mine drainage or mine drainage that has experienced some cation exchange (elevated Na, K, SO_4, and HCO_3; Table 1 and Supplemental Data, Table S1 [13]).

The 3 reconstituted waters were used to conduct the chronic toxicity tests with a unionid mussel (*Lampsilis siliquoidea*; 28-d exposure), an amphipod (*Hyalella azteca*; 28-d exposure), and a cladoceran (*C. dubia*; 7-d exposure). Subsamples of the reconstituted waters were also provided to North Carolina State University, Raleigh, North Carolina, USA, for conducting exposures with a mayfly (*Centroptilum triangulifer*; 35-d exposure).

MATERIALS AND METHODS

Reconstituted test waters

The reconstituted waters were prepared at the Columbia Environmental Research Center in Columbia, Missouri, USA, by adding reagent-grade salts (K_2SO_4, $CaSO_4$, $NaHCO_3$, $MgSO_4$, NaCl, $CaCl_2$, or Na_2SO_4; Supplemental Data, Table S2) to well water or diluted well water to match the site water chemistry as closely as possible (Supplemental Data, Tables S1 and S3). The base water for Winding Shoals and Boardtree reconstituted waters was 25% well water and 75% deionized water, whereas the base water was 100% well water for Upper Dempsey reconstituted water (Supplemental Data, Table S2; the 100% well water was of approximately 300 mg/L hardness as $CaCO_3$, with a pH of approximately 8). Salt addition recipes for the reconstituted waters were calculated to minimize differences among individual major cations or anions (i.e., attempting to match each major cation or major anion within about 20% of the site water), with no attempt to adjust alkalinity or pH (Supplemental Data, Table S1). The initial recipes were modified (e.g., by reducing $NaHCO_3$ and not attempting to control alkalinity) to eliminate unwanted increases in pH and to ensure that the salts stayed in solution for the duration of the tests. Each salt was initially mixed individually in a 10-L jar with 8 L of the appropriate base water. The 10-L jars were placed on a stir plate and mixed for up to 24 h (depending on the solubility of individual salts). After the salts had been visibly dissolved, all salt solutions for a given reconstituted water were combined in 200-L plastic containers with a circulating pump and brought to a final volume of 130 with the appropriate base water. A similar process was used to prepare smaller 40-L samples of each reconstituted water for the second 2 wk of the exposures conducted at the Columbia Environmental Research Center or for use by North Carolina State University to conduct exposures with *C. triangulifer*.

Exposures with *L. siliquoidea, H. azteca*, and *C. dubia* were conducted in dilutions of Winding Shoals, Upper Dempsey, and Boardtree reconstituted waters (100%, 33%, and 10%, and a dilution water control). The *C. dubia* exposure with the Upper Dempsey reconstituted water had an additional dilution of 5% tested (in an attempt to define better the potential effects at the lower exposure concentration). All 3 reconstituted waters prepared at Columbia Environmental Research Center used

Table 1. Mean water quality characteristics of waters across all chronic toxicity tests in exposures conducted by the Columbia Environmental Research Center[a]

Treatment	Dissolved oxygen (mg/L)	pH	Conductivity (μS/cm)	Alkalinity (mg/L as $CaCO_3$)	Hardness (mg/L as $CaCO_3$)	Ammonia (mg N/L)	Major cations and anions (mg/L)					
							Ca	Mg	Na	K	Cl	SO_4
Winding Shoals												
0%	6.9 (0.8)	8.3 (0.2)	275 (25)	96 (9)	107 (10)	0.2 (0.2)	30 (2)	10 (1)	12 (2)	2 (1)	14 (2)	22 (3)
10%	7.2 (0.8)	8.2 (0.5)	504 (54)	93 (8)	223 (37)	0.3 (0.1)	42 (4)	38 (6)	14 (2)	4 (1)	13 (2)	141 (12)
33%	6.9 (1.1)	8.1 (0.1)	947 (48)	98 (3)	472 (13)	0.2 (0.1)	65 (3)	93 (3)	18 (1)	10 (1)	12 (1)	386 (33)
100%	7.2 (0.8)	8.1 (0.1)	1906 (162)	99 (6)	1154 (58)	0.3 (0.1)	109 (19)	216 (42)	24 (3)	21 (5)	12 (2)	1023 (138)
Boardtree												
0%	6.9 (0.8)	8.3 (0.2)	275 (25)	96 (9)	107 (10)	0.2 (0.2)	30 (2)	10 (1)	12 (2)	2 (1)	14 (2)	22 (3)
10%	7.0 (0.8)	8.1 (0.1)	565 (36)	84 (8)	262 (26)	0.3 (0.2)	55 (6)	41 (7)	13 (2)	4 (1)	12 (1)	180 (37)
33%	6.9 (1.1)	8.1 (0.1)	1121 (127)	84 (11)	585 (42)	0.7 (0.6)	100 (4)	96 (7)	12 (2)	8 (1)	12 (1)	489 (33)
100%	7.0 (0.8)	8.0 (0.2)	2367 (54)	72 (8)	1408 (37)	0.7 (0.1)	241 (4)	260 (6)	12 (2)	21 (1)	11 (2)	1580 (12)
Upper Dempsey												
0%	6.9 (0.8)	8.3 (0.2)	275 (25)	96 (9)	107 (10)	0.2 (0.2)	30 (2)	10 (1)	12 (2)	2 (1)	14 (2)	22 (3)
10%	6.9 (0.9)	8.3 (0.2)	448 (40)	110 (15)	122 (18)	0.3 (0.1)	33 (2)	13 (1)	52 (5)	3 (1)	15 (1)	78 (8)
33%	7.1 (0.8)	8.4 (0.1)	789 (55)	157 (14)	144 (13)	0.3 (0.1)	38 (2)	17 (1)	125 (6)	5 (1)	21 (3)	175 (17)
100%	6.8 (1.3)	8.4 (0.2)	1813 (157)	279 (20)	209 (36)	0.4 (0.1)	42 (9)	28 (1)	350 (16)	11 (1)	39 (2)	640 (77)

[a] Values are means with standard deviation in parenthesis ($n = 4$ to 15).

the same dilution water (control water) and were prepared by diluting well water with deionized water to a hardness of about 100 mg/L (as $CaCO_3$), alkalinity of 85 mg/L (as $CaCO_3$), and pH of approximately 8.3 (Supplemental Data, Table S3). Supplemental Data, Table S1, summarizes the target, nominal, and measured water-quality characteristics of the 3 test waters before dilution (i.e., at 100%). The *C. triangulifer* exposures were conducted in 2 rounds. Round 1 consisted of Winding Shoals, Upper Dempsey, and Boardtree waters at 100% and 50% and a dilution water control (50:50, well water:reconstituted soft water [16]; Supplemental Data, Table S3). Round 2 consisted of Winding Shoals water tested at 100%, 66%, and 33% and a dilution water control (30:70, well water:deionized water; Supplemental Data, Table S3). The first round of exposures with *C. triangulifer* was conducted to determine whether this organism would be responsive to the reconstituted waters. Given the results of round 1, the second round of *C. triangulifer* exposures was conducted to test the repeatability of results from round 1 (i.e., complete mortality at 100% strength) as well as to test additional dilutions of Winding Shoals water (i.e., 33% and 66%).

For exposures conducted at the Columbia Environmental Research Center, water-quality parameters (dissolved oxygen, pH, conductivity, hardness, alkalinity, ammonia) were determined in the control and all concentrations for each of the test waters at the beginning and the end of the tests, following standard methods [17]. In addition, dissolved oxygen and conductivity were measured weekly during the exposures. Concentrations of major ions (Ca, Mg, Na, K, Cl, SO_4) were determined in the control, and all concentrations were measured at the beginning and end of the test (except for the *C. dubia* test, because of limited water volume). Major ions were also measured in the water samples collected from newly prepared batches of reconstituted test waters. The analyses of the major ions were conducted by Engineering Surveys and Services Testing Laboratories at Columbia, Missouri, using a Perkin Elmer AAnalyst 800 atomic absorption spectrometer and a Thermo Scientific Genesys 20 visible spectrophotometer in accordance with standard methods [17]. For exposures conducted with *C. triangulifer* at North Carolina State University, water-quality parameters (pH, conductivity) were measured weekly for the duration of the exposures. Dissolved oxygen was not measured, because past studies at North Carolina State University have indicated that dissolved oxygen consistently remains at approximately 6 mg/L to 8 mg/L over this period, and *C. triangulifer* do not display evidence of oxygen limitation until dissolved oxygen reaches approximately 1 mg/L to 2 mg/L (D.B. Buchwalter, unpublished data). At the end of round 2 for *C. triangulifer*, 20-mL water samples were collected from each exposure, filtered through a 0.22-μm syringe filter (Fisherbrand), and shipped on ice to the Columbia Environmental Research Center for analyses of major ions. Mean measured concentrations of these water-quality parameters of the 3 reconstituted waters used in all toxicity tests are summarized in Table 1. More details on water-quality measurements for each test with a test species are summarized in Supplemental Data, Tables S1, S3, and S4.

Test organisms

Lampsilis siliquoidea (approximately 2 mo old) were obtained from laboratory cultures at Missouri State University, Springfield (see Wang et al. [18] for mussel culture method). *Hyalella azteca* (approximately 7 d old) and *C. dubia* (>24 h old) used to start the exposures were obtained from laboratory cultures at the Columbia Environmental Research Center (see Besser et al. [19] for methods used to culture *H. azteca* and Wang et al. [18] for methods used to culture *C. dubia*). These 3 species of test organisms were acclimated to the control dilution water and temperature for a minimum of 24 h before the start of the exposures [16,20–22]. Eggs of *C. triangulifer* (WCC-2 clone) were obtained from culture at Stroud Water Research Center, Avondale, Pennsylvania, USA. Exposures with *C. triangulifer* started with newly hatched larvae (first instar, ≤48 h old) placed directly into test water at ambient laboratory temperature of 21 °C.

Mussel testing (Lampsilis siliquoidea)

Static-renewal exposures with mussels were conducted for 28 d in accordance with methods outlined ASTM International [20] (Supplemental Data, Table S5). Toxicity endpoints included survival and shell length. Ten juvenile mussels exhibiting foot movement were impartially transferred into each of 4 replicate 300-mL glass beakers containing 100%, 33%, and 10% test water or into 8 replicates of the dilution water control at 23 °C. Each beaker had a 2.5-cm hole in the side covered with 50-mesh (279-μm width opening) stainless steel screen and contained 200 mL water. Mussels were fed 1 mL of an algal mixture [23] twice daily on Monday through Friday and were fed 2 mL once daily on the weekends. About 2 volumes of test water were added to each beaker with flow splitters once on Mondays, Wednesdays, and Fridays [24]. Mussels were transferred into new test beakers each week. Survival of mussels was determined at the end of the exposures based on foot movement within a 5-min observation period using a dissecting microscope [20]. Surviving mussels were isolated on day 28 and preserved in 8% formalin for subsequent shell length measurement. The maximum shell length of surviving mussels was measured to the nearest 0.001 mm using a digitizing system with video micrometer software (Image Caliper, Resolution Technology).

Amphipod testing (Hyalella azteca)

Static-renewal exposures with amphipods were conducted over 28 d in accordance with methods outlined by ASTM International [21] (Supplemental Data, Table S6). Toxicity endpoints included survival and biomass. At the beginning of the exposures, 10 amphipods were impartially transferred using a pipet into each of 4 replicate 300-mL glass beakers containing about 200 mL of 100%, 33%, and 10% test water or into 8 replicates of the dilution water control at 23 °C. A thin layer of substrate (5 mL fine sand) was added to each beaker. About 2 volumes of test water were added to each beaker with flow splitters once on Mondays, Wednesdays, and Fridays [24]. Amphipods were transferred into new test beakers each week. During exposure, amphipods in each beaker were fed 1.0 mL of yeast–cerophyll–trout chow (YCT; 1.7–1.9 g/L in a water suspension) daily. On day 28, the surviving amphipods were counted and preserved in 8% sugar formalin for subsequent length measurement. Lengths of surviving amphipods were measured from the base of the first antenna to the tip of the third uropod along the curve of the dorsal surface using a digitizing system with video micrometer software (Image Caliper, Resolution Technology) connected to a computer and a microscope. The biomass of surviving amphipods from each replicate was estimated as the sum of individual amphipod weights calculated from the empirical relationship: weight (mg) = $([0.177 \times \text{length (mm)}] - 0.0292)^3$ [25,26].

Cladoceran testing (Ceriodaphnia dubia)

Static-renewal, 3-brood exposures with the cladoceran were conducted for 7-d in accordance with ASTM International [22] (Supplemental Data, Table S7). Toxicity endpoints included survival and reproduction. Test organisms were transferred to test chambers by placing 1 organism in each of 10 30-mL replicate cups containing 15 mL of 100%, 33%, and 10% test water or into 10 replicates of the dilution water control at 25 °C. The Upper Dempsey exposure had an additional dilution of 5%. Each day before water renewal, first-generation organisms were recorded as alive or dead, and live organisms were then transferred to a new test chamber containing fresh solution. Cladocerans were fed 0.1 mL of YCT (1.7–1.9 g/L in a water suspension) and 0.1 mL algal concentrate (*Pseudokirchneriella subcapitata*, 3.0×10^7 cell/mL; Aquatic Biosystems) after daily water renewal. Exposures were conducted for 7 d or until >60% of the control organisms had produced 3 broods. The number of young released from first-generation females over each 24-h period was recorded daily.

Mayfly testing (Centroptilum triangulifer)

Static, nonrenewal exposures with *C. triangulifer* were conducted for a full life cycle (approximately 35 d; Supplemental Data, Table S8) [27–30]. The toxicity endpoints were adult survival and biomass. For each of the 2 rounds of experiments, nymphs were hatched from a single adult female clutch (clonal) to start all exposures. Two rounds of exposures were conducted. Round 1 consisted of controls and Boardtree, Upper Dempsey, and Winding Shoals waters at 100% and 50% strength. Round 2 consisted of controls and Winding Shoals water at 100%, 66%, and 33% strength. All treatments were conducted in triplicate, except in round 1, in which Upper Dempsey water exposures were conducted in duplicate because of a limited number of periphyton plates, and in round 2, in which 1 control and 1 33% Winding Shoals replicate developed a fungal growth on the periphyton surface and were omitted (resulting in $n = 2$ replicates). In round 1, each replicate received 20 nymphs; in round 2, each replicate received 15 nymphs. Mayflies were fed a natural periphyton diet grown at the Stroud Water Research Center by allowing fresh stream water from White Clay Creek, Pennsylvania, USA (39°51′47″N, 75°47′07″W) to flow continuously over acrylic plates ($6.5 \times 23 \times 0.15$ cm) in a greenhouse. Plates were cultivated until the periphyton had reached a thickness of about 1 to 2 mm and relatively uniform coverage, at which time the acrylic plates were shipped on ice overnight to North Carolina State University. Exposures were conducted in 2-L glass bottles with 1.8 L of exposure/control water, and nymphs were fed 2 sets of periphyton plates staggered 22 wk apart (i.e., days 0 and 14). Subimagos (i.e., subadults) emerged after hatching into mesh-lined collection lids during midafternoon to late afternoon. Subimagos were kept overnight in humid chambers containing moist paper towels to facilitate the final molt to adulthood. Gravid adults were stimulated to release eggs by wetting the abdomen in 3.5-cm Petri dishes containing 4.5 mL reconstituted soft water [16]. Adults (now postpartum) were stored in individual microcentrifuge tubes at −20 °C. Once all surviving organisms had emerged and the exposure was completed, the postpartum adults were removed from the freezer and dried at 65 °C for 48 h. Dried mayflies were individually weighed on a microbalance (Sartorius model CPA2P) to the nearest 0.001 mg.

Data analysis

Mean survival, individual length, or biomass (total dry wt of surviving organisms per replicate) of *L. siliquoidea* and *H. azteca* were calculated for each control and exposure replicate. Survival of *C. dubia* was calculated as number of individuals surviving in each treatment. Reproduction of *C. dubia* was calculated as the mean number of offspring across the control or exposure replicates.

Biomass of *C. triangulifer* was calculated based on the product of the mean body weight of surviving organisms and the number of survivors within a given replicate. Mean survival and mean biomass were calculated as the average across replicates for each control or treatment level, which had at least 3 replicates. Survival and biomass measures for controls in rounds 1 and 2 were pooled for comparison with Winding Shoals water because control performance was not significantly different between rounds. Mean survival and mean biomass were not calculated for exposures that had only 2 replicates (Upper Dempsey 50%, Upper Dempsey 100%, and Winding Shoals 33%); however, the biomass and survival of each of the 2 replicates are reported (Table 2).

The no-observed-effect concentration (NOEC) and lowest-observed-effect concentration (LOEC) for all endpoints were determined with TOXSTAT software (version 3.5; Western EcoSystems Technology) by one-way analysis of variance (ANOVA) with pairwise comparison performed using Williams' test. If the data were not normally distributed or did not have equal variances, Steel's many-one rank test or Wilcoxon rank sum test with Bonferroni adjustment was used for the determinations of NOEC and LOEC values [31]. An exception was that Wilcoxon rank sum test with Bonferroni adjustment was used to compare mean survival and biomass between the control and the Winding Shoals 50% or Boardtree 50% exposure treatments for *C. triangulifer*, because these tests had only 1 exposure treatment with partial mortality and at least 3 replicates (Table 2). The level of statistical significance was set at $\alpha = 0.05$. In most cases, no 20% effect concentration (EC20) could be estimated because the data from the toxicity test did not meet the conditions for any logistic regression analysis [32]. A 25% effect concentration (EC25) for *C. dubia* was estimated using the TOXSTAT software to compare responses of *C. dubia* in the present study and a previous study [13].

RESULTS

Water chemistry

Concentrations of major cation and major anions and relevant water-quality characteristics of site waters (target field chemistry reported by the US Environmental Protection Agency [USEPA] [13]) are presented in Supplemental Data, Table S1 as well as the nominal (predicted) and measured concentrations of the reconstituted waters. The quality of the reconstituted waters approximated the intended ionic compositions found in site waters (Supplemental Data, Table S1). The reconstituted Winding Shoals and Boardtree waters were largely similar to each other, with elevated concentrations of Ca, Mg, K, SO_4, and HCO_3, as opposed to Upper Dempsey water, which was high in K, Na, SO_4, and HCO_3. Relative to the dilution control water, the 100% Winding Shoals target water had proportionally higher concentrations of Ca (5.4×), Mg (24×), K (8.5×), SO_4 (44×), HCO_3 (19×), and conductivity (7.8×; Supplemental Data, Table S1). Relative to the dilution control water, the 100% Boardtree target water had proportionally higher concentrations of Ca (8.0×), Mg (25×), K (7.5×), SO_4 (69×), HCO_3 (6.0×), and conductivity (8.9×; Supplemental Data, Table S1). Relative to the dilution control water, the 100% Upper Dempsey target water had proportionally higher concentrations of Na (32×), K

Table 2. Responses of cladoceran (*Ceriodaphnia dubia*; 7-d exposures), mussel (*Lampsilis silquoidea*; 28-d exposures), amphipod (*Hyalella azteca*; 28-d exposure), and mayfly (*Centroptilum triangulifer*; ~35-d exposures) to 3 reconsituted water samples[a]

Treatment	Cladoceran		Mussel[b]		Amphipod[b]		Mayfly	
	Survival (%)	No. of young	Survival (%)	Length (mm)	Survival (%)	Biomass (mg)	Survival (%)[c]	Biomass (mg)[c]
Winding Shoals								
Control	90	28 (10)	89 (6)	2.93 (0.6)	86 (13)	3.21 (0.8)	84 (11)	8.5 (2.0)
10%	100	31 (5)	18 (17)[*]	2.79 (0.3)[d]	83 (29)	3.25 (2.1)	—	—
33%	90	30 (7)	8 (5)[*]	2.49 (0.7)[d]	73 (17)	1.27 (0.2)[*]	27/33[e]	1.9/2.2[e]
50%	—[f]	—	—	—	—	—	12 (20)[*]	1.0 (1.7)[*]
66%	—	—	—	—	—	—	0[*]	0[*]
100%	100	33 (4)	3 (5)[*]	ND	65 (26)	2.08 (0.9)[*]	0[*]	0[*]
NOEC	>100%	>100%	<10%	>100%	>100%	10%	<33%[g]	<33%[g]
LOEC	>100%	>100%	10%	>100%	>100%	33%	33%[g]	33%[g]
Boardtree								
Control	90	28 (10)	89 (6)	2.93 (0.6)	86 (13)	3.21 (0.8)	80 (10)	8.9 (2.7)
10%	80	23 (13)	45 (29)[*]	3.01 (0.3)	80 (18)	2.67 (1.3)	—	—
33%	80	21 (12)	10 (8)[*]	3.52 (0.5)[d]	73 (5)	2.53 (0.3)	—	—
50%	—	—	—	—	—	—	37 (13)[*]	3.7 (1.8)[*]
100%	100	22 (7)[*]	30 (25)[*]	2.91 (0.6)[d]	75 (10)	1.78 (0.2)[*]	0[*]	0[*]
NOEC	>100%	33%	<10%	>100%	>100%	33%	<50%	<50%
LOEC	>100%	100%	10%	>100%	>100%	100%	50%	50%
Upper Dempsey								
Control	100	40 (3)	89 (6)	2.93 (0.6)	86 (13)	3.21 (0.8)	80 (10)	8.9 (2.7)
5%	100	38 (6)	—	—	—	—	—	—
10%	100	36 (7)	25 (24)[*]	2.99 (0.5)	98 (5)	4.53 (0.3)	—	—
33%	90	36 (13)	13 (10)[*]	3.12 (0.4)[d]	95 (6)	3.55 (0.3)	—	—
50%	—	—	—	—	—	—	95/70[e]	11/7.9[e]
100%	40[*]	18 (13)[*]	15 (6)[*]	2.86 (0.5)	95 (10)	2.52 (0.2)[*]	100/80[e]	11/10[e]
NOEC	33%	33%	<10%	>100%	>100%	33%	>100%	>100%
LOEC	100%	100%	10%	>100%	>100%	100%	>100%	>100%

[a] Values are means with standard deviation in parentheses ($n = 10$ for the cladoceran and $n = 4$ for other species unless otherwise noted).
[b] Mean starting sizes (and standard deviations) were: mussels, 1.9 mm/individual (0.3, $n = 21$); and amphipods, 1.89 mm/individual (0.25, $n = 20$).
[c] $n = 3$, except for the control ($n = 5$), 33% ($n = 2$), and 100% ($n = 6$) treatments in the Winding Shoals water, the 50% and 100% treatments ($n = 2$) in the Upper Dempsey water.
[d] Based on 3 replicates as a result of 100% mortality in 1 replicate at these exposure concentrations.
[e] Two values were from the 2 replicates of this treatment and not used for statistical analysis.
[f] Species was not tested at this concentration.
[g] The 33% water was considered to be an effect concentration because the survival and biomass at this concentration was more than 60% less than those in the controls.
[*] Significant reduction relative to control ($p < 0.05$).
NOEC = no-observed-effect concentration; LOEC = lowest-observed-effect concentration; ND = not determined (because of limited number of organisms for growth measurement).

(4.8×), SO_4 (21×), HCO_3 (40×), and conductivity (7.9×; Supplemental Data, Table S1).

The 3 reconstituted waters were designed to replicate the target waters, although in some cases an adjustment of the composition of reconstituted waters was necessary, as described in *Materials and Methods*. With limited exceptions, the nominal concentrations of major cations and major anions in all 3 reconstituted waters were within 30% of field target waters. Differences between nominal concentrations and final measured concentrations were generally within 20% for all 3 reconstituted waters (Supplemental Data, Table S1). The most notable difference between the reconstituted waters and the 100% target waters was in alkalinity (no attempt was made to control alkalinity), the reconstituted waters being below target levels of alkalinity by 72% for Winding Shoals water, 38% for Boardtree water, and 57% for Upper Dempsey water. Measured concentrations of K and Cl were consistently higher in reconstituted waters compared with target waters or nominal reconstituted waters, but the absolute differences in concentrations were generally small (i.e., <5 mg/L).

The charge balance between major cations and major anions was relatively similar (within 2.7%) between target site water quality and measured reconstituted water quality for the Upper Dempsey and Boardtree waters (Supplemental Data, Table S1). However, for the Winding Shoals water, there was a 6.6% positive charge imbalance in the target site water and a 3.2% positive charge imbalance in the measured reconstituted water quality (Supplemental Data, Table S1). This imbalance indicates that combined concentrations of major anions in the Winding Shoals water were low (either analytical error or an omission of measuring other anions beyond HCO_3, Cl, or SO_4). Mean water-quality characteristics for each dilution averaged across all species exposures (Table 1) were similar to mean water-quality characteristics for each dilution for individual species exposures (Supplemental Data, Table S4).

Exposures

Control survival of *L. siliquoidea*, *H. azteca*, *C. dubia*, and *C. triangulifer* met the test acceptability criteria of >80% mean survival (Table 2). Reproduction of *C. dubia* also met the test acceptability criteria of >15 young/surviving female in the control and >60% of surviving females in controls producing 3 broods.

Dilutions of the Winding Shoals reconstituted waters were toxic to *L. siliquoidea* and *C. triangulifer* at the lowest concentrations tested (i.e., LOEC of 10% Winding Shoals for *L. siliquoidea* survival and LOEC of 33% Winding Shoals for *C. triangulifer* survival and biomass; Table 2). Survival of *L.*

siliquoidea and biomass of *C. triangulifer* decreased with increasing percentage of Winding Shoals reconstituted water (Figures 1 and 2). The Winding Shoals reconstituted water was also toxic to *H. azteca* (LOEC of 33% Winding Shoals for biomass; Table 2 and Figures 1 and 2). The Winding Shoals reconstituted water was not toxic to *C. dubia* (LOEC of >100% Winding Shoals; Table 2). By comparison, the USEPA [13] reported a 7-d EC25 for *C. dubia* of 32% Winding Shoals site water. The 100% site water from Winding Shoals had a conductivity of 2147 μS/cm [13], which is comparable to the

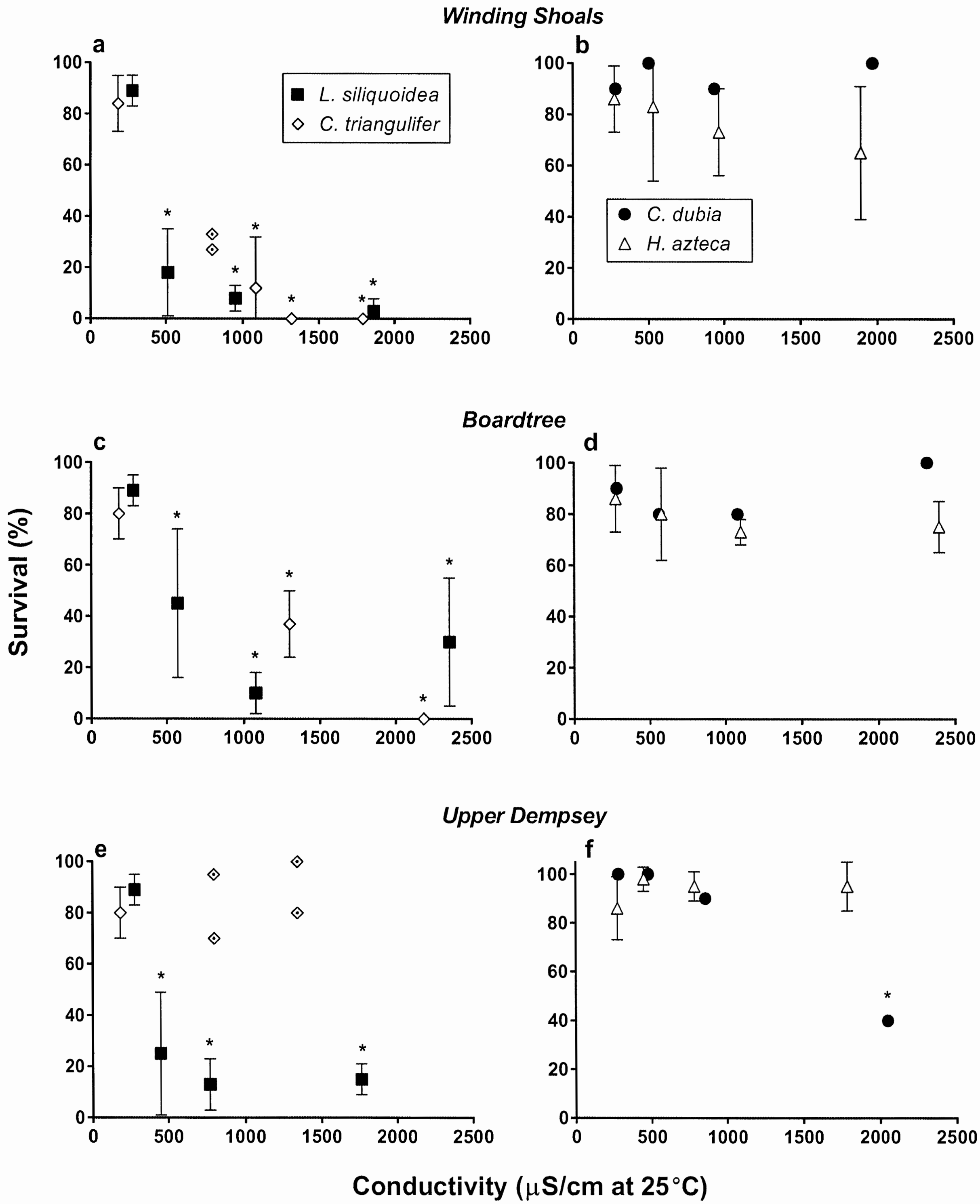

Figure 1. Mean survival of 4 freshwater invertebrates— *Lampsilis siliquoidea*, *Centroptilum triangulifer*, *Ceriodaphnia dubia*, and *Hyalella azteca*—versus conductivity of reconstituted waters. An asterisk (*) indicates significant difference compared with control group ($p \leq 0.05$). Error bars indicate standard deviation. The *C. dubia* data points do not have error bars, because survival was calculated as the percentage surviving among 10 individually exposed organisms. The *C. triangulifer* data points marked with a dot represent individual replicate responses for situations in which there were <3 replicates and a standard deviation could not be calculated.

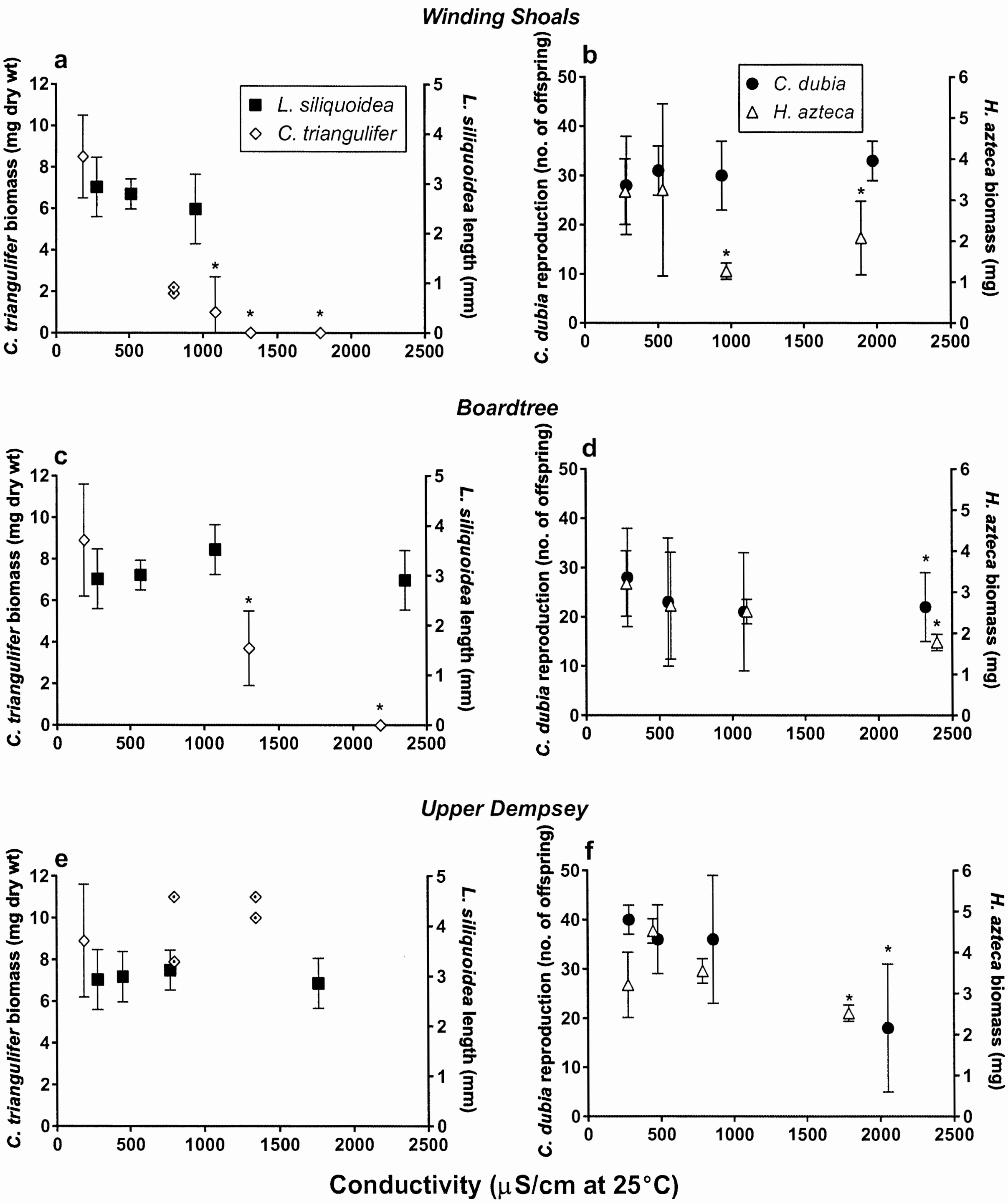

Figure 2. Sublethal response of 4 freshwater invertebrates—*Lampsilis siliquoidea*, *Centroptilum triangulifer*, *Ceriodaphnia dubia*, and *Hyalella azteca*—versus conductivity of reconstituted waters. An asterisk (*) indicates significant difference compared with control group ($p \leq 0.05$). Data points represent the mean of replicates for a given treatment. Error bars indicate standard deviation. The *C. triangulifer* data points marked with a dot represent individual replicate responses for situations in which there were <3 replicates and standard deviation could not be calculated.

conductivity of 1906 μS/cm in the 100% Winding Shoals reconstituted water (Table 1). Relative to the dilution water control, the 10% dilution of Winding Shoals reconstituted water that was toxic to *L. siliquoidea* had relatively higher proportional concentrations of Mg (3.8×), SO_4 (6.4×), and conductivity (1.8×; Supplemental Data, Table S1).

Dilutions of the Boardtree reconstituted waters were toxic to *L. siliquoidea* and to *C. triangulifer* at the lowest concentrations tested (LOEC of 10% Boardtree for *L. siliquoidea* survival and LOEC of 50% Boardtree for *C. triangulifer* survival or biomass; Table 2). Survival of *L. siliquoidea* and survival or biomass of *C. triangulifer* decreased with increasing percentage of Boardtree reconstituted water (Figures 1 and 2). The Boardtree reconstituted water was also toxic to *H. azteca* (LOEC of 100% Boardtree for biomass) and *C. dubia* (LOEC of 100% Boardtree for reproduction; Table 2). By comparison, the USEPA [13] reported a 7-d EC25 for *C. dubia* of 15% Boardtree site water. The 100% Boardtree site water had conductivity of 2582 μS/cm [13], which is comparable to the conductivity of 2367 μS/cm in the 100% Boardtree reconstituted water (Table 1). Relative to the dilution water control, the 10% dilution of Boardtree reconstituted water that was toxic to *L. siliquoidea* had relatively higher proportional concentrations of Mg (4.1×), SO_4 (8.2×), and conductivity (2.1×; Supplemental Data, Table S1).

The Upper Dempsey reconstituted waters were toxic to *L. siliquoidea*, *H. azteca*, and *C. dubia* (LOEC of 10% Upper Dempsey for *L. siliquoidea* survival and LOECs of 100% Upper Dempsey for *H. azteca* biomass and *C. dubia* survival or reproduction; Table 2). Survival of *L. siliquoidea*, survival and biomass of *H. azteca* and reproduction of *C. dubia* decreased with increasing percentage of Upper Dempsey reconstituted water (Figures 1 and 2). The Upper Dempsey reconstituted water was not toxic to *C. triangulifer* (LOEC >100% Upper Dempsey; Table 2). A 7-d EC25 for *C. dubia* reproduction of about 54% for Upper Dempsey reconstituted water was estimated in the present study. By comparison, the USEPA [13] reported a 7-d EC25 of 25% Upper Dempsey site water for *C. dubia*. The 100% Upper Dempsey site water had a conductivity of 2143 μS/cm [13], which is comparable to the conductivity of 1813 μS/cm in the 100% Upper Dempsey reconstituted water (Table 1). Relative to the dilution water control, the 10% dilution of Upper Dempsey reconstituted water that was toxic to *L. siliquoidea* had relatively higher proportional concentrations of Na (4.3×), SO_4 (3.5×), and conductivity (1.6×; Supplemental Data, Table S1).

DISCUSSION

Salinization of freshwaters is a growing problem on a global scale [1]. With 4 major cations (Na, K, Ca, and Mg) and 3 major anions (Cl, HCO_3, and SO_4) all potentially contributing to the ionic matrix of a high-TDS water, the composition of any one site can vary dramatically from the next, particularly across geographic regions. For example, freshwater streams impacted by marine encroachment display elevated Na and Cl [33], whereas some streams affected by uranium mining display elevated Mg and SO_4 [34]. The ionic composition of streams in Kentucky, Virginia, and West Virginia, USA, impacted by mountaintop removal associated with coal mining are characterized by mixtures of elevated Ca, Mg, K, HCO_3, and SO_4 (as represented by Winding Shoals and Boardtree waters), although Na is not typically elevated compared with reference streams [10,35]. Elevated Na in mine drainage (as represented by the Upper Dempsey water) could be due to the following: 1) treating mine effluents with sodium hydroxide (NaOH) or sodium carbonate (soda ash, Na_2CO_3) to reduce Mn; 2) cation exchange processes in overburden that exchange Ca for Na; or 3) the presence of sodium-rich shale layers in the overburden (M. Passmore, USEPA, Wheeling, WV, USA, personal communication).

The reconstituted waters in the present study were generated to closely match site waters from the Winding Shoals, Boardtree, and Upper Dempsey Branches in West Virginia, with the exception of HCO_3, which was below the field target concentrations by 38 to 72% (Supplemental Data, Table S1). This is important because bicarbonate can contribute to toxicity to *C. dubia* [7]. Research is ongoing to develop methods for preparing reconstituted waters with varying concentrations of HCO_3 using CO_2 gas to equilibrate relatively insoluble salts ($CaCO_3$ or $MgCO_3$; D. Mount, USEPA, Duluth, MN, USA, personal communication). Use of this new approach should result in developing reconstituted waters that better represent the alkalinity and HCO_3 of site waters of interest.

Sites impacted by elevated TDS may also have elevated concentrations of trace elements such as Se and Mn [10] and As, Co, and Cu [15]. Therefore, results of whole-effluent toxicity testing can be difficult to interpret with regard to which component of the effluent matrix is contributing to the toxicity of elevated TDS mixtures [14]. Investigators concerned with elevated TDS independent of other toxic elements may have to generate reconstituted waters that approximate the ionic matrix of concern as closely as possible. Importantly, the high-TDS reconstituted waters, created with the addition of elevated major ions without the addition of trace elements, were toxic to test organisms in the present study, indicating that trace elements associated with site waters were not likely substantial contributors to the toxicity observed in previous ambient-water exposures to *C. dubia* [13]. Moreover, ambient water–quality criteria for trace metals were exceeded only sporadically, and these overages were not related to the toxicity of the ambient waters to *C. dubia* [13].

Previous laboratory toxicity tests with ambient water samples from the 3 sites were identified as toxic to *C. dubia* [13]. Two of the 3 reconstituted waters tested (Boardtree and Upper Dempsey) in the present study were also identified as toxic to *C. dubia* (Table 2). Winding Shoals reconstituted water with an ionic composition similar to that of Boardtree reconstituted water was not toxic to *C. dubia*. In previous study, a 7-d EC20 of 996 mg SO_4/L was observed for reproduction of *C. dubia* at a water hardness of about 100 mg/L (as $CaCO_3$; N. Wang, unpublished data). Perhaps the slightly higher concentration of SO_4 in the 100% Boardtree reconstituted water (1450 mg/L) contributed to the reproductive toxicity observed in *C. dubia* compared with the concentration of SO_4 in the 100% Winding Shoals reconstituted water (1108 mg/L) that was not toxic to *C. dubia*, given that all other major ions were relatively similar between the Winding Shoals and Boardtree reconstituted waters (Table 1). Sulfate might have contributed to the toxicity but likely was not the sole cause of the toxicity observed to *L. siliquoidea* in the 10% dilutions of the reconstituted water samples (ranging from 144 to 172 mg SO_4/L in the 10% dilution waters; Table 1 and Supplemental Data, Table S4). A 28-d EC20 of 696 mg SO_4/L (as Na_2SO_4) was observed for biomass of the pink mucket (*L. abrupta*) at a water hardness of about 100 mg/L (as $CaCO_3$; N. Wang, unpublished data). Potassium might also have contributed to the toxicity but likely was not the sole cause of the toxicity observed to *L. siliquoidea* in the 10% to 100% dilution waters (ranging up to 21 mg/L; Table 1 and Supplemental Data, Table S4). A 28-d LC20 of >25 mg K/L was observed for survival of the *L. siliquoidea* at a water hardness of about 100 mg/L (N. Wang, unpublished data). Additional testing of reconstituted waters with varying proportions of major ions is needed to identify the toxicity thresholds for individual ions or to determine whether major ions such as Cl, Ca, or K might ameliorate the toxicity of major ions such as SO_4 [5,36].

Toxicity tests have rarely been conducted with taxa resident to naturally dilute, freshwater Appalachian streams such as mayflies, stoneflies, and caddisflies (i.e., Ephemeroptera, Plecoptera, Trichoptera taxa) or with freshwater mussels. One study investigated the toxicity of high-TDS water on *C. dubia* and a mayfly (*Isonychia bicolor*) and found that *I. bicolor* was substantially more sensitive than *C. dubia* [37] in whole-effluent toxicity testing with ambient waters. Similarly, *C. triangulifer* and the *L. siliquoidea* in the present study were more responsive to the Winding Shoals and Boardtree reconstituted waters compared with the *C. dubia* and the *H. azteca*. Furthermore, all 3 waters were toxic to *L. siliquoidea* and *H. azteca*, whereas *C. triangulifer* was unaffected by exposure to Upper Dempsey water, and *C. dubia* was unaffected by exposure to Winding Shoals water. Therefore, toxicity testing conducted with test organisms such as *C. dubia* may underrepresent the sensitivity of species present in the Appalachian streams of interest. This highlights the need for developing standard methods for testing of multiple taxa in laboratory toxicity tests that represent the sensitivity of resident taxa. Standard methods have been developed for all of the organisms tested in the present study, except for *C. triangulifer*.

Natural streams in the central Appalachian region are dilute, with conductivity generally between 40 and 100 μS/cm; however, mining-impacted streams display conductivities of about 1000 to 2500 μS/cm [10,35]. Because many macroinvertebrates have evolved in and are adapted to dilute streams in this region, overall ionic strength is a potential physiological mechanism of impairment deserving additional study. Field studies have reported declines in abundance and diversity of aquatic insects (particularly mayflies) in mountaintop mining-impacted streams across Appalachia associated with elevated TDS [9,10,35]. Based on the distributions of benthic invertebrates along conductivity gradients in sites within the Appalachian region, the USEPA [35] proposed a regional conductivity benchmark of 300 μS/cm for protection of aquatic life. The benchmark of 300 μS/cm was designed to protect 95% of the 162 genera that were used to develop the benchmark. The benchmark for conductivity applies to waters in the central Appalachians and Allegheny Plateau with circumneutral to mildly alkaline pH where the elevated conductivity is dominated by HCO_3 and SO_4. However, no laboratory toxicity studies have investigated the potential effects of elevated conductivity associated with mountaintop mining on resident taxa (e.g., aquatic insects). The Winding Shoals and Boardtree reconstituted waters were toxic to *C. triangulifer* at a conductivity of about 800 to 1300 μS/cm (Supplemental Data, Table S4) with elevated concentrations of Mg, Ca, Na, K, SO_4, or HCO_3. It is interesting to note that the regional 95% extirpation concentration (XC95) based on conductivity for the genus *Centroptilum* in the benthic community field surveys was determined to be 1092 μS/cm [35]. However, the genus *Centroptilum* was not among the more sensitive taxa used to derive the regional benchmark (i.e., 56 of the native taxa had XC95 values <1092 μS/cm [35]).

The Winding Shoals and Boardtree reconstituted waters were toxic to *L. siliquoidea*, *H. azteca*, or *C. dubia* at conductivities ranging from about 500 to 2400 μS/cm (Table 1). The Upper Dempsey reconstituted water at conductivities ranging from about 500 to1800 μS/cm with elevated concentrations of Na, K, SO_4, and HCO_3 was toxic to *L. siliquoidea*, *H. azteca*, and *C. dubia* but was not toxic to *C. triangulifer* at conductivity as high as about 1800 μS/cm (Supplemental Data, Table S1). Hence, it might be informative to establish toxicity thresholds based on single major ions or mixtures of major ions to individual taxa rather than to depend solely on the use of surrogate regional benchmarks such as TDS or conductivity. On the other hand, conductivity benchmarks developed within a region for specific ion matrices where natural background conductivity levels are comparable can be useful screening tools for measuring potential toxicity in the field.

Currently, the toxic mechanism of high-TDS waters is largely unknown. It has been speculated that osmoregulatory stress is potentially responsible for adverse effects in sensitive taxa as well as disruption of hemolymph pH or osmolarity [38]. Many surficial ionoregulatory pumps on aquatic insects use adenosine triphosphate to move ions against a concentration gradient [39]. It is possible that exposure to high TDS incurs bioenergetic costs as manifested by developmental delays observed in mayflies (D. Funk, Stroud Water Research Center, Avondale, PA, USA, personal communication). Soucek [40] found that *C. dubia* displayed reduced feeding and oxygen consumption when exposed to elevated concentrations of sodium sulfate. Given the large number of ions, the even larger number of ion combinations, and wide range of invertebrate physiologies, there is much to be learned about why ionic stress is toxic to aquatic organisms.

In the present study, 2 central ideas in the assessment of toxicity associated with major ions were reinforced: 1) specific ionic composition of the water is critical, and 2) selection of laboratory test species is also critical for relating major ion toxicity to field data. For example, survival of *C. triangulifer* and *L. siliquoidea* was reduced in all dilutions of Boardtree and Winding Shoals reconstituted waters (with elevated Mg, Ca, K, SO_4, and HCO_3), yet *C. triangulifer* did not exhibit adverse effects with exposure to Upper Dempsey reconstituted water (with elevated in Na, K, SO_4, and HCO_3) at conductivity comparable to the toxic dilutions of Boardtree and Winding Shoals reconstituted waters. Moreover, effects were observed on both *L. siliquoidea* and *H. azteca* with exposure to all 3 reconstituted waters. Conversely, *C. dubia* displayed no adverse effects of exposure to Winding Shoals reconstituted water. The ionic composition of the Winding Shoals and Boardtree reconstituted waters are characteristic of mountaintop-mining-impacted streams, and *C. triangulifer* is representative of native Appalachian taxa, albeit more tolerant to elevated conductivity based on benthic community survey data [35]. Future studies should focus on identifying the primary toxic ions or, conversely, determine whether a characteristic ionic matrix is necessary to produce toxicity. Additionally, future studies should focus on conducting toxicity tests with environmentally relevant and sensitive species, including mayflies and mussels, in order to make stronger links to benthic community survey data.

SUPPLEMENTAL DATA

Tables S1–S8. (115 KB PDF).

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OBSERVED AND PREDICTED REPRODUCTION OF *CERIODAPHNIA DUBIA* EXPOSED TO CHLORIDE, SULFATE, AND BICARBONATE

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Abstract—Chronic toxicities of Cl^-, SO_4^{2-}, and HCO_3^- to *Ceriodaphnia dubia* were evaluated in low- and moderate-hardness waters using a three-brood reproduction test method. Toxicity tests of anion mixtures were used to determine interaction effects and to produce models predicting *C. dubia* reproduction. Effluents diluted with low- and moderate-hardness waters were tested with animals acclimated to low- and moderate-hardness conditions to evaluate the models and to assess the effects of hardness and acclimation. Sulfate was significantly less toxic than Cl^- and HCO_3^- in both types of water. Chloride and HCO_3^- toxicities were similar in low-hardness water, but HCO_3^- was the most toxic in moderate-hardness water. Low acute-to-chronic ratios indicate that toxicities of these anions will decrease quickly with dilution. Hardness significantly reduced Cl^- and SO_4^{2-} toxicity but had little effect on HCO_3^-. Chloride toxicity decreased with an increase in Na^+ concentration, and HCO_3^- toxicity may have been reduced by the dissolved organic carbon in effluent. Multivariate models using measured anion concentrations in effluents with low to moderate hardness levels provided fairly accurate predictions of reproduction. Determinations of toxicity for several effluents differed significantly depending on the hardness of the dilution water and the hardness of the water used to culture test animals. These results can be used to predict the contribution of elevated anion concentrations to the chronic toxicity of effluents; to identify effluents that are toxic due to contaminants other than Cl^-, SO_4^{2-}, and HCO_3^-; and to provide a basis for chemical substitutions in manufacturing processes. Environ. Toxicol. Chem. 2010;29:347–358. Published 2009 SETAC

Keywords—*Ceriodaphnia dubia* Anions Hardness Acclimation Effluents

INTRODUCTION

Interpretations of toxicity elicited from municipal and industrial wastewaters can be confounded by the presence of common ions (Na^+, Ca^{2+}, Mg^{2+}, K^+, Cl^-, SO_4^{2-}, HCO_3^-) at elevated concentrations. Slightly saline effluents characterized by high levels of dissolved salts are produced by many manufacturing processes and potentially cause toxic responses in required evaluations [1]. Salinity and total dissolved solids (TDS) are inclusive metrics describing the total mass of ions in solution and are often cited as the most probable source of chronic toxicity in effluents [1–3]; however, common ions do not generally pose a risk to human health or to the environment [1]. Based on acute toxicities and typical effluent concentrations, the anions are often likely to be responsible for this type of toxicity. A salinity–toxicity relationship established for the acute toxicity of these ions indicated that Na^+ and Ca^{2+} were not toxic to aquatic animals and determined the relative toxicity of the others to be $K^+ > HCO_3^- \sim Mg^{2+} > Cl^- > SO_4^{2-}$ [4]. Sodium is often the dominant cation in wastewaters, followed by Ca^{2+} and lesser concentrations of K^+ and Mg^{2+}, but concentrations of one or more of the dominant anions (Cl^-, SO_4^{2-}, HCO_3^-) are often equal to or greater than that of Na^+ and vary substantially among effluents [5–7]. However, within the discharge permits of many wastewaters, chronic toxicity is the criterion that is monitored. To improve effluent-toxicity interpretations, information concerning the toxicities of Cl^-, SO_4^{2-}, and HCO_3^- is required [8]. Some information on the chronic toxicity of Cl^- to *Ceriodaphnia dubia* is available [9–11], and *C. dubia* have been exposed to Cl^-, SO_4^{2-}, and HCO_3^- to examine effects of water quality and acclimation, but estimates of their toxicities were not made [12]. Additional information is needed regarding the toxicities of these anions, including their interactions with one another and with other water-quality parameters such as hardness.

Ceriodaphnia dubia (Cladocera) is a standard test organism used for assessments of effluents discharged into freshwater systems, and reproduction is the typical endpoint used to determine chronic toxicity [13]. Although this animal is generally sensitive to elevated TDS (>1,000 mg/L), often significant differences in the toxicities of effluents with similar TDS concentrations suggest that toxicity is dependent on specific ions in solution [1,14]. At the same time, *C. dubia* can also be sensitive to ionic conditions that are lower than those used for their culture [1], and water hardness is one of those parameters [11,12]. Hardness can play a significant role in ameliorating anion toxicity to *C. dubia* in toxicity tests, and reproduction of *C. dubia* acclimated to moderately hard water can be significantly reduced when exposed to low-hardness water [12]. The same effects could be expected in effluent assessments. Toxicities elicited may reflect gradients in hardness, as well as effluent concentration within the dilutions, and could be quite different depending on the dilution water used. A problematic

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situation can occur when *C. dubia* is used to assess the toxicity of wastewaters with elevated TDS and low hardness. Some effluents, such as those produced in the processes of manufacturing textiles, often have these characteristics.

Wastewaters generated during the production of textiles frequently have high TDS content because of the use of Na^+ salts and alkaline solutions in many dyeing and finishing operations. The resulting high-pH and -alkalinity conditions require acidification prior to discharge, resulting in even greater TDS. Meanwhile, Ca^{2+} and Mg^{2+} (primary hardness components) can have adverse effects during textile production, such as scaling and chemical interference, and are usually removed from process waters prior to use [15,16]. In addition, low-hardness effluents are typical of regions such as the southeastern United States, where many ground waters and surface waters are naturally low in Ca^{2+} and Mg^{2+} [11,17]. The appropriateness of using *C. dubia* to evaluate the toxicity of effluents with low hardness has been questioned because of its preference for moderately hard water [11]. Use of moderately hard water for the cultures of *C. dubia* and dilution of low-hardness effluents may result in test solutions that vary in effluent content and hardness concentration, potentially leading to a more toxic response because of the reduced protective effect of hardness and increased negative effect of exposure to lower hardness conditions.

To address these issues common to a wide range of effluents, the present study was designed to determine the chronic toxicities of Cl^-, SO_4^{2-}, and HCO_3^-, identify interaction effects among the three anions, develop models to predict their chronic toxicities, evaluate the effectiveness of the models in predicting effluent toxicity, and assess the influence of hardness in culture and dilution water on effluent toxicity estimates. The results provide a better understanding of the impact of slightly saline effluents and insight into reducing the toxicity of some wastewaters through substitution with less toxic components.

MATERIALS AND METHODS

The toxicities of Cl^-, SO_4^{2-}, and HCO_3^- were originally determined in water with characteristics similar to those of many effluents produced by textile manufacturers in the southeastern United States (low hardness, moderate alkalinity). However, a negative effect was apparent when *C. dubia* cultured in water with moderate hardness and moderate alkalinity (M water) were exposed to low-hardness control waters. To remove the influence of the change in hardness, cultures of *C. dubia* were initiated in low-hardness/moderate-alkalinity water (T water). These cultures were propagated for 10 months and then used to assess anion toxicities under hardness and alkalinity conditions similar to those of textile effluents. Additional cultures were later started in low-hardness/low-alkalinity water (L water) similar to many surface waters in the Southeast and used to demonstrate the significant effects of sudden decreases in hardness on *C. dubia* reproduction [12]. To provide a more complete assessment of anion toxicities in low- to moderate-hardness waters, toxicity tests of Cl^-, SO_4^{2-}, and HCO_3^- were subsequently conducted with animals from the L and M cultures approximately 12 months after the tests using animals from the T cultures. As a result, anion toxicities were determined in three types of formulated water with animals that had been acclimated to the hardness and alkalinity concentrations within the test solutions. Responses were evaluated for each type of water as well as combined to provide information for low to moderate hardness and alkalinity conditions.

Study design

The reproductive responses of *C. dubia* to increasing anion concentrations in three different water formulations were used to generate predictive models of chronic anion toxicity in low- to moderate-hardness water. Water formulations included M, which contained 100 mg/L hardness and 70 mg/L alkalinity and is suggested for culturing *C. dubia* to be used for whole-effluent toxicity testing [13]; L, which contained 40 mg/L hardness and 40 mg/L alkalinity; and T, which contained 40 mg/L hardness and 100 mg/L alkalinity. Initial toxicity assessments focused on single-anion toxicity tests used to establish low-level inhibition concentrations (ICs) for the individual anions that represented a reduction in reproduction compared with the control of 6 (IC6), 12 (IC12), 25 (IC25), and 50 (IC50). These single-anion toxicity tests were repeated twice in the T water and three times in the L and M waters. Mean IC values for Cl^-, SO_4^{2-}, and HCO_3^- were used in a three-factor experiment with four levels to create a matrix of treatments which was used to evaluate anion interactions and to model anion-mixture effects. The four concentrations of each factor (Cl^-, SO_4^{2-}, and HCO_3^-) included their IC6, IC12, and IC25 values and their concentration in the control water. In this design, 64 treatments were evaluated within each type of water, and evaluations were repeated three times. The size of this design required partitioning the treatments into three groups for the T water or four groups for the L and M waters. To provide comparable responses, a separate control treatment was evaluated for each test and used to normalize results among the tests by dividing the treatment reproduction by the control reproduction. Responses from anion-mixture exposures were used to produce two multivariate models that predict anion toxicity, one based on anion concentrations alone and one that also incorporates the effects of low to moderate hardness conditions.

The final phase of the study assessed the models by determining the toxicities of actual effluents and comparing them with predicted responses. Two separate dilution series were prepared for each effluent using either L or M water to assess the effects of low and moderate hardness conditions on effluent toxicities. In effluent assessments, animals exposed in a dilution series were cultured in the water formulation used as the diluent. In addition, animals acclimated to L or M water were also used to test the dilution series produced with M or L water, respectively, to examine the influence of acclimation.

Toxicity testing

Waters used for cultures and testing were reconstituted from well-aerated deionized water and reagent-grade chemicals. The L water contained 28 mg/L $CaSO_4 \cdot 2H_2O$, 28 mg/L $MgSO_4$, and 61 mg/L $NaHCO_3$; M water contained 60 mg/L $CaSO_4 \cdot 2H_2O$, 60 mg/L $MgSO_4$, and 96 mg/L $NaHCO_3$; T water contained 28 mg/L $CaSO_4 \cdot 2H_2O$, 28 mg/L $MgSO_4$, and 158 mg/L $NaHCO_3$. All three types of water contained 4 mg/L KCl and 5 μg/L Na_2SeO_4.

Toxicity testing of anion and effluent solutions followed procedures recommended for assessing the chronic toxicity of effluents with *C. dubia* [13]. Exposures were conducted in 30-ml plastic cups containing 15 ml of test solution, one animal, and 0.1 ml of *Pseudokirchneriella subcapitata* and 0.1 ml of a yeast, alfalfa, Tetrafin® (Tetra Werke, Melle, Germany) food preparation [13]. Ten replicates of each treatment were randomly assigned a position within holding boards and placed in an environmental chamber that maintained temperature at 25°C and a 16:8-h light:dark photoperiod. Neonates (<24 h old and produced within an 8-h period) used in testing were produced in individual cultures according to recommended procedures using the L, M, or T water. Test animals were transferred daily into prepared cups with reproduction and survival being recorded. Exposures lasted for 6 or 7 d, and total reproduction was the test endpoint with only the first three broods included. Tests were considered acceptable if control survival was greater than 80%; at least 60% of the control animals produced three broods, and mean control reproduction was above 15 neonates per adult. In all tests, the survival rate of control animals was ≥90%; at least 80% of the control replicates had three broods within the test period; and control reproduction was always well above the minimum. Mean numbers of neonates produced in the controls of each test were 26 (coefficient of variation [CV] = 9%, n = 11), 25 (CV = 11%, n = 19), and 25 (CV = 14%, n = 19) in the T, L, and M waters, respectively.

Additions of NaCl, Na_2SO_4, or $NaHCO_3$ provided elevated anion concentrations in the test solutions, which were prepared 24 h in advance of testing and kept under gentle aeration at 25°C until use. To determine single-anion toxicities, five concentrations of each anion were used as treatment levels in addition to the control and consisted of serial dilutions of stock solutions prepared in L, T, or M water. Anion-mixture treatments represented a completely crossed factorial design within each type of water. Four levels of each anion were tested including Cl^-, SO_4^{2-}, and HCO_3^- concentrations in the L, M, or T waters as the lowest concentration of each anion with three additional levels (IC6, IC12, IC25) determined in the single-anion toxicity tests. Anion-mixture solutions were prepared with weighed additions of the sodium salts to 2-L aliquots of L, T, and M water. Nominal concentrations in solutions prepared with L water were 2, 39, 76, 147 mg/L Cl^-; 44, 161, 278, 430 mg/L HCO_3^-; and 38, 254, 469, 625 mg/L SO_4^{2-}. Nominal concentrations in solutions prepared with M water were 2, 303, 350, 456 mg/L Cl^-; 85, 139, 209, 379 mg/L HCO_3^-; and 81, 754, 841, 1,060 mg/L SO_4^{2-}. Nominal concentrations in solutions prepared with T water were 2, 193, 243, 340 mg/L Cl^-; 115, 271, 352, 476 mg/L HCO_3^-; and 38, 308, 367, 496 mg/L SO_4^{2-}.

Nominal concentrations were used for calculations involving single-anion and anion-mixture toxicities because of the large number of tested solutions (714). However, subsets of samples were collected for quality assurance and analyzed by contract laboratory using an ion chromatograph for Cl^- and SO_4^{2-} concentrations and a carbon analyzer to determine total and inorganic carbon (HCO_3^-). Analytical samples were collected from all treatments in the first set of single-anion tests prepared in the T, L, and M waters and from one set of anion-mixture treatments prepared in each water (n = 92 for Cl^- and SO_4^{2-} and n = 76 for HCO_3^-). Samples were collected at test initiation along with measurements of basic water chemistry. Analytical determinations for Cl^- and SO_4^{2-} varied above and below their nominal values, but analytical measurements of HCO_3^- were consistently at or below its nominal values. The difference between measured and nominal HCO_3^- concentrations tended to be greatest in the upper-concentration treatments prepared in M water. Mean differences from nominal concentrations were 7% (CV = 27) for Cl^-, 8% (CV = 40) for SO_4^{2-}, and 6% (CV = 9) for HCO_3^-. For single-anion and anion-mixture tests conducted in L and M waters, conductivity was measured again at the conclusion to provide an estimate of the loss of ions due to precipitation during the testing period. Few comparisons of initial and final conductivities indicated a substantial loss of dissolved ions. Nine of 498 solutions had conductivities that decreased by greater than 1.5% (3.9% maximum) during the tests. Most of these were treatments prepared in M water that contained the upper concentrations of HCO_3^- and SO_4^{2-}, but losses were not consistent among repeated tests.

Effluent testing

Eleven municipal and industrial effluents with some history of chronic toxicity attributed to TDS were sampled and assessed with the *C. dubia* reproduction test to evaluate the efficacy of the anion-toxicity models. Each effluent was represented by a grab sample collected 48 h prior to testing. The effluent was passed through a 163-μm mesh cloth to remove large particles and refrigerated and aerated overnight. Effluents were brought to 25°C and prepared for testing on the following day. The toxicity and chemical constituents of each effluent were initially unknown. Therefore, conductivity was used to provide an estimate of an appropriate range of dilutions [1]. If the conductivity of the raw effluent was above 2,000 microsiemens/cm (μS/cm), it was diluted with M water to produce a dilution series with conductivities of 2,000, 1,500, 1,000, and 500 μS/cm. However, if effluent conductivity was below 2,000 μS/cm, a dilution series of 100, 50, 25, and 12.5% was employed. Those dilution proportions were then matched with dilutions prepared with L water. Effluent dilutions were prepared in 2-L glass flasks, covered, and refrigerated until use. All effluent dilutions were measured for concentrations of Cl^-, SO_4^{2-}, HCO_3^-, NO_3^-, PO_4^{3-}, Na^+, K^+, Ca^{2+}, Mg^{2+}, and total and inorganic C and five trace metals (Cr, Cu, Ni, Pb, Zn). Samples for analytical analyses were passed through a 0.2-μm nylon filter and split into subsamples for anions and metals. Samples for metal analyses were acidified with 1% nitric acid (v/v). Cation concentrations were measured by contract laboratory using inductively coupled plasma mass spectroscopy. Anions were determined as described above, and dissolved organic carbon (DOC) was calculated by subtracting inorganic carbon from total carbon. Hardness concentrations of effluent dilutions were calculated using the measured concentrations of Ca^{2+} and Mg^{2+} [18]. Mean recoveries of ions from spiked effluents were as follows: Cl^- 97% (SD = 6, n = 16), SO_4^{2-} 104% (SD = 9, n = 16), HCO_3^- 92% (SD = 7, n = 8), Na^+ 97% (SD = 4, n = 6), Ca^{2+} 93% (SD = 8, n = 6), and Mg^{2+} 91% (SD = 10, n = 6).

Water chemistry

Basic water chemistries of the single-anion solutions, anion-mixture solutions, and effluent dilutions measured in house included conductivity, pH, dissolved oxygen, hardness (effluents excluded), alkalinity, and total ammonia (effluents only) and were determined at test initiation. Hardness and alkalinity were determined by titration [19] and are reported in units of mg/L as $CaCO_3$. Conductivity, pH, dissolved oxygen, and total ammonia were determined using appropriate meters (Orion™ models 1214000, 720 A with triode electrode, 1113000, 720 A with ammonia gas electrode, respectively; Thermo Fisher Scientific). Values of TDS and ionic strength were based on nominal concentrations in anion solutions and measured concentrations in effluent dilutions. Ionic strength was calculated according to the formula described by Stumm and Morgan [20].

The formulated waters used for dilutions provided several comparisons based on their chemistries. Calcium, Mg^{2+}, and SO_4^{2-} concentrations in the L and T waters were less than half those in the M water, and concentrations of Na^+ and HCO_3^- were greatest in the T water, followed by the M and L waters. The T and M waters were similar in TDS (210 and 208 mg/L, respectively) and contained almost twice as much TDS as L water (115 mg/L). Mean pH ranged from 8.0 to 8.3, and mean hardness concentrations were 44 ($CV = 4$), 44 ($CV = 6$), and 93 ($CV = 4$) mg/L; mean alkalinities were 45 ($CV = 7$), 101 ($CV = 6$), and 66 ($CV = 4$) mg/L; and conductivities averaged 178 ($CV = 4$), 306 ($CV = 4$), and 313 ($CV = 6$) μS/cm for the L ($n = 14$), T ($n = 11$), and M ($n = 14$) waters, respectively. Dissolved oxygen was near saturation in all test solutions. Additions of Cl^- and SO_4^{2-} had little effect on solution pH, but the pH of solutions containing elevated concentrations of HCO_3^- was between 8.2 and 8.7.

Data analyses

A linear interpolation method [21] was employed to determine single-anion toxicities in the form of point estimates (inhibition concentration; IC) that reduced reproduction by 6, 12, 25, and 50% compared with the control treatment. These IC values were averaged for the repeated tests ($n = 2$ or 3), compared among anions and waters using the Tukey and Tukey–Kramer means comparison methods [22], and incorporated in the formulations of anion-mixture solutions to be assessed. Tukey's method was also used to assess differences in reproduction among control treatments. Significant differences within statistical comparisons were based on an alpha value ≤ 0.05. The distribution and variance homogeneity of reproduction data was assessed by using the Shapiro-Wilkes test and Bartlett's test, respectively, and no-observable-effect concentrations and lowest-observable-effect concentrations were determined with Dunnett's test or Steel's many-one rank test, depending on whether the distribution was normal or nonnormal [13].

Anion-mixture toxicities were evaluated and modeled using statistical procedures provided by SAS® software (SAS Institute). Data sets representing each water type contained the means of 30 replicates (10 replicates from three tests) for each of the 64 mixture solutions. Analysis of variance determined the significance of anion interactions, and the general linear models procedure modeled *C. dubia* reproduction using anion concentrations and water hardness. Fixed concentrations of hardness were assigned to each data set; 40 mg/L for L and T waters and 100 mg/L for M water. Reproduction data from anion-mixture and effluent toxicity assessments were divided by the control reproduction for that water and test prior to use in calculations. Model assumptions were evaluated by plotting calculated residuals against predicted values and the independent variables of the model and by creating normal probability plots of the residuals. Model validity was assessed with Pearson's coefficient of regression between observed and predicted reproduction and by evaluating F statistics for the model components. The goodness of fit provided by predictive models was assessed using Akaike's information criterion (AIC) [23] and R^2 values.

Inhibition concentrations of effluents (point estimates as a percentage of effluent) that reduced *C. dubia* reproduction by 25% and 50% were also calculated by linear interpolation [21]. Significant differences between effluent IC values were based on the lack of overlap between 95% confidence intervals. Predicted point estimates for each effluent were calculated by regression analysis using the predicted response for each dilution with the percentage of effluent in the dilution. Predicted IC values were compared with the 95% confidence intervals of IC values determined from observed responses as a means of judging model accuracy.

RESULTS

Single-anion toxicity

Toxicity tests, conducted in three types of formulated water, provided information describing *C. dubia* reproduction under low to moderate hardness and alkalinity conditions. The toxicities of Cl^-, SO_4^{2-}, and HCO_3^- relative to one another varied depending on the unit of measurement (mg/L, mM/L, meq/L) used for anion concentration (Table 1). Toxicities based on mass or equivalents were fairly consistent across the three types of water, with SO_4^{2-} being the least toxic. With concentrations based on moles, SO_4^{2-} was often the most toxic of the three. Although mass is often used to describe the toxicity of a contaminant, the use of molar concentrations has been promoted because of the intrinsic relationship between toxicity and number of toxicant molecules [24]. However, the use of meq/L incorporates both the number of moles and the ionic charge and is therefore more appropriate for comparing anion toxicities than using mass or molar concentrations. Based on equivalents, the relative toxicities of theses anions in moderate-hardness water were $HCO_3^- > Cl^- > SO_4^{2-}$.

Response curves illustrate differences among the toxicities of Cl^-, SO_4^{2-}, and HCO_3^- when assessed under different water quality conditions (Fig. 1). Sulfate and Cl^- were significantly less toxic in moderate-hardness water than in low-hardness water, but the toxicity of HCO_3^- was relatively unaffected by water hardness. Sulfate toxicity was unaffected by increasing alkalinity, but Cl^- toxicity was reduced in water with moderate alkalinity (T) compared with water with low alkalinity (L). For the L, T, and M waters, respectively, the mean no-observable-effect concentrations/lowest-observable- effects concentrations for Cl^- were 101/250, 250/500, and 500/650 mg/L; those for SO_4^{2-} were 500/750, 250/500, and 1,000/1,250; and those for HCO_3^- were 350/500, 300/500, and 243/450. Variability among repeated tests was greatest for Cl^- and SO_4^{2-} in low-hardness water (Table 1). However, in exposures to HCO_3^-, toxicity was consistent in tests using low-hardness waters but variable in moderate-hardness water.

When toxicity was determined with concentrations of TDS, ionic strength, or Na^+ in the test solutions, inconsistencies among IC values determined in the Cl^-, SO_4^{2-}, and HCO_3^- solutions indicated that neither TDS, nor ionic strength, nor Na^+

Table 1. Mean inhibition concentrations (IC with coefficient of variation) for *Ceriodaphnia dubia* reproduction based on three units of measurement for Cl^-, SO_4^{2-}, and HCO_3^- in low-hardness/low-alkalinity (L, $n = 3$), moderate-hardness/moderate-alkalinity (M, $n = 3$), and low-hardness/moderate-alkalinity (T, $n = 2$) waters[a]

Water	Unit	IC50			IC25		
L (44 mg/L hardness / 45 mg/L alkalinity)							
	mg/L	SO_4^{2-}	HCO_3^-	Cl^-	SO_4^{2-}	HCO_3^-	Cl^-
		766 (13) A	587 (1) B	342 (17) C	625 (14) A	430 (13) B	147 (20) C
	mM/L	Cl^-	HCO_3^-	SO_4^{2-}	HCO_3^-	SO_4^{2-}	Cl^-
		9.7 A	9.6 A	8.0 A	7.0 A	6.5 A	4.2 B
	meq/L	SO_4^{2-}	Cl^-	HCO_3^-	SO_4^{2-}	HCO_3^-	Cl^-
		15.9 A	9.7 B	9.6 B	13.0 A	7.0 B	4.2 B
M (93 mg/L hardness / 66 mg/L alkalinity)							
	mg/L	SO_4^{2-}	HCO_3^-	Cl^-	SO_4^{2-}	Cl^-	HCO_3^-
		1252 (5) A	725 (14) B	653 (4) B	1060 (4) A	456 (18) B	379 (46) B
	mM/L	Cl^-	SO_4^{2-}	HCO_3^-	Cl^-	SO_4^{2-}	HCO_3^-
		18.4 A	13.1 B	11.9 B	12.9 A	11.0 AB	6.2 B
	meq/L	SO_4^{2-}	Cl^-	HCO_3^-	SO_4^{2-}	Cl^-	HCO_3^-
		26.1A	18.4 B	11.9 C	22.0 A	12.9 B	6.2 C
T (44 mg/L hardness / 101 mg/L alkalinity)							
	mg/L	SO_4^{2-}	HCO_3^-	Cl^-	SO_4^{2-}	HCO_3^-	Cl^-
		715 (6) A	651 (2) AB	563 (6) B	496 (8) A	476 (9) A	340 (16) A
	mM/L	Cl^-	HCO_3^-	SO_4^{2-}	Cl^-	HCO_3^-	SO_4^{2-}
		15.9 A	10.7 B	7.5 C	9.6 A	7.8 AB	5.2 B
	meq/L	Cl^-	SO_4^{2-}	HCO_3^-	SO_4^{2-}	Cl^-	HCO_3^-
		15.9 A	14.9 A	10.7 B	10.5A	9.6 A	7.8 A

[a] IC50 and IC25 values in a row with the same letter are not significantly different ($\alpha = 0.05$).

was responsible for the observed toxicity (Table 2). Their relative toxicities varied considerably based on the predominant anion and the type of water used to prepare the solutions. Total dissolved solids and ionic strength were significantly less toxic in SO_4^{2-} solutions than in HCO_3^- solutions and most of the Cl^- solutions, and Na^+ was almost twice as toxic in HCO_3^- solutions compared with SO_4^{2-} solutions. Inhibition concentrations based on these parameters simply describe their status at the anion-based point estimate of toxicity.

Anion-mixture toxicity

Analysis of variance conducted with each data set (L, M, or T, $n = 64$) consistently identified Cl^-, SO_4^{2-}, and HCO_3^- and the interaction between Cl^- and SO_4^{2-} as highly significant predictors ($\alpha < 0.0001$) of *C. dubia* reproduction. Interaction between SO_4^{2-} and HCO_3^- was significant in solutions prepared in the L water, but not in M or T water, and interaction between Cl^- and HCO_3^- was not significant. Regressions incorporating the SO_4^{2-}:Cl^- ratio provided better fits to the data (based on R^2) than those using the Cl^-:SO_4^{2-} ratio or their product, indicating that mixtures containing lower proportions of Cl^- (compared with SO_4^{2-}) were less toxic. Models generated with the combined data set ($n = 192$) also demonstrated that all three anions contributed significantly to the toxicity of mixture solutions, that there was a significant interaction effect between SO_4^{2-} and Cl^-, and that hardness significantly reduced toxicity (Table 3). A five-variable model (Cl^-, SO_4^{2-}, HCO_3^-, SO_4^{2-}:Cl^-, hardness) provided the best combination of precision and complexity, but a model with four variables using anion concentrations and the SO_4^{2-}:Cl^- ratio also represented the data well. Use of only individual anion concentrations provided an R^2 of 0.75 and an AIC of 128. Including the SO_4^{2-}:Cl^- ratio into this model increased the R^2 to 0.84 and decreased the AIC to 47; adding the hardness concentration as an additional variable in the model further increased the R^2 to 0.89 and brought the AIC to 0. Model coefficients were calculated using units of mass (mg/L) because of its use in reporting analytical data. However, molar or equivalent units can be substituted by dividing the coefficients by the molecular or equivalent weights of their anions.

Assumptions of uncorrelated and normally distributed errors used in statistical analyses of regression data were validated with several criteria. Highly significant F statistics for all model components and Pearson correlation coefficients close to 1.0 (0.94–0.97) in the L, T, M, and combined data sets demonstrated strong relationships between independent variables and *C. dubia* reproduction. Model residuals were ordered along straight lines in normal probability plots, and, with one exception, plots of residuals versus predicted responses and independent variables contained no patterns. Plots comparing residuals with predicted responses in M water revealed two distinct groups of observations that roughly corresponded to levels of reproduction (above 60% or below 30%). This pattern appeared to correspond to a gap among anion concentrations in test solutions (depicted as TDS in Fig. 2) that was due to the combinations of greater IC values established for the individual anions in moderate-hardness water (Table 1).

Total dissolved solids is an easily used term to describe mixture solutions including effluents. However, the correspondence between TDS and toxicity in these effluents was not as consistent as predictions of the anion-concentration models, although it was slightly better than that between toxicity and ionic strength or conductivity. A regression using TDS and reproduction in the combined data set provided an R^2 of 0.70. Regressions comparing ionic strength or conductivity with reproduction resulted in R^2 values of 0.62 and 0.68, respectively. *Ceriodaphnia dubia* that had been cultured and tested in M water were more tolerant of greater TDS concentrations than those produced and exposed to either L or T water (Fig. 2). Inhibition concentrations (IC50) based on TDS were 1,139, 1,081, 1,569, and 1,248 mg/L for the L, T, M, and combined data sets, respectively. With similar TDS concentrations in the

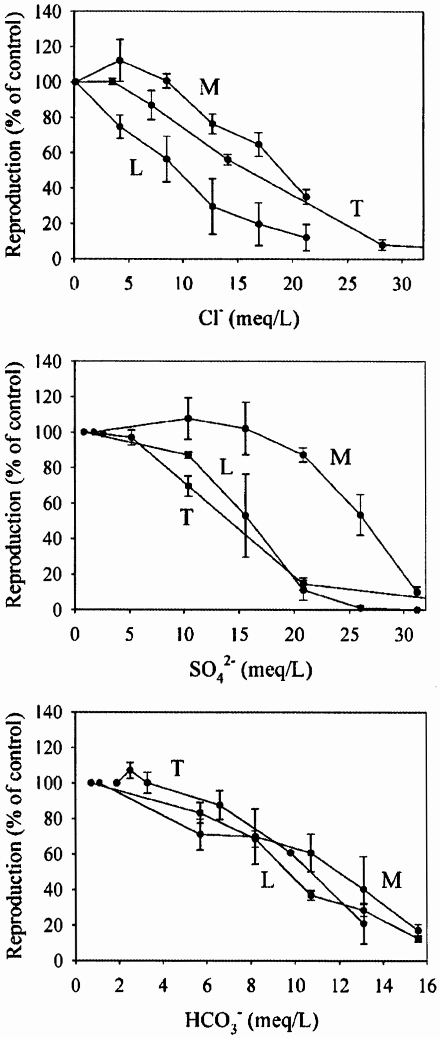

Fig. 1. Mean reproduction of *Ceriodaphnia dubia* (±1 SD) in single-anion toxicity tests of Cl^-, SO_4^{2-}, and HCO_3^- using low-hardness/low-alkalinity water (L; $n = 3$), low-hardness/moderate-alkalinity water (T; $n = 2$), and moderate-hardness/moderate-alkalinity water (M; $n = 3$).

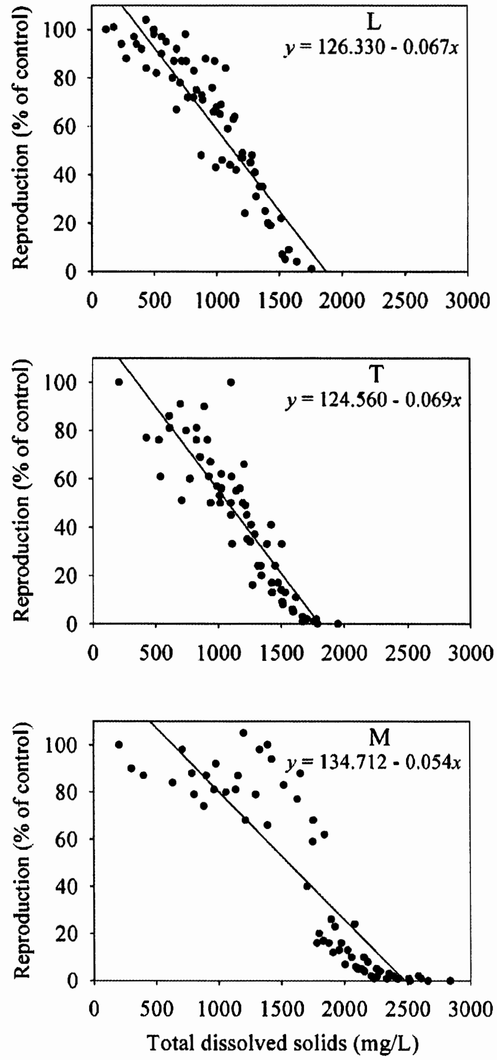

Fig. 2. Mean reproduction of *Ceriodaphnia dubia* plotted against total dissolved solids when exposed to anion-mixture solutions prepared in low-hardness/low-alkalinity water (L), low-hardness/moderate-alkalinity water (T), and moderate-hardness/moderate-alkalinity water (M).

Table 2. Mean inhibition concentrations (IC50 with coefficient of variation) that reduce *Ceriodaphnia dubia* reproduction by 50% for total dissolved solids (TDS; mg/L), ionic strength (IS), and Na^+ (mg/L) determined from assessments of Cl^-, SO_4^{2-}, and HCO_3^- in low-hardness/low-alkalinity (L, $n = 3$), low-hardness/moderate-alkalinity (T, $n = 2$), and moderate-hardness/moderate-alkalinity (M, $n = 3$) waters[a]

		IC50		
Water		Cl^-	HCO_3^-	SO_4^{2-}
L	TDS	689 (12) B	901 (3) B	1,206 (12) A
	IS	0.012 (12) B	0.012 (3) B	0.025 (13) A
	Na^+	244 (13) B	232 (3) B	370 (13) A
T	TDS	1,506 (5) A	989 (4) B	1,517 (2) A
	IS	0.026 (5) B	0.013 (4) C	0.031 (2) A
	Na^+	558 (6) A	256 (4) C	466 (2) B
M	TDS	1,318 (2) B	1,034 (8) C	1,900 (4) A
	IS	0.024 (2) B	0.014 (8) C	0.040 (4) A
	Na^+	468 (2) B	252 (9) C	574 (4) A

[a] Concentrations in a row with the same letter are not significantly different ($\alpha = 0.05$).

Table 3. Predictive models of chronic toxicity that use concentrations of anions (mg/L) and hardness (mg/L as $CaCO_3$) as independent variables to estimate *Ceriodaphnia dubia* reproduction as a percentage of the control reproduction ($n = 192$)

	R^2	Variable	Coefficient	Standard error	α
Model 1	0.84	Intercept	111.516	2.8458	<0.0001
		SO_4^{2-}	−0.079	0.0038	<0.0001
		Cl^-	−0.049	0.0088	<0.0001
		HCO_3^-	−0.105	0.0073	<0.0001
		SO_4^{2-}/Cl^-	0.110	0.0106	<0.0001
Model 2	0.89	Intercept	92.182	3.2874	<0.0001
		SO_4^{2-}	−0.087	0.0034	<0.0001
		Cl^-	−0.091	0.0089	<0.0001
		HCO_3^-	−0.093	0.0063	<0.0001
		SO_4^{2-}/Cl^-	0.078	0.0097	<0.0001
		Hardness	0.553	0.0639	<0.0001

Table 4. Inorganic components and total dissolved solids (TDS) of effluents used to assess anion-toxicity models

Effluent	Cl (mg/L)	SO_4 (mg/L)	HCO_3 (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	TDS (mg/L)	Cr (μg/L)	Cu (μg/L)	Ni (μg/L)	Pb (μg/L)	Zn (μg/L)
1	411	728	199	31	6	419	1,796	6	16	4	2	22
2	51	53	117	19	10	48	303	4	12	1	0	15
3	390	715	1,940	7	4	1,210	4,416	8	13	6	2	27
4	3	51	274	2	1	125	501	8	5	0	0	97
5	76	59	224	5	1	159	534	9	3	1	0	18
6	79	17	241	16	2	175	602	6	5	18	1	241
7	50	410	107	14	1	265	871	35	9	3	3	242
8	14	20	148	5	2	60	254	0	2	1	0	32
9	91	118	1,065	9	12	608	1,972	9	2	2	0	24
10	612	373	479	8	3	616	2,146	0	19	0	0	34
11	263	1,740	719	30	10	1,060	3,893	0	4	5	0	25

T and M waters used for *C. dubia* cultures, the difference in the TDS IC values for these waters suggests that exposure in moderate hardness conditions was responsible for the decreased toxicity.

Effluent testing/model prediction

Effluents collected from various textile manufacturers and municipal waste-treatment plants around the southeastern United States provided realistic examples and were comprised primarily of Na^+ and a mixture of Cl^-, SO_4^{2-}, and HCO_3^- (Table 4). Calcium and Mg^{2+} concentrations indicated soft to moderately hard conditions, with hardness concentrations ranging from 9 to 115 mg/L. Effluent alkalinities varied from 58 to 860 mg/L, with pH values of 8.2 to 9.1; DOC concentrations ranged from 1 to 108 mg/L; total ammonia was present in measurable amounts only in effluent 10 (0.2 mg/L). Chronic toxicities of seven effluents were predicted reasonably well by both models. However, only four effluents (3, 9, 10, 11) provided dilutions in which toxicity appeared to be caused primarily by anion concentrations, although the potential influence of other measured or unmeasured components could not be ruled out. Three effluents (2, 6, 8) contained relatively low anion concentrations and exhibited no chronic toxicity as was predicted by the models. On the other hand, four effluents (1, 4, 5, 7) also had relatively low anion concentrations but elicited much more toxicity than predicted. These results presumably were due to toxic levels of trace metals or other undetermined components. Copper and Ni exceeded concentrations causing chronic toxicity in the upper dilutions of effluent 1, and Cu and Zn exceeded these concentrations in effluent 7 (http://epa.gov/waterscience/criteria/nrwqc-2006.pdf), but causes for toxicities of effluents 4 and 5 were unknown. Only test results from effluents 3, 9, 10, and 11 were considered further. In treatments with the greatest proportion of these effluents, K^+ ranged from 11 to 47 mg/L and NO_3^- ranged from 0 to 9 mg/L, and PO_4^{3-} and DOC concentrations were low as well (0–2 mg/L and 1–7 mg/L, respectively). Concentrations of K^+ and NO_3^- were below reported levels of chronic toxicity [25,26].

Effluent toxicity differed significantly with the type of dilution water used in two of the four effluent assessments (Table 5, Fig. 3). Toxicity tests of effluents 9 and 10 provided essentially the same responses regardless of the type of dilution water used, but effluent 3 was significantly more toxic when diluted with moderate-hardness water, whereas effluent 11 was significantly more toxic when diluted with low-hardness water. Both models produced fairly accurate estimates of reproduction, which were used to approximate effluent toxicity (Fig. 3). Predictions with model 1 were generally closer to observed responses for effluents 3 and 10 (hardness concentrations < 40 mg/L), whereas predictions with model 2, which included hardness, were more accurate for effluents 9 and 11 (hardness concentrations > 70 mg/L). However, the observed responses might also reflect influences of other effluent components that can often confound assessments of toxicity, such as DOC and undetermined contaminants.

There was a significant difference in the toxicity of effluent 3 depending on the type of dilution water used, with increased toxicity in moderately hard water. Both models adequately predicted the toxicity of effluent 3 when it was diluted with L water, but model 2 substantially underestimated its toxicity when diluted with M water (Table 5, Fig. 3). Predicted point estimates for effluent 3 were within confidence intervals of those determined from the observed responses in low-hardness dilutions, as was the IC50 estimate of model 1 in moderate-hardness dilutions. Predicted reproduction was often within 1 SD of the observed responses. In dilutions prepared with low-hardness water, predictions by both models were virtually the same, because the hardness concentration in all four dilutions was close to 40 mg/L (Table 6), which was the low concentration used to establish model 2. The greater toxicity in moderate-hardness dilutions was unexpected because of the small differences in anion concentrations and suggested a negative effect because of the acclimation of test animals to moderate-hardness conditions followed by exposure to lower-hardness test solutions. Chemistries of the low- and moderate-

Table 5. Observed and predicted inhibition concentrations (% effluent) that reduce *Ceriodaphnia dubia* reproduction by 25% and 50% for effluents diluted with low-hardness (L) or moderate-hardness (M) waters[a]

		Observed response (95% CI)		Predicted response			
				Model 1		Model 2	
Effluent	Water	IC25	IC50	IC25	IC50	IC25	IC50
3	L	15 (10–18)	22 (20–25)	11	20	11	20
	M	3 (2–7)	13 (9–18)	9	18	15	23
9	L	43 (36–49)	61 (55–63)	20	38	26	49
	M	41 (29–53)	60 (51–65)	17	35	37	56
10	L	29 (26–31)	48 ND	30	55	22	42
	M	36 (19–38)	46 (43–48)	27	51	30	48
11	L	4 (3–11)	23 (16–25)	14	25	14	26
	M	30 ND	NT	13	24	20	33

[a] ND = confidence interval (CI) could not be determined; NT = reproduction in greatest effluent concentration >50% of control reproduction.

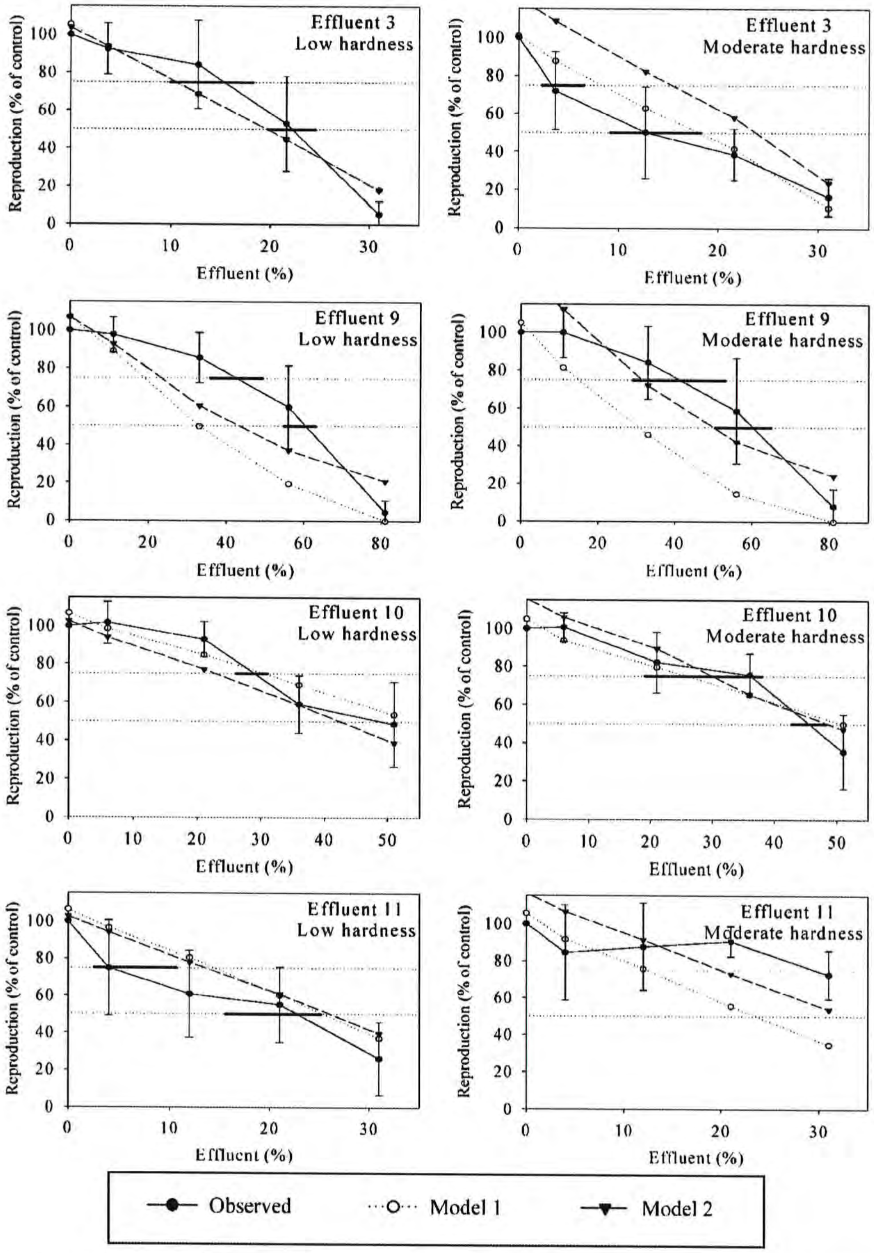

Fig. 3. Mean reproduction of *Ceriodaphnia dubia* (± 1 SD; $n = 10$) in effluents diluted with low- and moderate-hardness waters compared with predicted estimates from two anion-toxicity models. Model 1 incorporates concentrations of Cl^-, SO_4^{2-}, and HCO_3^-, and model 2 uses hardness as an additional variable. Confidence intervals (95%) calculated for 50 and 25% inhibition concentrations are denoted by thick lines along the 50 and 75% reproduction levels.

hardness dilutions were similar and varied primarily as a result of differences in the dilution waters; hardness concentrations declined with increasing effluent concentrations in moderate-hardness dilutions while remaining constant in low-hardness dilutions (Table 6). Most of the toxicity observed in effluent 3 appeared to be due to HCO_3^- and Cl^-. The IC25 and IC50 values determined for low-hardness dilutions of effluent 3 were 15% and 22%, respectively. In the actual 13% and 22% dilutions of effluent 3 (Table 6), concentrations of HCO_3^- were between the IC25 and the IC50 values established in low-hardness solutions, and effluent Cl^- concentrations were between the IC12 and IC25 values (Table 1).

Effluent 9 elicited the same pattern of toxicity regardless of the dilution water used (Fig. 3). Its toxicity was substantially overestimated in low-hardness dilutions by both models, and model 1 overestimated its toxicity in moderate-hardness dilutions. However, point estimates and predicted responses calculated with model 2 for dilutions prepared with moderate-hardness water were reasonably accurate (Table 5). Effluent 9 contained moderate hardness that remained relatively constant among M water dilutions and increased with effluent concentration in L water dilutions. It also contained the highest concentration of DOC (7 mg/L) of the four effluents. The toxicity of effluent 9 appeared to be due primarily to HCO_3^- (Table 6). The IC25 and IC50 values determined for the effluent in both low- and moderate-hardness waters were approximately 42% and 60%, respectively. Treatments within this range (33 and 56% effluent) contained concentrations of

Table 6. Chemical concentrations (mg/L) measured in effluent dilutions and used in model predictions

		Low-hardness dilution water				Moderate-hardness dilution water			
Effluent	Percentage	Cl^-	SO_4^{2-}	HCO_3^-	Hardness	Cl^-	SO_4^{2-}	HCO_3^-	Hardness
3	4	14	59	125	35	13	102	154	72
	13	52	123	296	35	53	160	322	70
	22	84	180	465	34	108	259	484	65
	31	139	260	631	35	152	317	653	61
9	11	7	32	192	39	9	65	244	78
	33	29	54	540	46	29	78	555	74
	56	48	75	802	55	48	92	835	72
	81	70	95	971	60	63	91	994	69
10	6	26	44	81	28	26	75	107	58
	21	99	89	143	27	100	119	171	59
	36	194	142	209	28	189	168	228	47
	51	292	194	272	28	291	211	296	49
11	4	9	88	84	31	9	119	111	63
	12	26	201	141	33	26	229	166	65
	21	50	360	204	41	48	389	228	72
	31	74	546	275	48	72	551	293	77

HCO_3^- above its IC25 and IC50 values, whereas the concentrations of Cl^- and SO_4^{2-} in effluent 9 would not have contributed much toxicity given the level of hardness present (Tables 1 and 6).

The toxicity of effluent 10 was also not significantly affected by the difference in dilution water (Table 5). However, in contrast to effluent 9, effluent 10 contained less hardness and HCO_3^- and more Cl^- and SO_4^{2-}, and both models provided fairly accurate estimates of reproduction and effluent IC values (Tables 5 and 6). Chloride appeared to be the most toxic component, with concentrations that ranged between its IC25 and IC50 values (Table 1). Bicarbonate concentrations were between its IC6 and IC12 values, and SO_4^{2-} was slightly below its IC6 value. Concentrations of hardness in the low-hardness dilutions of effluent 10 were well below 40 mg/L (Table 6), causing model 2 to predict lower reproduction than model 1 and to overestimate toxicity. A confidence interval could not be calculated for the IC50 determined for the low-hardness dilutions because of a lack of sufficient range in effluent concentration.

The type of dilution water had a significant effect on the toxicity of effluent 11, with a toxic response in dilutions using low-hardness water and a nontoxic response in dilutions using moderate-hardness water (Table 5, Fig. 3). Both models underestimated the toxicity of effluent 11 in low-hardness dilutions and overestimated its toxicity in moderate-hardness dilutions. However, predicted reproduction was within 1 SD of the observed responses in the low-hardness dilutions and the lower two dilutions prepared with moderate-hardness water. Hardness concentrations in effluent dilutions increased with effluent concentrations, causing a reduction in the slope of toxicity midway through the dilutions (Table 6 and Fig. 3). Chloride, SO_4^{2-}, and HCO_3^- all contributed to the toxicity of the low-hardness dilutions (Table 1), but only HCO_3^- was present in toxic concentrations (between IC12 and IC25) in the moderate-hardness dilutions. Confidence intervals and the IC50 value could not be determined for moderate-hardness dilutions of effluent 11 as a result of mean reproduction greater than 70% of the control in all dilutions.

The effects of acclimation to hardness conditions were also noticeable in the effluent assessments. Exposing *C. dubia* cultured at one hardness concentration to test solutions with lesser or greater concentrations as a result of effluent dilutions resulted in substantially different levels of reproduction, particularly in dilutions eliciting responses between the 75 and 50% reproduction levels used to determine IC25 and IC50 values (Fig. 4). In the 13% dilutions of effluent 3, animals cultured in low-hardness water had greater reproduction than those cultured in moderate-hardness water. The 56, 36, and 22% dilutions of effluents 9, 10, and 11, respectively, indicated less reproduction from animals cultured in moderate-hardness water and exposed to low-hardness dilutions and more reproduction from animals cultured in low-hardness water and exposed to moderate-hardness dilutions. Reproduction of animals in control treatments also reflected this pattern with consistently lower reproduction from animals cultured in moderate-hardness water and tested in low-hardness water (Table 7). These results highlight the potential variability in toxicity determinations when using *C. dubia* reproduction because of differences in hardness concentrations within the effluent, dilution water, and culture water.

DISCUSSION

The chronic toxicities of Cl^- and SO_4^{2-} determined in the present study were similar to those established in other research, but information regarding the chronic toxicity of HCO_3^- was not available for comparison. Chloride IC50 values for *C. dubia* were similar to those determined elsewhere in low-hardness water [10] and in moderate-hardness water [9,11]. The IC50 value for SO_4^{2-} determined in moderate-hardness water was close to that determined by Soucek [27], who also tested Na_2SO_4 in a similar water formulation. With the toxicity of SO_4^{2-} measured as TDS, the IC25 (1,518 mg TDS/L) determined in moderate-hardness water was comparable to the IC25 (1,443 mg/L) determined in water with a slightly lower hardness [14]. Hardness significantly reduced the chronic toxicities of Cl^- and SO_4^{2-} and has been observed to reduce the acute toxicity of SO_4^{2-} as well [7,8,14,28]. In using acute-toxicity values for 24-h tests [7] and IC25 values from the present study, acute-to-chronic ratios (in moderate-hardness water) for Cl^-, SO_4^{2-}, and HCO_3^- were low (4.5, 2.3, and

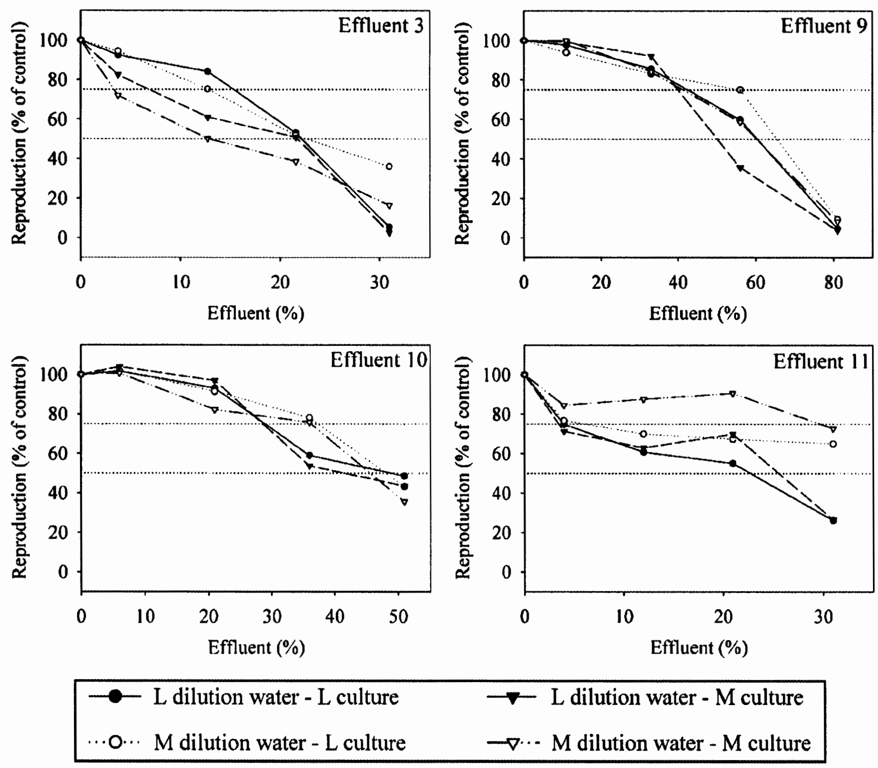

Fig. 4. Mean reproduction of *Ceriodaphnia dubia* in effluent assessments using animals cultured in low-hardness (L) or moderate-hardness (M) water and exposed to effluent dilutions prepared with low- and moderate-hardness waters.

2.7, respectively), demonstrating that dilution quickly reduces their toxicity [24]. These ratios were similar to those found in surveys of effluents from chemical manufacturers and publicly owned wastewater treatment facilities [29], supporting the assertion that the major anions may contribute significantly to the chronic toxicity of many effluents.

The relatively high IC values of Cl^-, SO_4^{2-}, and HCO_3^- compared with other contaminants may indicate impairment of the animal's osmoregulatory functions or a disruption of its acid–base balance. Freshwater invertebrates concentrate Cl^- against a chemical gradient by using $Na^+/Cl^-/K^+$/adenosine triphosphate transport mechanisms and excrete SO_4^{2-} and HCO_3^- as byproducts of respiration [30,31]. Chloride is directly related to the active uptake of Na^+ and elimination of HCO_3^-, and all three anions contribute to the acid–base balance [31]. The importance of the ionic charge to these processes justified using equivalent units to compare

Table 7. Mean reproduction (with coefficient of variation, $n = 10$) of *Ceriodaphnia dubia* from low-hardness (L) and moderate-hardness (M) cultures when exposed to low- and moderate-hardness control treatments during effluent assessments[a]

	L culture		M culture	
Effluent	L water	M water	L water	M water
3	24.1 (10.8) B	25.5 (11.6) B	23.4 (12.1) B	31.1 (7.3) A
9	30.7 (6.9) A	29.7 (7.8) A	24.4 (13.0) B	29.8 (11.8) A
10	28.8 (9.8) A	28.0 (7.1) A	25.7 (21.3) A	29.2 (10.4) A
11	31.4 (7.7) AB	30.0 (14.2) AB	27.2 (23.8) B	33.0 (6.2) A

[a] Values in a row with the same letter are not significantly different ($\alpha = 0.05$).

common ion toxicities. Based on equivalents, HCO_3^- is the most acutely toxic of the anions, followed by Cl^- and SO_4^{2-} [4]. The same pattern was evident in chronic exposures from the present study conducted in moderate-hardness water ($HCO_3^- > Cl^- > SO_4^{2-}$).

Substantial differences were observed in the toxicities of Cl^- and SO_4^{2-} because of characteristics of the waters in which they were tested. However, the toxicity of HCO_3^- remained fairly consistent across the three types of water. Hardness reduced the toxicities of SO_4^{2-} and Cl^-, and Cl^- toxicity was also reduced in water with moderate alkalinity compared with low-alkalinity water. However, the reduction in Cl^- toxicity most likely was due to the increase of Na^+ rather than the increase of alkalinity. Alkalinity in these solutions was provided by additions of $NaHCO_3$, and after disassociation the additional HCO_3^- should add toxicity. However, ion regulation in freshwater animals is dependent on cellular interactions involving Na^+ [30,31] and the additional Na^+ in the moderate-alkalinity water might have mitigated the impacts of the Cl^- and HCO_3^-. The toxicity of Cl^- relative to SO_4^{2-} and HCO_3^- was dependent on the type of water in which it was tested. Variability in Cl^- toxicity resulting from changes in hardness and Na^+ resulted in its toxicity being similar to that of SO_4^{2-} and significantly less than that of HCO_3^- in water with more Na^+ and low hardness, similar to HCO_3^- and significantly greater than SO_4^{2-} in waters containing less Na^+ and low hardness, and more toxic than SO_4^{2-} but less toxic than HCO_3^- in water with more Na^+ and moderate hardness.

The toxicities of anion mixtures generally represent the additive effects of Cl^-, SO_4^{2-}, and HCO_3^-, with significant effects contributed by hardness and an interaction between Cl^-

and SO_4^{2-}. Although measurements such as TDS, conductivity, and ionic strength can provide rough estimates of toxicity, the inherent variability in these measurements precludes their use as reliable predictors. An example can be seen in a comparison of effluent toxicities based on conductivity. Dilutions of the four effluents (3, 9, 10, 11) all represented the same sequence of conductivity (500, 1,000, 1,500, 2,000 μS/cm), but the variability in reproduction among dilutions with the same conductivity was often substantial (Fig. 3). Reproduction in effluent dilutions with conductivities of 1,000 μS/cm ranged from 50% to 93%; reproduction was between 39 and 91% in dilutions with conductivities of 1,500 μS/cm and between 5 and 73% in dilutions with conductivities of 2,000 μS/cm. The apparent reduction of TDS toxicity in moderate-hardness water (Fig. 2) most likely was due to the collective effect of hardness on the anion toxicities. Even though there appeared to be an upper limit of TDS/conductivity/ionic strength with regard to reproduction, the effects almost certainly were due to the cumulative anion toxicities.

Models created from anion-toxicity data predicted the chronic toxicity of effluents relatively well when toxicity was related to concentrations of common ions. Model 2, which includes hardness as a variable, provided better estimates of reproduction than model 1 when effluents contained moderate hardness but became less effective when concentrations of hardness dropped below 40 mg/L. The models can be used to estimate the proportion of effluent toxicity expected to be contributed by the major anions, to indicate when the presence of other toxicants should be investigated, and to suggest changes in chemical components that may result in lower toxicity. Assessments of effluent 9, which was dominated by HCO_3^- and contained moderate hardness, were virtually identical with low- and moderate-hardness waters, supporting single-anion toxicity results indicating that hardness does not significantly affect HCO_3^- toxicity, although the DOC content of effluent 9 may have reduced its toxicity below levels predicted by the models. This would suggest that DOC has an antagonistic effect on the toxicity of HCO_3^- similar to its effect on the toxicity of other inorganic and organic contaminants [32–34]. However, the possibility of an undetermined effluent component causing the reduction in toxicity also exists. The beneficial effect of hardness was most pronounced in assessments of effluent 11. Low-hardness dilutions contained toxic concentrations of Cl^- and SO_4^{2-}, but, in moderate-hardness dilutions, similar concentrations of Cl^- and SO_4^{2-} were not toxic. Sulfate and Cl^- should be favored over HCO_3^- in processes that produce wastewaters because of their lower chronic toxicity and because their toxicities can be significantly reduced by relatively small amounts of hardness.

The concentration of hardness in dilution and culture waters had a significant effect on reproduction in some situations but not others. Similarly to previous research [12], acclimation of test organisms to low and moderate hardness conditions had significant effects on reproduction in effluent treatments as well as control treatments. These results support other standard procedures [35] suggesting that *C. dubia* be reared in water with a hardness similar to the hardness of solutions intended for testing. Test animals often produced fewer neonates when exposed to an effluent dilution with a lower hardness concentration than their culture water. Effluents with low concentrations of hardness assessed with animals cultured in moderate-hardness water may elicit a false-positive response simply because of the change in hardness. Given the possibility of these effects, acclimation of *C. dubia* to the hardness concentration to be tested is a logical solution that requires relatively little effort.

CONCLUSIONS

The chronic toxicity observed in evaluations of many municipal and industrial effluents may often be due to concentrations of Cl^-, SO_4^{2-}, and HCO_3^- that exceed the tolerance of *C. dubia*. Toxicities of these anions decrease quickly with dilution and so present the greatest risk to small receiving streams in which the effluent is the major source of water. For the purposes of permitting effluents, an effort should be made to separate the effects of these anions from those of more persistent and toxic compounds also present in order to provide a more realistic assessment of environmental impact. Information developed in the present study can help to facilitate this distinction. Differences in hardness and conditions of acclimation affected determinations of chronic toxicity in effluents, with relatively small additions of hardness often reducing effluent toxicity. By using measured anion concentrations and the predictive models of chronic anion toxicity, the proportion of effluent toxicity attributable to the major anions can be estimated and potential substitutions with less toxic components suggested.

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STATISTICAL MODELS TO PREDICT THE TOXICITY OF MAJOR IONS TO *CERIODAPHNIA DUBIA, DAPHNIA MAGNA* AND *PIMEPHALES PROMELAS* (FATHEAD MINNOWS)

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Abstract—Toxicity of fresh waters with high total dissolved solids has been shown to be dependent on the specific ionic composition of the water. To provide a predictive tool to assess toxicity attributable to major ions, we tested the toxicity of over 2,900 ion solutions using the daphnids, *Ceriodaphnia dubia* and *Daphnia magna,* and fathead minnows (*Pimephales promelas*). Multiple logistic regression was used to relate ion composition to survival for each of the three test species. In general, relative ion toxicity was $K^+ > HCO_3^- \approx Mg^{2+} > Cl^- > SO_4^{2-}$; Na^+ and Ca^{2+} were not significant variables in the regressions, suggesting that the toxicity of Na^+ and Ca^{2+} salts was primarily attributable to the corresponding anion. For *C. dubia* and *D. magna,* toxicity of Cl^-, SO_4^{2-}, and K^+ was reduced in solutions enriched with more than one cation. Final regression models showed a good quality of fit to the data (R^2 = 0.767–0.861). Preliminary applications of these models to field-collected samples indicated a high degree of accuracy for the *C. dubia* model, while the *D. magna* and fathead minnow models tended to overpredict ion toxicity.

Keywords—Ions Total dissolved solids Salinity Toxicity *Ceriodaphnia dubia*

INTRODUCTION

Natural fresh waters contain several ionic constituents at greater than trace levels. Indeed, ions such as Na^+, Ca^{2+}, Cl^-, and others are required at a minimum level to support aquatic life, and these major ions are components of most formulas for "reconstituted" water used in aquatic toxicity testing [1,2]. However, many natural and anthropogenic sources can increase ion concentrations to levels toxic to aquatic life. Studies of oil and gas produced waters [3–5], irrigation drain waters [6,7], shale oil leachates [8], sediment pore waters [9,10], and industrial process waters [11,12] have shown toxicity caused by elevated concentrations of common ions.

Typically, integrative parameters such as conductivity, total dissolved solids (TDS), or salinity are used as a measure of the concentrations of common ions in fresh waters. While for a given ionic composition there is undoubtedly a correlation between increasing conductivity or TDS and increasing toxicity, these parameters are not robust predictors of toxicity for a range of water qualities. For example, Burnham and Peterka [13] noted that fathead minnows could tolerate TDS concentrations up to 15,000 mg/L in Saskatchewan lakes dominated by Na^+ and SO_4^{2-}, but populations did not persist above 2,000 mg/L in $Na^+/K^+/HCO_3^-$-dominated lakes of Nebraska. In studies of irrigation drain waters, Dickerson et al. [7] found *Ceriodaphnia dubia* 50% lethal concentration (LC50) values corresponding to approximate conductivities of 3,500 to 4,000 μS/cm (calculated), while Jop and Askew [11] showed major ion toxicity to *C. dubia* in an industrial process water with a conductivity of only 1,800 μS/cm (K.M. Jop, personal communication). Studies by Dwyer et al. [14] demonstrated that the toxicity of high TDS waters to *Daphnia magna* and striped bass *Morone saxatilis* was dependent on the specific ionic composition of those waters.

Given the substantial differences in toxicity among major ion salts [15], these differing responses in waters with different ionic compositions are to be expected. Still, they emphasize the inadequacy of generic measures for assessing the potential toxicity of major ions and the need for a broader understanding of major ion toxicity. This paper presents research to develop more comprehensive tools for assessing major ion toxicity. Acute toxicity tests using three freshwater organisms were conducted on solutions enriched with varying combinations of major ions. Results of these tests were incorporated into multivariate logistic regression models that predict survival of the three test species based on major ion concentrations.

MATERIALS AND METHODS

Test organisms

All organisms used in testing were obtained from in-house cultures (ENSR, Fort Collins, CO, USA); daphnids were less than 24 h old at test initiation, while fathead minnows were 1 to 7 d old. *Ceriodaphnia dubia* were cultured in either moderately hard reconstituted water (MHRW) or 20% mineral water [1] at 25°C, while *D. magna* were cultured in hard reconstituted water [1] at 20°C. Fathead minnow brood stock were cultured at 20 to 25°C in tap water that was pretreated with activated carbon. Eggs and larva were held in MHRW; larva were fed brine shrimp nauplii (*Artemia* sp.) twice daily until they were used in testing.

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Test procedures

Toxicity tests followed the general guidance of the U.S. Environmental Protection Agency (USEPA) [1,16] for conducting acute whole effluent toxicity tests. All tests were conducted in 30-ml plastic beakers containing 10 ml of test solution and five organisms per chamber. Tests were conducted under a 16-h:8-h light : dark photoperiod; *C. dubia* and fathead minnows were tested at 25°C, while *D. magna* were tested at 20°C. Dilution/control water for all tests was MHRW. Exposure periods were 48 h for *C. dubia* and *D. magna* and 96 h for fathead minnows, with daily observations of mortality. The criteria for death were no visible movement and no response to prodding.

Standard guidance for acute effluent toxicity testing [1] is to withhold food during testing of daphnids, presumably because of concerns that the addition of food might alter the toxicity of the sample. However, in water devoid of food (e.g., reconstituted laboratory water), withholding food likely places some stress on the test organisms. Moreover, effluents and ambient waters, to which the results of these experiments apply, can be expected to contain bacteria, algae, and other sources of food. Hence, addition of daphnid food (yeast/cerophyl/trout chow [YCT] and algae [2]) to clean laboratory water might better simulate the characteristics of field-collected samples. To assess the potential effect of feeding on major ion toxicity, initial tests using *C. dubia* were conducted both with and without feeding. Analysis of these initial experiments (see Results) showed that the addition of food represented only a small influence on *C. dubia* survival. Because the effect of feeding was small and its inclusion was believed to provide a more representative test matrix, remaining *C. dubia* tests included feeding, as did all *D. magna* and fathead minnow tests. For daphnid tests, 100 μl of a 1:1 mix of YCT and algal suspension was added to each test chamber at test initiation. For fathead minnow tests, 100 μl of concentrated brine shrimp nauplii was added after 48 h of exposure, though solutions were not subsequently renewed as recommended by the USEPA [1].

Because toxicity testing of salt solutions was to be completed over several months, we recognized the possibility that systematic drift in test organism sensitivity could bias the results of toxicity tests conducted at different times. In an attempt to account for this potential variability, each set of toxicity tests included a reference toxicant test using NaCl. LC50 values were computed for each of these tests and were included in the statistical modeling as another independent variable. Thus, if drifts in organism sensitivity did occur and were reflected in the response to NaCl, they could be accounted for in the regression modeling.

Chemical measurements

Concentrations of major ions were determined analytically in all stock solutions used in testing. Ca^{2+}, Na^{+}, Mg^{2+}, and K^{+} were determined using inductively coupled plasma emission spectroscopy (ICP) according to USEPA method 200.7 [17]; Cl^{-} and SO_4^{2-} concentrations were determined by anion chromatography [18]; and HCO_3^- concentrations were determined indirectly by the measurement of phenolphthalein alkalinity [19]. As HCO_3^- is the predominate carbonate species present in the pH range of interest (pH 6.5–9.0), alkalinity equivalents were converted directly to HCO_3^- concentration.

Dissolved oxygen (DO) and pH were measured in selected test solutions during actual toxicity testing, primarily on solutions near the threshold for acute toxicity. DO was measured with a Yellow Springs Instrument model 54 DO meter (Yellow Springs, OH, USA) while pH was measured with a Orion pH meter model SA250 (Boston, MA, USA). Measured DO concentrations were always within an acceptable range (>40% saturation) [1]. Measured pH varied according to the components of the solution but was generally between pH 7.5 and 9.0.

Preparation of test solutions

Test solutions were prepared by dissolving individual ion salts in MHRW. Salts used in testing were NaCl, Na_2SO_4, $NaHCO_3$, KCl, K_2SO_4, $KHCO_3$, $CaCl_2$, $CaSO_4$, $MgCl_2$, $MgSO_4$, $CaCO_3$, and $MgCO_3$; all were of reagent grade or better (Sigma Chemical Company, St. Louis, MO, USA). Stock solutions were prepared from these salts by dissolving 10,000 mg/L of a salt in MHRW. $CaSO_4$ was not fully soluble at 10,000 mg/L; for this reason, $CaSO_4$ solutions were filtered through a 1-μm glass fiber filter prior to testing and ion concentrations were measured in filtered solutions. Test solutions using $CaCO_3$ and $MgCO_3$ had pH in excess of 10 and were acidified with HCl or H_2SO_4 until pH stabilized at approximately 8.5.

For tests evaluating only one salt (one cation and one anion), test solutions were prepared by serially diluting the 10,000-mg/L stock solutions with MHRW to develop a series of test concentrations spaced on a 0.5 × dilution factor (i.e., 10,000, 5,000, 2,500, 1,250 mg/L). For tests involving two salts, solutions were prepared by combining equal volumes of the two stock solutions, then diluting as necessary. As testing proceeded and effect thresholds were determined, test concentrations were often spaced much more closely (e.g., 2,500, 2,000, 1,500, 1,000, 500 mg/L) to better define responses near the effect threshold.

All ion concentrations measured in the stock solutions were compared to nominal values. If the measured concentrations differed from the nominal value by more than 20%, the actual measured concentrations were substituted for the nominal concentrations. Aside from $CaSO_4$, which did not completely dissolve, substantial discrepancies between nominal and measured concentrations occurred in two instances, once for a $MgCl_2$ stock solution and once for a $CaCl_2$ stock solution. In some analyses, the measured concentrations of cations and anions (expressed as milliequivalents or meq) in a salt solution were not similar. Because charge balance is a physical/chemical requirement, such solutions were further evaluated to determine which concentration (cation or anion) was closer to the nominal value. In all cases, the cation concentration was closer to the nominal value; based on this, the anion concentration in the stock solution was changed to the concentration (in meq) of the corresponding cation.

To calculate ion concentrations in actual test solutions, the concentrations in the applicable stock solutions were multiplied by the relative proportion of each solution in the test solution. Because the dilution water (MHRW) also contained small concentrations of each ion, these background concentrations were then added to the calculated contributions from the stock solutions.

In cases where an SO_4^{2-} salt (e.g., Na_2SO_4) was combined with a Ca^{2+} salt (e.g., $CaCl_2$), the potential existed for supersaturation of test solutions with respect to $CaSO_4$. This potential was confirmed by the appearance of white precipitates in some test solutions. Because precipitation would affect the dissolved ion concentrations in the test solutions, all ion combinations tested were checked for $CaSO_4$ supersaturation by comparing the nominal test concentrations of Ca^{2+} and SO_4^{2-} with the solubility product for $CaSO_4$ (226.5) calculated from measured concentrations of Ca^{2+} and SO_4^{2-} in a saturated $CaSO_4$ solution. If a particular solution was supersaturated with respect to $CaSO_4$, Ca^{2+} and SO_4^{2-} concentrations were reduced on an equimolar basis until the concentrations reached the calculated saturation point. These corrected concentrations were then used for data analyses.

Replication

To incorporate intertest variability into the data set, emphasis was placed on replication between batches of tests conducted through time rather than on having replicate chambers tested simultaneously. Accordingly, most ion combinations evaluated were tested on at least two and as many as five different occasions (see results). The exception was for two cation/one anion solutions tested with *D. magna* and fathead minnows, and two cation/two anion solutions tested with *C. dubia*; for these tests, duplicate chambers (10 animals total) were tested simultaneously. When calculating LC50 values, replicate tests conducted on different days were analyzed separately, but duplicate chambers tested simultaneously were combined into one analysis.

Data collection, management, and analysis

Data generated by all toxicity tests were entered into a database using Paradox™ 3.1 software (Borland International, Scotts Valley, CA, USA). Regression modeling was based on individual ion concentrations rather than salt concentrations. By converting salts to ion concentrations, we were able to separate out the effects of individual cations and anions instead of the effects of cation–anion pairs. Statistical modeling of the toxicity data consisted of stepwise logistic multiple regression using the LR program within BMDP statistical software [20].

Logistic regression relates binary observations (e.g., alive or dead) to one or more independent variables (in this case, ion concentrations). The completed regression predicts a probability of survival based on concentrations of ions showing relationships to survival. The linear logistic regression model used is of the form

$$\begin{aligned} \text{logit}(P) &= \ln[P/(1 - P)] \\ &= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n \end{aligned} \qquad (1)$$

where P = proportion surviving, β = regression coefficient, X = ion concentration, and n = total number of significant terms in the model.

During development of the final models, various data transformations (e.g., log) and independent variable interactions (e.g., $Cl \times SO_4$ interaction) were considered. Each potential model was evaluated using the following criteria: (1) each independent variable in the model must significantly improve the fit of the model to the data ($\alpha = 0.05$); (2) the model should maximize R^2 (maximize the amount of variance in the data that is explained by the model) and minimize the number of independent variables; and (3) the model should provide reasonable predictions even when extrapolating outside the limits of the data used to generate the model.

Data collection and model development were iterative processes in which a series of statistical models (regressions) were developed followed by supplemental data collection. To begin, data were generated for single ion pairs or salts (e.g., Na_2SO_4, $CaCl_2$). Based on these data, an initial regression equation was developed (F_1). Next, additional toxicity data were generated using combinations of two cations and one anion (e.g., Na^+, Ca^{2+}, and SO_4^{2-}) and one cation and two anions (e.g., Na^+, Cl^-, and SO_4^{2-}). The F_1 equation was then used to predict survival for these additional data. In addition, a second regression equation (F_2) was then developed using all data generated to date. The predictive abilities of both models were then compared by examining the relationship between predicted and observed survival for all of the ion combinations tested. If F_2 had notably better predictive ability than F_1, we concluded that important relationships in the data were not accounted for in the F_1 equation. The process was repeated by testing more complex ion solutions and developing additional regression equations, until the incorporation of additional data did not substantially alter the basic equation. This iterative process of data generation, model development, and additional data generation continued throughout model development.

As part of this iterative process, characteristics of specific points that had poor correlation between predicted and observed survival were considered. In some cases, it was found that such data points had poor agreement between replicate tests of the same ion combination, hence it was impossible for the regression equation to fit both responses. In these instances, additional toxicity tests were conducted using that particular combination of ions to better characterize the response. Of 2,904 total data points, 59 were discarded as spurious; of these, 46 were for *C. dubia*, 5 for *D. magna*, and 8 for fathead minnows. Thirty-eight of the 59 discarded points were cases where mortality (typically one or two dead out of five organisms) was observed two or more concentrations below the primary concentration response, suggesting that ion toxicity may not have been the cause of mortality. Though these points may represent innate variability in the survival of test organisms, our intent was to represent mortality due to ion stress; random mortalities at low ion concentrations tended to decrease the slope of the regression model and obscure the response threshold. Of the remaining discarded points, 10 were discarded because the $CaSO_4$ solution was not filtered prior to testing (*C. dubia*); 10 were from a K_2SO_4 dilution series in which there was erratic and substantial mortality without evidence of a concentration response (*C. dubia*); and one was from a test chamber that was spilled after the 24-h observation (*P. promelas*).

In other cases, it was found that outlier points tended to share certain characteristics. For example, it was noted that for *C. dubia*, early regressions showed poor predictive ability for ion combinations containing Cl^- opposed by two cations (e.g., Na^+ and Ca^{2+} with Cl^-); these solutions showed lower toxicity than those with just one Cl^- salt (e.g., NaCl). Further testing with these ion combinations showed that this response was reproducible. To account for this phenomenon, a new variable called NumCat was created. The value of NumCat is equal to the number of cations representing at least 10% of the total molar concentration of cations and present at greater than 100 mg/L. The development and implications of the NumCat variable are discussed in detail in the Results.

In addition to the more rigorous statistical modeling described above, LC50 concentrations were also calculated using a computer program following the trimmed Spearman–Karber method [21]. Independent LC50 values were calculated for each unique (i.e., nonsimultaneous) test of ion toxicity. For

Table 1. Number of ion solutions tested for toxicity[a]

Species	Number of cations/anions[b] 1/1	1/2	2/1	2/2	3/1	4/1	Subtotal	Reference toxicant and controls	Total
Ceriodaphnia dubia	464	449	438	401	108	20	1,887	232	2,119
Daphnia magna	354	147	65	0	0	0	566	122	688
Fathead minnows	242	142	59	0	0	0	451	56	499

[a] Replicate analyses counted separately.
[b] Number of ions enriched above background concentrations.

ion combinations that were tested repeatedly, average LC50s were calculated as the arithmetic mean of the values. In some cases, tests did not capture the effect threshold and an LC50 could only be expressed as a range (e.g., LC50 < 625 mg/L). Where this range did not conflict with the other calculated values, the indefinite value was dropped and the mean was calculated from the remaining values (e.g., 500, 700, and <625 would average to 600 with $n = 2$). If the indefinite value represented an extreme value, the mean was calculated as an inequality relative to the mean of the numerical values (e.g., 775, 700, and <625 would average to <700 with $n = 3$).

RESULTS AND DISCUSSION

In total, survival data were collected for 2,904 ion solutions, excluding reference toxicant tests and controls (Table 1). Data collection and modeling were conducted first for *C. dubia,* and the resulting data set encompasses both greater replication and a greater variety of ion combinations. The full data sets are too extensive to provide here but are provided in print in Mount and Gulley [22].

To present the data in a more condensed form, LC50 values were calculated for all ion solutions tested (Tables 2 and 3). Coefficients of variation for LC50 values for individual ion combinations were typical for acute toxicity tests [1], with means of 17% for *C. dubia* (SD = 14; range 0.0–61), 17% for *D. magna* (SD = 7.5; range 4.8–31), and 24% for fathead minnows (SD = 15; range 1.4–62).

The effect of feeding on the response of *C. dubia* was assessed during the first three sets of tests conducted. In each of these, toxicity of each single salt solution was tested both with and without the addition of food. Average LC50 values for tests with and without feeding were similar (Fig. 1), although there was a tendency for tests without feeding to have slightly lower LC50 values. Logistic regression modeling of these data confirmed this trend; feeding was judged a significant variable by the regression algorithm, with a positive coefficient indicating that feeding did increase overall survival. However, the influence of feeding in the model was quite small, explaining less than 1% of the overall variance. Because we believed that the addition of food might provide a more natural test matrix, all remaining tests were conducted with feeding.

To determine whether the results of reference toxicant tests related to the responses observed in the concurrent exposures to ion combinations, LC50 values were calculated for the reference toxicant tests from the first 11 test groups with *C. dubia* (total of 1,045 ion solutions tested). During this period, 48-h LC50 values for NaCl averaged 1,042 mg/L as Cl^- with a coefficient of variation equal to 24%. The LC50 value from the concurrent reference toxicant test was included as an independent variable for each ion solution and thus considered by the stepwise logistic regression. In this analysis, the reference toxicant variable was not selected as being statistically significant, explaining only 0.12% of the overall variance. From this, we surmised that there was no consistent relationship between the sensitivity of the test organisms (as measured by the reference toxicant test) and the responses of organisms in the concurrent ion exposures. For this reason, the reference toxicant test results were not considered further in subsequent regressions.

As described previously, the development of the final predictive models was an iterative process in which a series of regression models was developed. Initial regressions were developed based on more limited data sets (e.g., results from toxicity tests using single salts only); as data collection proceeded to more complicated solutions (enrichment with three and four ions), these equations were refined. Throughout the project, 74 distinct models were developed and considered. The majority of these models were discarded, either because they were superseded by later models that incorporated larger data sets, or were found to have undesirable characteristics (e.g., poor predictive ability). Several of these analyses involved experimentation with alternative variables or data transformations. To illustrate the model development process, we selected three intermediate models that demonstrate major advances in the model development, including the creation of a new variable, referred to as NumCat. The three example models are referred to as the single salt, double salt, and double salt with NumCat models and are based on 48-h survival data for *C. dubia.*

The single salt model was developed relatively early in the data collection process using 362 data points involving single salt solutions only (i.e., enriched with one cation and one anion; Fig. 2). This regression equation fit the observed survival values very well, with an R^2 value of 0.950. Significant variables in this equation were the concentrations of K^+, Mg^{2+}, HCO_3^-, Cl^-, and SO_4^{2-}; Na^+ and Ca^{2+} were not significant variables indicating that the toxicity of Na^+ and Ca^{2+} salts could be accounted for primarily by the toxicity of the co-occurring anion. No first-order interaction terms (e.g., K × Cl) were selected as significant.

Data collection was then expanded to include solutions with one cation and two anions and two cations and one anion. When the single salt model was used to predict survival for this expanded data set (1,045 data points) it showed considerably less predictive ability than it had for the smaller initial data set. Accordingly, a new model was developed using data from all test solutions. This double salt model had the same significant variables as did the single salt model but did a better job of predicting survival for the entire data set than did the single salt model. Although it did have better predictive ability for the combined data set, the R^2 value of 0.837 indi-

Table 2. Mean 24-h (upper right) and 48-h (lower left) LC50 values for salt combinations tested with *Ceriodaphnia*[a]

	NaCl	Na_2SO_4	$NaHCO_3$	KCl	K_2SO_4	$KHCO_3$	$CaCl_2$	$CaSO_4$	$MgCl_2$	$MgSO_4$	24-h
	3,380 [3] (3,080–3,540)	3,320 [4] (3,110–3,540)	2,200 [4] (1,770–2,680)	1,650 [2] (1,540–1,770)	>1,800 [1]	1,360 [1]	3,340 [3] (2,960–3,540)	>2,430 [1]	3,230 [4] (3,080–3,460)	3,400 [1]	NaCl
		3,590 [4] (3,540–3,740)	2,800 [5] (2,220–3,540)	1,730 [1]	1,390 [2] (1,020–1,770)	1,300 [1]	4,120 [2] (3,800–4,150)	>4,940 [2] (4,170–>5,700)	3,100 [2] (2,750–3,460)	3,480 [3] (3,080–3,820)	Na_2SO_4
			1,420 [4] (1,240–1,770)	1,200 [1]	1,110 [1]	920 [3] (880–1,000)	2,680 [2] (2,320–3,080)	>1,040 [1]	1,800 [1]	2,210 [1]	$NaHCO_3$
NaCl	1,960 [3] (1,770–2,330)			630 [3] (580–630)	620 [3] (250–880)	550 [3] (290–770)	1,740 [3] (1,690–1,770)	1,580 [1]	1,400 [2] (1,030–1,770)	1,070 [2] (880–1,260)	KCl
Na_2SO_4	3,070 [4] (2,530–3,540)	3,080 [4] (1,770–3,540)			770 [3] (770–780)	390 [3] (290–440)	2,250 [1]	1,140 [3] 480–1,870	>1,550 [1]	1,510 [4] (1,340–1,770)	K2SO4
$NaHCO_3$	1,890 [3] (1,770–2,030)	2,630 [4] (1,880–3,540)	1,020 [4] (880–1,170)			630 [2] (580–670)	1,910 [1]	1,560 [1]	860 [1]	940 [1]	$KHCO_3$
KCl	1,560 [3] (1,540–1,600)	1,730 [1]	1,140 [1]	630 [3] (580–670)			2,260 [3] (1,770–2,680)	3,880 [2] (3,660–4,100)	3,500 [3] (3,420–3,540)	>3,690 [2] (3,670–>3,700)	$CaCl_2$
K_2SO_4	1,660 [1]	1,590 [3] (1,020–2,000)	<1,000 [1]	480 [3] (250–670)	<680 [3] (<620–710)			>1,940 [4] (>1,940–>1,990)	>2,760 [1]	>5,610 [3] (>2,610–>5,610)	$CaSO_4$
$KHCO_3$	1,360 [1]	1,300 [1]	800 [3] (580–950)	480 [3] (290–580)	390 [3] (290–440)	630 [2] (580–670)			1,270 [3] (880–1,770)	1,560 [3] (1,360–1,770)	$MgCl_2$
$CaCl_2$	3,030 [4] (2,240–3,540)	>3,940 [2] (3,800–>4,080)	<2,640 [2] (<2,250–3,030)	1,730 [3] (1,640–1,770)	1,820 [1]	1,810 [1]	1,830 [4] (1,770–2,030)			1,770 [3] (1,770–1,770)	$MgSO_4$
$CaSO_4$	>2,430 [1]	>4,940 [2] (4,170–>5,700)	>1,040 [1]	1,580 [1]	1,130 [3] (480–1,830)	1,560 [1]	3,050 [2] (2,450–3,660)	>1,910 [4] (1,910–>1,970)			
$MgCl_2$	2,380 [4] (1,770–2,730)	<2,520 [2] (<2,320–2,720)	1,510 [1]	1,270 [3] (1,000–1,770)	1,040 [1]	860 [1]	2,600 [3] (2,430–2,680)	<2,370 [1]	880 [3] (880–880)		
$MgSO_4$	3,250 [1]	3,190 [3] (2,680–3,540)	1,670 [1]	1,060 [2] (880–1,220)	1,480 [4] (1,340–1,770)	940 [1]	>3,690 [2] (3,670–>3,700)	>5,610 [2] (>5,610–>5,610)	1,490 [3] (1,360–1,560)	1,770 [3] (1,770–1,770)	
48-h	NaCl	Na_2SO_4	$NaHCO_3$	KCl	K_2SO_4	$KHCO_3$	$CaCl_2$	$CaSO_4$	$MgCl_2$	$MgSO_4$	

[a] Values are arithmetic means [*n*] (range) expressed as total ion concentrations added in mg/L. Tests with two salts involved 1:1 combinations of stock solutions containing 10,000 mg/L, except $CaSO_4$ (1,970 mg/L).

Table 3. Mean LC50 values for salt combinations tested with *Daphnia magna* and fathead minnows[a]

	Daphnia magna		Fathead minnow		
Salt	24-h	48-h	24-h	48-h	96-h
NaCl	6,380 [2] (6,160–6,600)	4,770 [2] (3,790–5,740)	8,280 [3] (7,240–10,000)	6,510 [3] (6,090–7,070)	6,390 [3] (6,020–7,070)
Na_2SO_4	6,290 [4] (5,790–7,070)	4,580 [4] (4,060–5,360)	>8,080 [3] (7,070–>10,000)	>7,960 [3] (6,800–>10,000)	7,960 [3] (6,800–10,000)
$NaHCO_3$	2,380 [4] (1,900–2,870)	1,640 [4] (1,170–2,030)	4,850 [2] (3,540–6,160)	2,500 [2] (950–4,060)	<850 [3] (<310–1,220)
KCl	740 [5] (580–880)	660 [5] (440–880)	950 [3] (750–1,090)	910 [3] (750–1,090)	880 [3] (750–1,020)
K_2SO_4	850 [4] (670–1,170)	720 [4] (580–880)	990 [4] (770–1,170)	860 [4] (580–1,170)	680 [4] (510–880)
$KHCO_3$	670 [4] (440–880)	650 [4] (380–820)	940 [4] (750–1,340)	820 [4] (750–880)	<510 [4] (<310–750)
$CaCl_2$	3,250 [4] (2,680–4,010)	2,770 [4] (2,330–3,230)	>6,660 [3] (4,700–>10,000)	>6,560 [3] (4,390–>10,000)	4,630 [3] (3,930–5,360)
$CaSO_4$	>1,970 [3] (>1,970–>1,970)	>1,970 [3] (>1,970–>1,970)	>1,970 [2] (>1,970–>1,970)	>1,970 [2] (>1,970–>1,970)	>1,970 [2] (>1,970–>1,970)
$MgCl_2$	1,560 [4] (1,250–1,810)	1,330 [4] (1,170–1,580)	3,520 [3] (2,520–4,490)	2,840 [3] (1,970–3,880)	2,120 [3] (1,580–2,740)
$MgSO_4$	2,360 [4] (2,180–2,500)	1,820 [4] (1,540–2,330)	4,630 [3] (3,180–7,070)	3,510 [3] (3,000–4,350)	2,820 [3] (2,610–3,080)
$NaCl/Na_2SO_4$	6,140 [2] (5,360–6,930)	5,700 [2] (5,360–6,030)	>9,040 [2] (8,080–>10,000)	>8,460 [2] (6,930–>10,000)	6,090 [2] (6,030–6,160)
$NaCl/NaHCO_3$	4,440 [2] (3,520–5,360)	2,950 [2] (2,830–3,080)	4,580 [2] (3,540–5,630)	3,790 [2] (2,330–5,250)	2,540 [2] (2,330–2,750)
$Na_2SO_4/NaHCO_3$	4,480 [2] (4,060–4,900)	3,180 [2] (2,830–3,540)	5,350 [2] (4,660–6,030)	5,050 [2] (4,060–6,030)	4,060 [2] (3,080–5,040)
KCl/K_2SO_4	740 [2] (600-880)	740 [2] (600–880)	900 [2] (790–1,020)	760 [2] (630–880)	760 [2] (630–880)
$KCl/KHCO5_3$	740 [2] (640–830)	740 [2] (640–830)	800 [2] (770–830)	770 [2] (700–830)	770 [2] (700–830)
$K_2SO_4/KHCO_3$	630 [2] (540–720)	630 [2] (540–720)	1,060 [2] (1,030–1,090)	720 [2] (610–830)	720 [2] (610–830)
$CaCl_2/CaSO_4$	3,250 [2] (3,140–3,360)	2,950 [2] (2,760–3,150)	>5,510 [1]	>5,510 [1]	>5,510 [1]
$MgCl_2/MgSO_4$	2,110 [2] (1,940–2,280)	1,510 [2] (1,340–1,680)	3,830 [2] (3,790–3,870)	3,330 [2] (3,300–3,370)	2,800 [2] (2,240–3,370)
NaCl/KCl	3,930 [1]	3,930 [1]	1,410 [1]	1,410 [1]	1,410 [1]
$NaCl/CaCl_2$	5,250 [1]	5,250 [1]	8,410 [1]	8,080 [1]	6,460 [1]
$NaCl/MgCl_2$	3,820 [1]	3,070 [1]	5,250 [1]	3,520 [1]	3,160 [1]
$KCl/CaCl_2$	2,620 [1]	2,450 [1]	2,810 [1]	2,810 [1]	2,810 [1]
$KCl/MgCl_2$	2,280 [1]	2,020 [1]	1,580 [1]	1,410 [1]	1,410 [1]
$CaCl_2/MgCl_2$	4,850 [1]	4,390 [1]	5,630 [1]	5,250 [1]	5,250 [1]
Na_2SO_4/K_2SO_4	4,800 [1]	4,610 [1]	1,580 [1]	1,580 [1]	1,580 [1]
$Na_2SO_4/MgSO_4$	8,400 [1]	7,980 [1]	8,840 [1]	5,740 [1]	4,800 [1]
$K_2SO_4/CaSO_4$	1,160 [1]	1,200 [1]	1,980 [1]	1,720 [1]	1,720 [1]
$K_2SO_4/MgSO_4$	2,760 [1]	2,210 [1]	1,380 [1]	1,290 [1]	1,290 [1]
$CaSO_4/MgSO_4$	>6,470 [1]	>6,470 [1]	NT[b]	NT	NT
$NaHCO_3/KHCO_3$	1,220 [1]	1,040 [1]	1,140 [1]	820 [1]	740 [1]

[a] Values are arithmetic means [*n*] (range) expressed as total ion concentrations added in mg/L. Tests with two salts involved 1:1 combinations of stock solutions containing 10,000 mg/L, except for $CaSO_4$ (1,970 mg/L), $MgCl_2$ (5,480 mg/L), and $CaCl_2$ (7,480 mg/L).
[b] Not tested.

cated a lower quality of fit than was observed for the single salt model fit to the initial, less complex data set.

There were two basic explanations for the decreased quality of fit observed with the double salt model: (1) the larger data set contained greater inherent variability (measurement error) and hence it was not possible to achieve as high an R^2 value; or (2) there were important toxic interactions represented in the three ion solutions that were not represented in the solutions containing only a single salt (although the regression algorithm had not selected any interaction terms as being significant). When the ion combinations for which the model made poor predictions were analyzed, some patterns were apparent. In particular, it appeared that the model was overpredicting toxicity for solutions containing two Cl^- salts.

This phenomenon is perhaps best illustrated by data collected for solutions of NaCl and $CaCl_2$ tested both alone and in combination. As explained above, the single salt model indicated that the toxicity of Na^+ and Ca^{2+} salts could be

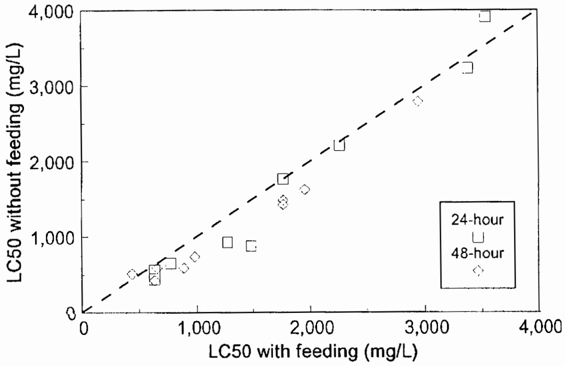

Fig. 1. Average LC50 values for *Ceriodaphnia dubia* exposed to single salts with and without feeding.

adequately explained on the basis of the anion concentration alone; in other words, NaCl and $CaCl_2$ had approximately the same toxicity when expressed on the basis of Cl^-. A plot of these data (Fig. 2) supports this conclusion and also shows a good fit of the single salt model to these data. However, when NaCl and $CaCl_2$ were tested in combination, the resulting solution was less toxic (on the basis of Cl^- concentration) than either of the solutions tested singly. The single salt model was unable to account for this decreased toxicity and, consequently, made poor predictions for the combined NaCl/$CaCl_2$ solutions (Fig. 2). The same trend toward lower toxicity of Cl^- in the presence of two cations was also evident for solutions containing K^+ or Mg^{2+}.

The double salt model compensated for the lower toxicity of two cation solutions but only partially. The double salt model simply fit a shallow response curve between the single cation and two cation data, predicting a "mean" probability of survival somewhere between the observed single salt and two salt survival values. While this compromise provided a better overall fit to the data than did the single salt model, it was clearly not a good representation of the response. Given that the regression algorithm did not find any interaction terms to be significant, it appeared that a new variable was required to provide a better fit to the data.

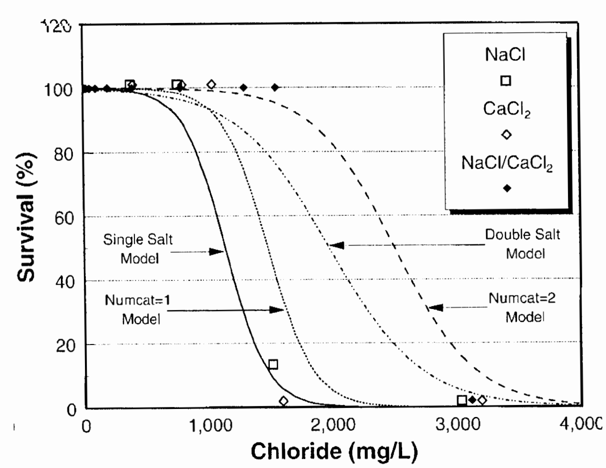

Fig. 2. The 48-h survival of *Ceriodaphnia dubia* exposed to solutions enriched with NaCl, $CaCl_2$, or a 1:1 combination of NaCl and $CaCl_2$, normalized to Cl^- concentration. Curves represent regression model predictions for the single salt, double salt, and double salt with NumCat models. Values at 0% and 100% offset slightly for clarity.

We attempted without success to derive a continuous variable that would respond appropriately to the relative concentration of cations in solution and thus identify the two cation solutions as different than solutions with a single cation. After our lack of success with continuous variables, we created a categorical variable called NumCat. The NumCat variable was intended to simply represent the number of major cations in the solution. For the initial modeling trials, the NumCat variable was arbitrarily defined as the number of cations in the solution that represented at least 10% of the total molar cation concentration and that were also present at a concentration greater than 100 mg/L. Our expectation was that the NumCat variable would show a significant interaction with Cl^- and any other ion whose toxicity was influenced by the number of cations present. The resulting model, called the "double salt with NumCat" model, showed a markedly improved fit (R^2 = 0.899); significant terms were the original five ions in the single and double salt models, plus NumCat and the NumCat × Cl, NumCat × SO_4, and NumCat × K interaction terms. The NumCat × Cl term allowed the model to better represent the toxicity of NaCl, $CaCl_2$, and NaCl + $CaCl_2$ solutions shown in Figure 2. NumCat also showed significant (positive) interactions with SO_4^{2-} and K^+, suggesting that the presence of two cations (or one additional cation in the case of K^+) ameliorated the toxicity of these ions as well.

After subsequent data collection and analysis, two additional steps were taken to optimize the NumCat variable. First, we conducted supplemental testing of *C. dubia* exposed to mixtures of three and four Cl^- salts (data not shown). Modeling of these data (NumCat = 3 or 4) yielded a substantial underprediction of toxicity. Direct inspection of these data confirmed that the protective effect observed with two cations did not seem to increase with the addition of three or four cations. Accordingly, we chose to limit the NumCat variable to values of 0, 1, or 2; for solutions where the >10% and >100-mg/L criterion yielded values of 3 or 4, these values were reset to 2.

The second step involved rigorously evaluating the definition criteria for the NumCat variable. Although the NumCat variable was clearly effective at increasing the predictive capability of the model, its original definition had been arbitrary. To provide a stronger technical basis for defining NumCat, we conducted a sensitivity analysis by varying the two components of the NumCat definition, the relative molar concentration (originally >10%), and the absolute concentration (originally 100 mg/L). A complete matrix of relative concentration (0, 5, 10, 15, 20, and 25%) and absolute concentration (0, 100, 200, and 300 mg/L) was modeled using 48-h *C. dubia* data. The resultant models were evaluated based on their R^2 values (Fig. 3). The NumCat criteria that produced the model with the highest R^2 (best fit of the model to the observed data) were the 15% with >100 mg/L (R^2 = 0.8559) and the 10% with >100-mg/L (R^2 = 0.8553) criteria. Given that the difference in R^2 was only 0.0006 (0.06% of the variance) and that we had already worked extensively with the 10% and >100-mg/L criteria, we elected to continue using these criteria in finalizing the model equations.

After completion of data collection, final regression equations were developed to predict *C. dubia* survival after 24 and 48 h of exposure. Through the course of these analyses, several additional variables and data transformations were evaluated and discarded. Aside from the feeding and reference toxicant variables discussed previously, we evaluated the sum of all ions, the sum of all cations, the sum of all anions, and NumAn

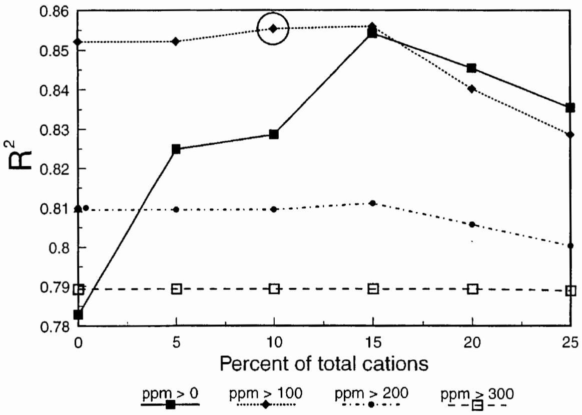

Fig. 3. Effect of varying criteria for the definition of the NumCat variable. Circled point represents the criteria selected initially and maintained for final derivation of the regression equations.

(the anion equivalent of NumCat). First-order interactions of these variables and ion concentrations were also evaluated. None of these variables was selected as significant by the regression algorithm. Models based on log-transformed ion concentrations consistently showed lower R^2 values than those based on untransformed data.

The final 24- and 48-h equations for *C. dubia* had K^+, HCO_3^-, Mg^{2+}, Cl^-, and SO_4^{2-} as significant variables (Table 4). Additionally, NumCat and the interaction terms NumCat × Cl, NumCat × SO_4, and NumCat × K were found to be significant. As had been the case since early in the modeling process, Na^+ and Ca^{2+} concentrations were not significant variables except as they affected the calculation of NumCat. R^2 for the final regressions were 0.861 and 0.842 for the 24-h and 48-h equations.

Model development for *D. magna* proceeded along the same lines as those described for *C. dubia.* The initial model developed using only single salt data fit those data very well (R^2 = 0.97) but was not as good at predicting survival for more complex ion mixtures. As was observed for *C. dubia,* solutions with multiple cations tended to be less toxic than comparable solutions with only one cation. As a result, when all *D. magna* data were analyzed, NumCat was again selected as a significant variable, both by itself and through its interactions with Cl^-, SO_4^{2-}, and K^+ (Table 4). In fact, all significant terms in the *C. dubia* double salt model with NumCat were also significant for *D. magna.* Quality of fit for the *D. magna* models was slightly lower than for the *C. dubia* models, though still quite good (0.812 and 0.799).

As for the daphnids, modeling of the fathead minnow data indicated that toxicity was a function of K^+, Mg^{2+}, HCO_3^-, Cl^-, and SO_4^{2-} concentrations, as neither Na^+ nor Ca^{2+} were selected as significant variables (Table 4). The primary difference in the fathead minnow equations was that NumCat was not a significant variable either by itself or in interaction with other terms. R^2 values for the three regression equations were generally comparable to those for the other models, ranging from 0.767 to 0.832.

Because of the large number of independent variables, the actual response surface of the regression models cannot be easily visualized. Nonetheless, marginal plots of the regression equations can be used to illustrate the relative sensitivity of each species to the various ions (Fig. 4). These plots show that *C. dubia* are, in general, the most sensitive of the three species to major ion toxicity, while fathead minnows are the least sensitive. K^+ was the most toxic ion to all species and SO_4^{2-} the least. The only inconsistency between species was that Mg^{2+} was more toxic than HCO_3^- for *D. magna* and fathead minnows, but the reverse was true for *C. dubia.*

As a means to visually evaluate the fit of the data sets to the regression equations, each regression equation was used to predict the ion concentrations producing 50% survival for each of the ion combinations tested during data collection. These values were then plotted against the average observed LC50 values from Tables 2 and 3 (Fig. 5). These plots indicate good overall agreement between the calculated and predicted LC50 values for all three species. Note, however, that this analysis is not a direct evaluation of quality of fit for the models because it actually compares a point estimate derived from individual logistic regression equations with the arithmetic mean of multiple point estimates for specific ion combinations derived by a different method (trimmed Spearman–Karber LC50 estimation [21]); it is not a plot of raw data versus model predictions. There are other biases in this comparison as well, such as different weighting of observations. Nevertheless, the concordance between the two methods does provide some assurance that the single multiple regression models provide a reasonable representation of the responses to a broad range of ion combinations.

The absence of interaction terms in the final regression equations, aside from those involving NumCat, suggests that

Table 4. Regression coefficients for final regression equations[a]

	Ceriodaphnia dubia		*Daphnia magna*		Fathead minnow		
	24-h	48-h	24-h	48-h	24-h	48-h	96-h
Constant	9.11	8.83	5.91	5.83	5.69	5.51	4.70
K^+	−0.0320	−0.0299	−0.0200	−0.0185	−0.0108	−0.0113	−0.00987
Mg^{2+}	−0.00594	−0.00668	−0.00450	−0.00510	−0.00225	−0.00316	−0.00327
Cl^-	−0.00706	−0.00813	−0.00330	−0.00395	−0.00117	−0.00125	−0.00120
SO_4^{2-}	−0.00424	−0.00439	−0.00204	−0.00255	−0.000728	−0.000750	−0.000750
HCO_3^-	−0.00745	−0.00775	−0.00276	−0.00397	−0.00200	−0.00274	−0.00443
NumCat	0.0332	−0.446	−0.410	−0.511	NS[b]	NS	NS
NumCat*K^+	0.00888	0.00870	0.00778	0.00677	NS	NS	NS
NumCat*Cl^-	0.00196	0.00248	0.00110	0.00146	NS	NS	NS
NumCat*SO_4^{2-}	0.00121	0.00140	0.000998	0.00132	NS	NS	NS
Model R^2	0.861	0.842	0.812	0.799	0.832	0.828	0.767

[a] Units for ion variables are mg/L.

[b] NS indicates that this particular variable was not significant and was excluded from the model.

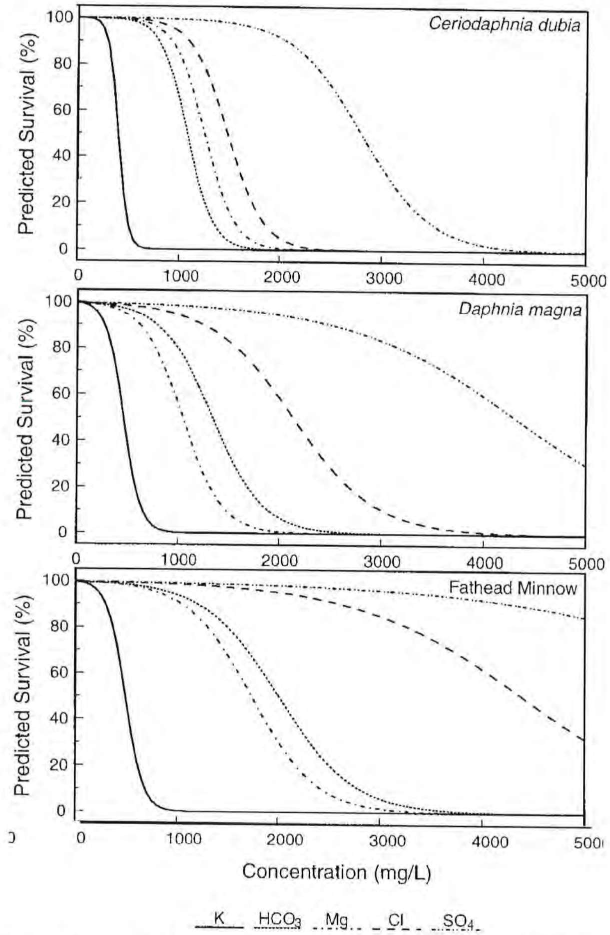

Fig. 4. Marginal plots of regression equations for each of the ions selected as significant. For *Ceriodaphnia dubia* and *Daphnia magna* models, NumCat = 1.

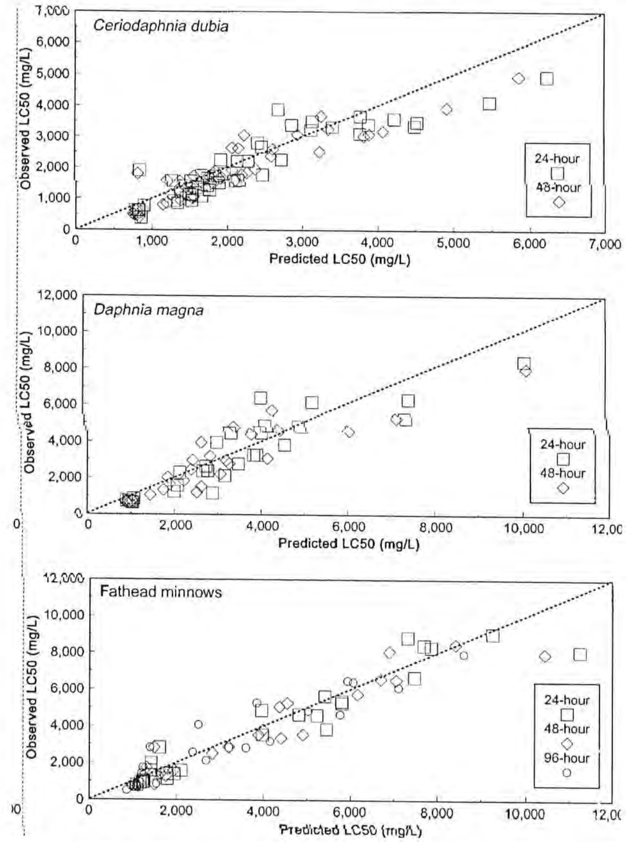

Fig. 5. Relationship between the ion concentrations predicted to cause 50% mortality and the average of LC50 values for individual salts and salt combinations (Tables 2 and 3). Line of unity (slope = 1) added for reference.

assuming additivity among individual ion toxicities is sufficient to describe the toxicities of the ion mixtures, at least from an empirical standpoint. The apparent amelioration of Cl^-, SO_4^{2-}, and K^+ toxicity by multiple cations could be construed as less than additivity. Alternatively, given that Na^+ and Ca^{2+} were not clearly identified as toxic by themselves, it might be more appropriate to consider those ions as water quality variables influencing toxicity, rather than as components of a toxic mixture.

We had little precognition of the important role that the NumCat variable would play in representing the combined toxicity of major ions. In a study of high-TDS irrigation return waters, Dwyer et al. [14] demonstrated that increasing the hardness (Mg^{2+} and Ca^{2+}) of an NaCl-dominated water decreased toxicity to *D. magna* and striped bass. For *D. magna*, this decreased toxicity would be predicted based on the current research, as the addition of hardness to these waters would have increased the value of the NumCat variable, thereby increasing predicted survival. However, results of our study also show that the effect of multiple cations is not an effect of hardness per se. For example, the *C. dubia* 48-h LC50 values for NaCl and $CaCl_2$ were almost identical when expressed on the basis of Cl^- concentration (1,187 and 1,172 mg/L, respectively; Table 2), even though the solutions had greatly different hardness. Moreover, the addition of NaCl to KCl increased the K^+ concentration at the *C. dubia* 48-h LC50 from 329 mg K/L for KCl to 458 mg K/L for an NaCl + KCl mix (Table 2), even though hardness was the same in both solutions.

Despite its importance in modeling the response of *C. dubia* and *D. magna*, the NumCat variable was not selected as significant for fathead minnows. Given that the addition of Mg^{2+}/Ca^{2+} improved survival of striped bass in high TDS solutions tested by Dwyer et al. [14], it seems that the protective effect in multiple cations is not restricted to cladocerans. It is worth noting that combinations of two cations and one anion were only tested once (in duplicate) for fathead minnows. If by chance those test results had a systematic bias, it might mask the presence of a cation-related effect for fathead minnows; coefficients of variation for fathead minnow LC50s were higher than for the other two species. More testing would be required to confirm or deny this possibility.

Though the effect of multiple cations is quite consistent both within the *C. dubia* and *D. magna* data sets and with other research [14], it must be emphasized that its identification and quantification through our modeling is empirical. Notwithstanding the effectiveness of the categorical NumCat variable in modeling our data set, it seems reasonable from a physiological standpoint to assume that the effect is in reality some type of continuous function, rather than the step function represented by our >10% and >100-mg/L criteria. In our modeling efforts, we were unable to devise a continuous variable that corresponded to the observed influence of multiple cations. Nonetheless, with continued research it seems likely that such a relationship could be uncovered and, if so, might provide a more rigorous representation of the actual relationship than that provided by NumCat as currently defined. A better understanding of the mechanisms of major ion toxicity would likely enhance this effort.

As a related matter, even though we conducted a sensitivity analysis to determine the optimum criteria for the NumCat variable, this analysis was subject to bias from the structure of our data set. Specifically, we tested binary combinations of salt solutions in 1:1 ratios only. As such, only certain areas within the total sampling space (all possible ion combinations) were represented in the data set. Thus, there is no assurance that the ion combinations tested were near critical points in the response surface that might alter the apparent thresholds for response. While we believe the NumCat variable is a significant advance in understanding the response of cladocerans to high TDS solutions, it is probably a somewhat crude representation of the actual physiological response.

Because most chemical reactions are related to molar concentrations, an argument could be made for modeling survival on the basis of molar concentrations rather than mass-based concentration. In retrospect, it seems this would have made little difference in the outcome of the modeling. As the equations are based on first-order concentrations of single ions only, transformation between mass-based and molar concentrations is a simple algebraic manipulation and does not affect the nature of the response surface. In fact, the equations in Table 4 can be converted to a molar basis by simply dividing each coefficient by the molecular weight of each ion. Conversion to chemical activity, however, would be much more involved.

Ultimately, the test of the toxicity models we have generated lies in their ability to make accurate predictions for samples outside those used to generate the original data set. Thus far, the equations have performed well in predicting major ion toxicity in field-collected samples, particularly so for the *C. dubia* equations. For example, Mount et al. [4] showed a strong correlation ($R^2 = 0.95$) between predicted and observed survival of *C. dubia* exposed to ambient samples from a watershed receiving oil field-produced waters. The *C. dubia* regression model was a better predictor of survival than any individual ion concentration, illustrating the ability of the model to predict the combined toxic effects of multiple ions. In a separate analysis, Mount et al. [15] showed a strong relationship between predicted and observed survival of *C. dubia* exposed to six produced waters collected from coalbed methane operations in Alabama. Obviously, these comparisons assume that major ions were the primary cause of toxicity in the field-collected samples.

Another application of the ion toxicity models that may prove equally or even more valuable lies in using model predictions to determine whether the presence of toxicants other than major ions is indicated. Research by Tietge et al. [5] both demonstrates this application and provides a rigorous evaluation of the predictive capability of the regression models. Six produced waters from various fossil fuel production sites were tested for toxicity and analyzed for major ion concentrations. The ion toxicity models presented here were used to predict survival of *C. dubia, D. magna,* and fathead minnows based on major ion concentrations. Differences between observed and predicted toxicity were used to make inferences as to whether the observed toxicity could be wholly explained by the major ion concentrations alone, or if the presence of other toxicants was indicated. The accuracy of these inferences was then evaluated by conducting Phase I TIE manipulations [16] and by testing the toxicity of laboratory waters reconstituted to the same major ion concentrations. This study indicated that the *C. dubia* model provided highly accurate predictions, while the fathead minnow and *D. magna* models tended to overpredict ion toxicity. The tendency of the *D. magna* and fathead minnow models to overpredict toxicity in field-collected samples was also noted in comparisons made by Mount et al. [4].

Dickerson et al. [7] used the *C. dubia* and fathead minnow models to evaluate toxicity in surface waters influenced by irrigation drain water. Although independent tests were not performed to confirm model predictions, it appeared that predictions by the *C. dubia* model correlated well with observed toxicity. As in the study by Tietge et al. [5], however, the fathead minnow model seemed to overpredict toxicity; several sites had higher observed survival than was predicted by the fathead minnow model.

In summary, applications of the *C. dubia* models and, to a lesser extent the *D. magna* and fathead minnow models, have proven them to be highly effective and comprehensive tools for evaluating major ion toxicity. To date, they have been successfully applied to studies of ambient waters [15], produced waters [4,5], irrigation drain waters [7], water purification byproducts [23], municipal effluents, and effluents from pulp and paper, refining, and manufacturing industries (J.R. Hockett, unpublished data). Because the models represent the combined toxicity of all seven ions, they have much broader application than ion toxicity studies based on generic measures like conductivity or TDS, or studies focusing on certain waters or ion combinations. Application of these models can reduce the need for extensive characterization and fractionation manipulations during TIE studies of high TDS waters [11]. They can also be used to project changes in toxicity resulting from modifications in industrial processes, effluent treatment, or other remedial measures.

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THE ACUTE TOXICITY OF MAJOR ION SALTS TO *CERIODAPHNIA DUBIA*: I. INFLUENCE OF BACKGROUND WATER CHEMISTRY

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Abstract: The ions Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, SO_4^{2-}, and HCO_3^-/CO_3^{2-} (referred to in the present study as "major ions") are present in all freshwaters and physiologically required by aquatic organisms but can increase to harmful levels from a variety of anthropogenic activities. It is also known that the toxicities of major ion salts can vary depending on the concentrations of other ions, and understanding these relationships is key to establishing appropriate environmental limits. The authors present a series of experiments with *Ceriodaphnia dubia* to evaluate the acute toxicity of 12 major ion salts and to determine how toxicity of these salts varies as a function of background water chemistry. All salts except $CaSO_4$ and $CaCO_3$ were acutely toxic below saturation, with the lowest median lethal concentrations found for K salts. All 10 salts that showed toxicity also showed some degree of reduced toxicity as the ionic content of the background water increased. Experiments that independently varied Ca:Mg ratio, Na:K ratio, Cl:SO_4 ratio, and alkalinity/pH demonstrated that Ca concentration was the primary factor influencing the toxicities of Na and Mg salts, whereas the toxicities of K salts were primarily influenced by the concentration of Na. These experiments also indicated multiple mechanisms of toxicity and suggested important aspects of dosimetry; the toxicities of K, Mg, and Ca salts were best related to the chemical activity of the cation, whereas the toxicities of Na salts also reflected an influence of the anions and were well correlated with osmolarity. Understanding these relationships between major ion toxicity and background water chemistry should aid in the development of sensible risk-assessments and regulatory standards. *Environ Toxicol Chem* 2016;9999:1–19. Published 2016 Wiley Periodicals Inc. on behalf of SETAC. This article is a US government work and, as such, is in the public domain in the United States of America.

Keywords: Aquatic toxicology   Major ions   *Ceriodaphnia dubia*   Toxicity mechanism   Dose–response modeling

INTRODUCTION

Inorganic ions generally present at the highest concentrations in freshwaters are Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, SO_4^{2-}, and HCO_3^-/CO_3^{2-} (referred to as "major ions" herein) and are used to describe the basic chemistry of natural waters [1]. All have physiological roles and are actively regulated by aquatic organisms [2] but can also cause toxicity when present in sufficient excess [3]. Concentrations in natural waters are governed by a variety of atmospheric, geochemical, and biological processes [1], but these natural concentrations can be greatly increased by a wide variety of anthropogenic influences, such as mineral mining, oil and gas extraction, irrigation, road deicing, water softening, and wastewaters from various industrial processes.

A variety of studies have shown or implicated major ions as causes of aquatic toxicity in surface waters, with sources such as oil and/or gas production [4,5], irrigation return flows [6,7], mining [8,9], road salt [10], and industrial wastewater [11]. In fact, toxicity identification studies on industrial and municipal effluents have shown major ions to be among the more common causes of effluent toxicity [12]. Field studies in Appalachian streams have also found associations between changes in macrobenthic communities and increased major ion concentrations from mining activities [13–15].

Understanding the aquatic hazards posed by increased major ion concentrations presents a number of challenges. First, concentrations of major ions cannot be manipulated individually because charge balance demands that increased concentrations of any ion be offset by equal and opposite charge from other ions, making it more difficult to infer the effects of individual ions. Second, the relative concentrations of major ions vary widely across watersheds and anthropogenic inputs, and such differences are known to influence aquatic toxicity. For example, based on total salt concentration, a 1:1 mixture (by mass) of NaCl and $CaCl_2$ has substantially lower acute toxicity to *Ceriodaphnia dubia* than either salt alone [3], indicating that toxicity of this salt mixture is not simply additive. Third, the toxicity of a single salt can vary based on the characteristics of the water to which it is added, such as water hardness [16–20] and, more specifically, Ca [21]. Although relationships between water hardness and the toxicity of various other chemicals are often attributed, explicitly or implicitly, to the Ca and Mg ions that comprise most hardness, more detailed studies sometimes show that the concentrations of other ions covarying with hardness are playing important roles. For example, though "hardness" was long reported to influence toxicity of metals such as copper, later research demonstrated more detailed roles of specific ions; this enhanced understanding was incorporated into a more refined toxicity model, the biotic ligand model [22].

In previous work, Mount et al. [3] approached the toxicity of major ion mixtures by developing a multivariate regression model based on a large number of acute toxicity tests conducted with many different combinations of major ion salts. The resulting models predict the survival of 3 test species,

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cladocerans *Ceriodaphnia dubia* and *Daphnia magna*, and the fathead minnow (*Pimephales promelas*) based on concentrations of the 7 major ions. Although this model represented a step forward in addressing the complexities of evaluating ion mixtures and showed effectiveness as a predictive tool [5,23], there are important aspects of major ion toxicity that were not fully addressed. Notable among these was that all of the ion solutions tested were created by adding ions to a single base water. This issue underlies the failure of the model to represent some influences of background water chemistry on ion toxicity, such as the reduction of NaCl and Na_2SO_4 toxicity afforded by adding hardness within ranges common to natural waters [16–21]. Other aspects of the interactions among the ions (e.g., independent vs additive toxicity) also are incompletely addressed by this regression model.

The present study is the first of 3 articles that establish a better foundation for predicting the acute toxicity of elevated major ion concentrations to *C. dubia*. The present study describes a comprehensive study of the influence of background water chemistry that extends earlier work on hardness effects [16–21] to more water chemistry factors and to more major ion salts. Toxicities of major ion salts were evaluated using a wide range of dilution waters; some mimicked natural waters, while others were designed specifically to isolate different components of background water chemistry to better understand their roles in influencing major ion toxicity and thereby determine what is important to risk assessment of ions in natural systems.

These experiments also allowed preliminary consideration of exposure metrics that more effectively describe major ion toxicity to *C. dubia* than total salt concentration. For example, are there different toxicity mechanisms among the salts that need to be addressed? Should the toxicity of a salt be related to an individual ion or both ions, and how should concentrations of multiple ions be combined? Should reductions in toxicity attributable to the formation of complexes between ions and to the general effects of high ion concentrations on chemical reactivity be addressed?

The second article will present results of mixture tests with pairs of salts to more rigorously address the preceding questions. The third will address how the information from the other articles can be incorporated into a mathematical model applicable to any ion mixture and will test the predictions of that model for more complex mixtures relevant to field exposures.

The acute toxicity to *C. dubia* was selected as the endpoint for these efforts because this is a widely distributed organism with considerable sensitivity to ions and for which it was practical to conduct the large number of tests needed to adequately address the multiple factors and interactions of interest. The knowledge gained from the present study with *C. dubia* supports more informed testing and model development for other endpoints and species, which are now under way and will be the subject of additional publications. When combined with the efforts of other investigators, this body of information will support better assessment of the risks of major ions to aquatic communities.

MATERIALS AND METHODS

Test water composition and study design

Twenty-six experiments were conducted on the acute toxicity of individual major ion salts to *C. dubia*. Each experiment consisted of 3 to 8 simultaneous toxicity tests with different combinations of dilution waters and toxicants, for a total of 149 median lethal concentration (LC50) determinations. Test waters were developed from deionized water, sand-filtered and ultraviolet light-treated Lake Superior water (LSW), or a combination of both. Deionized water was produced from a Millipore Super-Q system configured as specified by the US Environmental Protection Agency (USEPA) [24]. Lake Superior water was obtained from an intake located offshore from our laboratory at 46.840°N, 92.004°W; typical hardness and alkalinity are 47 mg/L and 43 mg/L as $CaCO_3$, respectively, with conductivity of 104 μS/cm and pH approximately 7.5. The full ionic composition of LSW is provided in Table 1.

Table 1. Composition of dilution waters

Dilution water description	Abbreviation	Base water	Na (mg/L)	K (mg/L)	Ca (mg/L)	Mg (mg/L)	Cl (mg/L)	SO_4 (mg/L)	Alkalinity (mg $CaCO_3$/L)	Hardness (mg $CaCO_3$/L)
Lake Superior water	LSW		1.62	0.60	14.0	2.92	1.50	3.40	43.0	47.0
Amended Lake Superior water	ALSW	LSW	6.48	1.51	14.6	4.09	7.66	14.9	43.0	53.3
1/3× strength ALSW	1/3× ALSW	1/3× LSW	2.16	0.50	4.87	1.36	2.55	4.97	14.3	17.8
			(4.77)[a]	(1.18)[a]	(4.87)[a]	(1.36)[a]	(5.04)[a]	(7.88)[a]	(14.4)[a]	
3× strength ALSW	3× ALSW	LSW	19.4	4.52	43.8	12.3	23.0	44.7	129	160
			(16.7)[a]	(2.74)[a]	(43.9)[a]	(12.3)[a]	(19.0)[a]	(46.0)[a]	(125)[a]	
Moderately hard reconstituted water	MHRW	Deionized water	26.3	2.10	14.0	12.0	1.90	81.0	57.2	84.4
One-third strength MHRW	1/3× MHRW	Deionized water	8.75	0.70	4.65	4.01	0.63	27.0	19.1	28.1
One-eighth strength MHRW	1/8× MHRW	Deionized water	3.28	0.26	1.75	1.50	0.24	10.1	7.2	10.6
ALSW with high Ca:Mg ratio	High Ca:Mg	0.214× LSW	6.48	1.51	19.0	1.40	7.66	14.9	43.0	53.3
ALSW with low Ca:Mg ratio	Low Ca:Mg	0.214× LSW	6.48	1.51	3.00	11.1	7.66	14.9	43.0	53.3
ALSW with high Cl:SO_4 ratio	High Cl:SO_4	LSW	6.48	1.51	14.6	4.09	14.3	3.40	43.0	53.3
ALSW with low Cl:SO_4 ratio	Low Cl:SO_4	LSW	6.48	1.51	14.6	4.09	1.50	20.7	43.0	53.3
ALSW with high Na:K ratio	High Na:K	0.333× LSW	7.65	0.20	14.6	4.09	7.66	14.9	43.0	53.3
ALSW with low Na:K ratio	Low Na:K	0.333× LSW	1.89	10.0	14.6	4.09	7.66	14.9	43.0	53.3
ALSW with high alkalinity	High Alk	0.233× LSW	28.3	1.51	14.6	4.09	7.66	14.9	90.0	53.3
ALSW with low alkalinity	Low Alk	0.233× LSW	28.3	1.51	14.6	4.09	7.66	14.9	10.0	53.3
ALSW with varying Na		LSW	1.62	1.51	14.6	4.09	1.50	14.9	43.0	53.3
			3.00				3.62			
			10.0				14.4			
			30.0				45.3			
			100				153			
			300				460			

[a]Parentheses denote estimated geometric average ion concentrations at designated hardness for selected U.S. waters.
ALSW = amended Lake Superior water; LSW = Lake Superior water; MHRW = moderately hard reconstituted water.

Table 2. Major salts tested within each set of experiments

	Experimental Set Description	NaCl	Na_2SO_4	$NaHCO_3$	KCl	K_2SO_4	$KHCO_3$	$MgCl_2$	$MgSO_4$	$MgCO_3$	$CaCl_2$	Na gluconate	Mg gluconate	Ca gluconate	Mannitol
1	1/3× ALSW culture vs 1× ALSW culture, tested in 1/3× ALSW 1/3× MHRW culture vs 1× MHRW culture, tested in 1/3× MHRW	X[a]						X							
2	1/8× MHRW culture vs 1× MHRW culture, tested in 1/8× MHRW	X[b]	X	X	X			X	X		X				
3	MHRW vs ALSW	X	X	X	X	X	X	X	X	X	X				
4	1/3× ALSW vs 3× ALSW	X[c]	X[c]	X	X	X		X	X	X	X				
5	Low Ca:Mg vs high Ca:Mg	X	X	X	X			X	X						
6	Low $Cl:SO_4$ vs high $Cl:SO_4$	X	X	X		X			X	X					
7	Low Na:K vs high Na:K	X	X	X				X	X		X				
8	Low vs high alkalinity	X	X		X			X	X						
9	ALSW with low vs ambient vs high pH	X						X							
10	ALSW with varying Na (0.07–13 mM)				X										
11	$CaCO_3$ precipitation effects, aged dilution water vs not aged, 1× ALSW vs 3× ALSW			X						X					
12	Organic salts and mannitol, 1× ALSW only	X										X	X	X	X

[a]Organisms from both amended ALSW cultures also tested in 1× ALSW.
[b]Organisms from both cultures also tested in 1× MHRW.
[c]Duplicate tests conducted which also included 1× ALSW.
ALSW = amended Lake Superior water; MHRW = moderately hard reconstituted water.

Some test waters were based on the commonly used reconstituted water formulas given by the USEPA [24] and originally proposed by Marking and Dawson [25], specifically the formula for "moderately hard reconstituted water" (MHRW), which was also used by Mount et al. [3]. While commonly used, MHRW (and other reconstituted waters based on this formula) has a chemistry (Table 1) that is atypical for surface waters of the United States: the Ca:Mg ratio is low, the $Cl:SO_4$ ratio is very low, and the Na concentration is extremely high relative to hardness. The high Na concentration is a consequence of using $NaHCO_3$ to impart alkalinity; in nature, alkalinity generally comes from dissolution of carbonate minerals of Ca and Mg, but these have solubilities and dissolution rates that are inconveniently low for water preparation in the laboratory. The low Ca:Mg and $Cl:SO_4$ ratios in MHRW are not a practical requirement, and the reason for their original selection is not clear.

To design a dilution water with chemistry more like natural waters, we analyzed data from the US Geological Survey national stream water-quality monitoring networks [26]. Data records were obtained for 425 sites in operation from 1983 to 1992. Records ($n = 32\,895$) were used that had 1) measurements for all major ions, 2) a charge imbalance of no more than 10%, 3) a hardness ≥ 10 and ≤ 400 mg/L as $CaCO_3$, and 4) pH no lower than 6.0. These data were subjected to regression analyses using Sigmaplot (v11.0; Systat Software) to establish relationships between log(hardness) and the logarithms of various other ion concentrations and ratios. A formula was then developed for an "amended Lake Superior water" (ALSW; Table 1) consistent with these relationships. Salts were added to LSW to increase hardness to the estimated geometric average (53.3 mg $CaCO_3$/L) in the US Geological Survey data for the alkalinity of LSW (43.0 mg $CaCO_3$/L) and to increase other ions to average values for this hardness. Benefits of modifying LSW to create this test dilution water, rather than creating a completely synthetic water from deionized water, are that it provides alkalinity without having to dissolve carbonate salts or add excessive Na and that it will contain trace constituents from the source water that make the water more realistic and possibly beneficial to the test organisms.

The present study was organized into 12 sets of 1 to 4 experiments addressing different aspects of dilution water chemistry or experimental procedure. These sets of experiments and the toxicants that were tested are summarized in Table 2, and the chemistries of the various dilution waters are provided in Table 1. The purpose and design of each experimental set were as follows.

Sets 1 and 2: Effects of acclimation to dilution water. Some previous studies of the effect of dilution water on major ion toxicity to *C. dubia* used organisms that were cultured in the dilution water prior to testing [16–20]. This was not done routinely in the present study because the logistics involved in culturing organisms in so many different dilution waters (Table 1) were prohibitive. However, because a preliminary comparison of NaCl toxicity in MHRW and MHRW diluted by a factor of 3 (1/3× MHRW) showed much less of an impact of this dilution than the 1×, 1/2×, 1/4×, and 1/8× MHRW series tested by Elphick et al. [19], we conducted experiments to determine whether observed salt toxicity in waters more dilute than MHRW or ALSW varied significantly depending on whether the organisms were cultured in these dilute test waters or in the standard-strength water formulations. Initially, organisms from our primary culture (in 1× MHRW) were used to create secondary cultures in 1× MHRW, 1/3× MHRW, 1× ALSW, and 1/3× ALSW, which were maintained for a minimum of 2 generations before being used in tests. The toxicities of NaCl and $MgCl_2$ in 1/3× MHRW and 1/3× ALSW were simultaneously tested using the cultures from both the dilute water and the corresponding full-strength water (Table 2, set 1). For NaCl, tests were also conducted in 1x ALSW using both the 1× ALSW and 1/3× ALSW cultures. To further explore this issue, we conducted additional acclimation studies (Table 2, set 2) comparing the toxicity of several salts in 1/8× MHRW using *C. dubia* cultured in MHRW and in 1/8× MHRW (the same composition as the 10 and 80 hardness waters in the Elphick et al. [19] study). For NaCl, tests were also conducted in 1× MHRW using both cultures.

Set 3: Salt toxicity in MHRW versus ALSW. Because ALSW was developed in response to concerns about the composition of MHRW and because much existing ion toxicity information was conducted in MHRW or similar waters, comparative toxicities in these 2 waters were of interest. Therefore, a set of experiments (Table 2, set 3) compared the toxicity of all major ion salts in MHRW and ALSW, except for $CaSO_4$ and $CaCO_3$, for which preliminary experiments showed no toxicity at saturation in these waters.

Set 4: Salt toxicity in different strengths of ALSW. Natural waters vary widely in total ion concentration, the 10th and 90th percentiles in our analysis of US Geological Survey data being approximately 1.5 mEq/L and 16 mEq/L for the sum of major cations and anions. To determine the effect of varying overall ion concentrations, another set of experiments (Table 2, set 4) compared toxicities of 9 salts in dilution waters that had one-third and 3 times the ion concentrations of ALSW (1/3× ALSW and 3× ALSW; Table 1). We note that, in natural waters, average concentrations of the various ions do not vary exactly in proportion with total ion concentrations, so 1/3× ALSW and 3× ALSW do not match our estimated field water averages at the same hardnesses, which are also provided in Table 1 for comparison purposes. We elected not to match the field chemistry so that all ions would be in the same proportions across the 1/3×, 1×, and 3× ALSW series but the ion ratios would still be well within the ranges observed in the US Geological Survey data.

The results of these tests were combined with separate data for 1× ALSW (from set 3) to compare across a 1/3×, 1×, and 3× ALSW dilution water series; for NaCl and Na_2SO_4 an additional experiment simultaneously tested this entire series to verify results. Preparation of 1/3× ALSW was simply by dilution of ALSW with deionized water. Creating the 3× ALSW chemistry required dissolution of $CaCO_3$ to provide higher alkalinity while maintaining the desired cation ratios, in addition to adding other more soluble salts. This was accomplished by adding the appropriate amounts of the various salts to LSW in a large graduated cylinder and bubbling CO_2 gas through the solution until pH stabilized near 5.0 and all salts were dissolved. The solution was then aerated with ambient air until pH was approximately 7.8.

Sets 5–7: Effects of modifying specific ion ratios. Most previous work on the effects of dilution water chemistry on major ion toxicity to daphnids has focused on water hardness [16–20] as a generalized parameter without parsing the influence of other ions that covaried with the hardness, although Davies and Hall [21] did identify Ca as being more important than Mg for the effects of hardness on Na_2SO_4 toxicity. Regarding other ions in dilution water, Soucek [17] reported an ameliorative effect of low concentrations of added NaCl on the toxicity of Na_2SO_4 to *Hyalella azteca* (attributed to the chloride requirements for this species) but no such effect on *C. dubia*. At higher NaCl concentrations, there was an exacerbation of Na_2SO_4 toxicity for both species, attributed to additive toxicity of the 2 salts. Soucek et al. [18] also reported a small increase in apparent NaCl toxicity when Na_2SO_4 was added, again attributed to additive toxicity of the 2 salts.

To more completely evaluate the influence of particular dilution water characteristics on the toxicity of major ion salts, we tested selected salts in ALSW modified to provide different ratios of certain ion pairs, based on the tails of the distributions of these ratios in our analysis of US Geological Survey data. Waters with high Ca:Mg (13.6 by mass) and low Ca:Mg (0.27) ratios (Table 2, set 5) were created by changing the salts added to LSW to achieve the target ratios without altering concentrations of any other ions in the water (Table 1). Similar approaches were used to create waters with high and low $Cl:SO_4$ ratios (4.2 and 0.072 by mass; Table 2, set 6) and high and low Na:K ratios (38 and 0.19 by mass; Table 2, set 7). Some of these waters required that LSW be initially diluted with deionized water to lower the concentrations of a target ion to its lowest value, followed by addition of salts to match the ALSW chemistry except for the ion pair being manipulated (Table 1). Where required, the CO_2-aided dissolution of $CaCO_3$ was used to restore alkalinity to waters based on diluted LSW.

Sets 8 and 9: Effects of manipulating alkalinity and pH. The effects of pH and alkalinity were evaluated in 2 ways. First, the alkalinity of ALSW was reduced to 10 mg $CaCO_3$/L and raised to 90 mg $CaCO_3$/L (resulting, respectively, in pHs of 7.3–7.5 and 8.1–8.3; Table 2, set 8). Alkalinity was raised simply by adding $NaHCO_3$, whereas it was lowered by diluting LSW and adding salts to restore all cations and Cl to their same values as in the high-alkalinity water, with SO_4 replacing the alkalinity (Table 1). Second, pH was reduced to approximately 6.8 and raised to approximately 8.5 (Table 2, set 9) without altering alkalinity or other ions by bubbling the ALSW used in test solution preparation with air containing 1% CO_2 and 0% CO_2, respectively, and enclosing test vessels in sealed chambers containing these same CO_2 concentrations [27].

Set 10: Effect of sodium on potassium toxicity. Based on the results of the tests contrasting MHRW and ALSW (set 3), we hypothesized that the toxicity of K salts was dependent on the Na concentration in the dilution water. To evaluate this hypothesis, the toxicity of KCl was tested in 6 different dilution waters with Na ranging from 1.6 mg/L to 300 mg/L (Table 2, set 10). Test waters were prepared by modifying the formulation of ALSW to have no added Na and Cl, then adding NaCl to achieve the desired levels of Na (Table 1).

Set 11: Effects of time-dependent calcium precipitation. Testing of the toxicity of $NaHCO_3$ and $MgCO_3$ resulted in oversaturation of $CaCO_3$ and possible loss of Ca from solution, which would affect toxicity given the established ameliorative effect of Ca. Although Ca was monitored in these tests, the sampling was too limited to precisely determine the Ca concentration to associate with the LC50. Therefore, an additional experiment was conducted to more thoroughly characterize the dependence of any Ca loss on time and test salt concentration. This was a 2 × 2 × 2 factorial experiment, the 3 factors being test salt ($NaHCO_3$, $MgCO_3$), dilution water (1× ALSW, 3× ALSW), and solution age (freshly prepared vs aged for 48 h before introducing test organisms; Table 2, set 11). Extra replicate test cups were prepared to allow sampling of Ca at multiple times and treatment concentrations. This experiment provided not only $NaHCO_3$ and $MgCO_3$ LC50s from tests that were monitored better but also data with which to better estimate Ca concentrations at the LC50 in other CO_3/HCO_3 salt tests.

Set 12: Toxicities of gluconate salts and mannitol. Charge balance requires including both cations and anions in any testing of ion toxicity, making it more difficult to infer the relative toxicities of the individual ions. In addition, results of other experiments in the present study led us to hypothesize that the toxicity of some salts might be related to their effect on the osmolarity of the test solution and thus on the osmotic gradient the organism experiences. To provide more information on the role of the individual cations, we tested the toxicity of the gluconate salts of Na, Ca, and Mg (Table 2, set 12). Gluconate is an organic ion that is not expected to be absorbed appreciably and, thus, should act only through its effect on osmotic potential or on charge gradients, providing an informative contrast to Cl, SO_4, and HCO_3/CO_3. This experiment also evaluated the toxicity of mannitol, a sugar alcohol also not expected to be appreciably absorbed, enabling us to manipulate the external osmolarity without adding any ions. NaCl was also included as a reference major ion salt.

Toxicity test procedures

Salts for all 12 combinations of the 4 major cations and 3 major anions; gluconate salts of Na, Ca, and Mg; and mannitol were obtained from Sigma-Aldrich or Fisher Scientific. All chemicals were American Chemical Society reagent grade or better, with the exception of $MgCO_3$ which was specified as meeting US Pharmacopeia requirements. The certificate of analysis for this salt was used to determine the ratio of $MgCO_3$ to total salt weight for computing nominal $MgCO_3$ concentrations. This certificate of analysis also specified the Ca content to be 0.73% of the Mg content, enough to appreciably affect the background Ca; this was used to adjust the nominal Ca background concentration for tests on the toxicity of $MgCO_3$.

Test organisms were <24-h-old *C. dubia* obtained from in-house cultures. Most test organisms were cultured in MHRW, but organisms for testing the effects of acclimation were also cultured in the dilution waters for the tests (for a least 2 wk prior to the tests); and some tests late in the present study were conducted with organisms cultured in ALSW after a switch of our culture to this water. The culture water for each toxicity test is indicated in Table 3. General culture procedures followed those described by the USEPA [24].

Static 48-h toxicity tests were conducted in 30-mL plastic cups (Berry Plastics) filled with 10 mL test solution and held in polystyrene boards with holes sized to the cups. These boards were floated in a temperature-controlled water bath with a glass sheet covering all test cups. Because preliminary studies indicated that the response curves for major ion salts were quite steep, we used closely spaced exposure concentrations, with each test concentration being approximately 80% of the next higher. Test solutions were prepared by combining the applicable salt and dilution water to achieve the highest test concentration (100%). From this, 2 additional solutions, 80% and 64%, were prepared by dilution of the first; then, each of these 3 solutions was serially diluted by 0.5× to produce a total of 9 to 12 exposure concentrations, plus a dilution water control. The highest salt concentration in each test varied according to its expected toxicity (based on a combination of preliminary testing, any preceding experiments, and literature values), but all tests used the same relative dilution spacing. Most experiments were structured to compare toxicity under 2 related conditions (e.g., high and low Ca:Mg); tests were assigned to experiments such that both conditions would be tested simultaneously for a particular salt, using the same preparation of dilution water and the same cohort of test organisms.

All salts except $CaCO_3$, $MgCO_3$, and $CaSO_4$ could be easily dissolved at concentrations high enough to cause mortality. For $CaCO_3$ and $MgCO_3$, the CO_2 procedure in the description of set 4 was used to dissolve the salts. After adjusting to pH 7.8, $MgCO_3$ solutions so prepared were stable for 48 h at lethal concentrations, thereby allowing for testing as for other salts. However, a 15 mM (1500 mg/L) $CaCO_3$ solution dissolved in ALSW using CO_2 showed substantial precipitation and settling once the pH was raised, with the total concentration being only 6.5 mM at test start and dropping to 2.4 mM (2.2 mM dissolved) after 24 h and to 1.2 mM after 48 h, with no mortality observed. For $CaSO_4$, consistent with the findings of Mount et al. [3], a saturated solution at 16.2 mM (2200 mg $CaSO_4$/L) was not acutely toxic to *C. dubia* in MHRW or ALSW. Based on these results, no further testing was conducted with $CaSO_4$ or $CaCO_3$.

Test cups were usually prepared in duplicate, but in a few tests with CO_3/HCO_3 salts more replicates were used to provide test solution for more monitoring of alkalinity or Ca than in other tests. Each cup received food in the form of 100 μL of a 50:50 mixture of yeast, cereal leaves, and trout chow [24] and algae (*Pseudokirchneriella subcapitata* at 3.5×10^7 cells/mL). Food was added based on previous work indicating that it had minimal effect on toxicity of major ions [3] and to avoid possible stress. Test temperature was 25 ± 1 °C with fluorescent lighting on a 16:8-h light: dark photoperiod. Five *C. dubia* neonates were added to each cup, and survival was determined after 24 h and 48 h of exposure; death was defined as no visible movement after gentle prodding and at least 10 s of observation.

Exposure monitoring

Temperature was monitored daily in test cups from each simultaneous test and continuously in the surrounding water bath. Hardness and alkalinity of dilution waters in every test were measured by titration [28]. For tests with $MgCO_3$ and $NaHCO_3$, alkalinity was also measured in the highest test concentration. Conductivity was used to verify that dilution of the salt solutions was done properly and was measured (model 2052; Amber Science) in each treatment at the start of the exposure, in every treatment that had 100% mortality after 24 h, and in all remaining treatments at 48 h. The pH was measured (PH150 with A57198 probe; Beckman Coulter) at the start of each test in the highest concentration and control (in all concentrations for tests with CO_3/HCO_3 salts), in every concentration that had 100% mortality at 24 h, and in all remaining treatments at 48 h. Dissolved oxygen was measured (model 58; Yellow Springs Instruments) in the highest concentration and control at the start of the test, in the highest and lowest concentrations with 100% mortality at 24 h, and in 2 arbitrarily selected treatments at 48 h.

Because of the large number of exposure treatments (~1500), it was not practical to measure major ion concentrations in every treatment. Instead, the analytical sampling program was structured with 2 primary purposes: 1) to verify that the dilution waters and highest concentrations were prepared properly and 2) to verify the exposure concentrations near the LC50. Accordingly, analytical samples were collected at the start of exposure from each dilution water and from the highest concentration of each salt in each dilution water. In addition, analytical samples were collected from each exposure series after 24 h in the lowest concentration with 100% mortality and at 48 h from the concentration nearest the LC50. Beyond this routine sampling program, some tests included additional

Table 3. Results of tests on the acute toxicity of major ion salts, gluconate salts, and mannitol to *Ceriodaphnia dubia* in various tests waters[a]

Set #	Test Chemical	Culture Water	Test Water	LC50 Method	LC50 mg/L (≥95% CL)	LC50 mM (≥95% CL)	Na mM	K mM	Ca mM	Mg mM	Cl mM	SO4 mM	Alk meq/L	pH	LC50 µS/cm	Osmol mOsM
	NaCl	MHRW	0.33× MHRW	Midpoint	1860 (1740–1990)	31.8 (29.8–34.0)	32.2	0.02	0.116	0.16	31.8	0.28	0.38	7.40	3170	61.4
	NaCl	MHRW	MHRW	Probit	2060 (2020–2490)	35.3 (34.5–42.6)	36.5	0.05	0.348	0.50	35.4	0.84	1.14	7.90	3500	70.1
	Na_2SO_4	MHRW	0.33× MHRW	Midpoint	1860 (1730–2010)	13.1 (12.2–14.2)	26.6	0.02	0.116	0.16	0.02	13.4	0.38	7.60	2480	35.7
	Na_2SO_4	MHRW	MHRW	Probit	3060 (2810–3350)	21.5 (19.8–23.6)	44.2	0.05	0.348	0.50	0.05	22.4	1.14	8.00	3680	58.7
	NaCl	ALSW	ALSW	Midpoint	1680 (1560–1790)	28.7 (26.8–30.7)	28.9	0.04	0.364	0.17	28.9	0.16	0.86	7.95	2980	56.1
	NaCl	ALSW	0.33× ALSW	Probit	1560 (1420–1720)	26.7 (24.4–29.4)	26.8	0.01	0.121	0.06	26.8	0.05	0.29	7.55	2700	51.3
	NaCl	0.33× ALSW	0.33× ALSW	Probit	1770 (1580–1980)	30.2 (27.0–33.9)	30.3	0.01	0.121	0.06	30.3	0.05	0.29	7.55	3030	57.9
1	NaCl	0.33× ALSW	ALSW	Probit	1940 (1780–2110)	33.2 (30.5–36.2)	33.5	0.04	0.364	0.17	33.4	0.16	0.86	7.90	3180	64.5
	NaCl	MHRW	MHRW	Probit	1810 (1680–1950)	31.0 (28.8–33.4)	32.1	0.05	0.348	0.50	31.0	0.84	1.14	8.00	3310	62.0
	NaCl	0.33× MHRW	0.33× MHRW	Midpoint	1640 (1530–1760)	28.1 (26.2–30.1)	28.4	0.02	0.116	0.16	28.1	0.28	0.38	7.60	2990	54.4
	NaCl	0.33× MHRW	0.33× MHRW	Probit	1560 (1440–1710)	26.7 (24.6–29.2)	27.1	0.02	0.116	0.16	26.8	0.28	0.38	7.70	2770	51.9
	NaCl	MHRW	0.33× MHRW	Probit	1480 (1340–1640)	25.3 (23.0–28.1)	25.7	0.02	0.116	0.16	25.4	0.28	0.38	7.70	2690	49.3
	$MgCl_2$	0.33× ALSW	0.33× ALSW	Probit	529 (457–612)	5.56 (4.80–6.43)	0.09	0.01	0.121	5.61	11.2	0.05	0.29	7.45	1230	15.9
	$MgCl_2$	ALSW	0.33× ALSW	Probit	667 (556–810)	7.01 (5.84–8.51)	0.09	0.01	0.121	7.06	14.1	0.05	0.29	7.45	1510	19.7
	$MgCl_2$	MHRW	0.33× MHRW	Probit	305 (271–338)	3.20 (2.85–3.55)	0.38	0.02	0.116	3.37	6.42	0.28	0.38	7.55	813	10.2
	$MgCl_2$	0.33× MHRW	0.33× MHRW	Probit	312 (192–417)	3.28 (2.02–4.38)	0.38	0.02	0.116	3.44	6.57	0.28	0.38	7.60	835	10.3
	NaCl	0.125× MHRW	0.125× MHRW	Midpoint	907 (828–993)	15.5 (14.2–17.0)	15.7	0.01	0.044	0.06	15.5	0.11	0.14	7.45	1750	31.0
	NaCl	0.125× MHRW	MHRW	Midpoint	1810 (1640–1990)	30.9 (28.1–34.0)	32.0	0.05	0.348	0.50	31.0	0.84	1.14	8.05	3260	61.9
	NaCl	MHRW	0.125× MHRW	Midpoint	1010 (940–1080)	17.2 (16.1–18.4)	17.3	0.01	0.044	0.06	17.2	0.11	0.14	7.35	1860	34.1
	NaCl	MHRW	MHRW	Probit	1710 (1580–1850)	29.3 (27.1–31.7)	30.4	0.05	0.348	0.50	29.4	0.84	1.14	8.05	3040	58.9
	$MgCl_2$	0.125× MHRW	0.125× MHRW	Probit	69 (53–90)	0.72 (0.56–0.95)	0.14	0.01	0.044	0.79	1.46	0.11	0.14	7.25	229	3.3
	$MgCl_2$	MHRW	0.125× MHRW	Probit	116 (94–202)	1.22 (0.99–2.12)	0.14	0.01	0.044	1.28	2.44	0.11	0.14	7.25	351	8.8
	Na_2SO_4	0.125× MHRW	0.125× MHRW	Midpoint	671 (613–734)	4.72 (4.32–5.17)	9.59	0.01	0.044	0.06	0.01	4.83	0.14	7.40	1070	14.2
2	Na_2SO_4	MHRW	0.125× MHRW	Midpoint	916 (829–1012)	6.45 (5.84–7.12)	13.0	0.01	0.044	0.06	0.01	6.55	0.14	7.20	1360	18.8
	$MgSO_4$	0.125× MHRW	0.125× MHRW	Probit	160 (137–184)	1.33 (1.14–1.53)	0.14	0.01	0.044	1.39	0.01	1.43	0.14	7.05	630	3.6
	$MgSO_4$	MHRW	0.125× MHRW	Probit	291 (264–321)	2.42 (2.19–2.67)	0.14	0.01	0.044	2.48	0.01	2.52	0.14	7.20	978	5.2
	KCl	0.125× MHRW	0.125× MHRW	Probit	177 (159–197)	2.37 (2.13–2.64)	0.14	2.38	0.044	0.06	2.38	0.11	0.14	7.40	389	5.9
	KCl	MHRW	0.125× MHRW	Midpoint	224 (204–245)	3.0 (2.74–3.29)	0.14	3.01	0.044	0.06	3.01	0.11	0.14	7.40	474	7.1
	$NaHCO_3$	0.125× MHRW	0.125× MHRW	Midpoint	1070 (1000–1140)	12.7 (11.9–13.6)	12.9	0.01	0.044	0.06	0.01	0.11	12.9	9.20	1110	23.8
	$NaHCO_3$	MHRW	0.125× MHRW	Midpoint	1000 (920–1090)	11.9 (10.9–13.0)	12.0	0.01	0.044	0.06	0.01	0.11	12.0	9.15	1060	22.4
	$CaCl_2$	0.125× MHRW	0.125× MHRW	Midpoint	1670 (1570–1780)	15.1 (14.2–16.1)	0.14	0.01	15.1	0.06	30.2	0.11	0.14	6.90	2930	41.2
	$CaCl_2$	MHRW	0.125× MHRW	Probit	1660 (1620–1940)	15.0 (14.6–17.5)	0.14	0.01	15.0	0.06	30.0	0.11	0.14	6.95	2920	40.9
	KCl	MHRW	ALSW	Probit	351 (321–384)	4.71 (4.31–5.15)	0.28	4.75	0.364	0.17	4.92	0.16	0.86	7.95	781	11.1
	KCl	MHRW	MHRW	Probit	464 (395–568)	6.22 (5.30–7.62)	1.14	6.28	0.348	0.50	6.28	0.84	1.14	8.10	1140	15.7
	$CaCl_2$	MHRW	ALSW	Probit	1900 (1690–2170)	17.2 (15.2–19.5)	0.28	0.04	17.5	0.17	34.5	0.16	0.86	7.90	3220	46.9
	$CaCl_2$	MHRW	MHRW	Probit	1990 (1760–2260)	18.0 (15.9–20.4)	1.14	0.05	18.3	0.50	36.0	0.84	1.14	7.95	3250	50.3
	$MgCl_2$	MHRW	ALSW	Probit	861 (759–981)	9.04 (7.97–10.3)	0.28	0.04	0.364	9.21	18.3	0.16	0.86	7.85	1900	26.1
	$MgCl_2$	MHRW	MHRW	Probit	733 (615–895)	7.70 (6.46–9.40)	1.14	0.05	0.348	8.19	15.4	0.84	1.14	7.95	1730	24.2
	K_2SO_4	MHRW	ALSW	Midpoint	362 (339–386)	2.08 (1.95–2.22)	0.28	4.19	0.364	0.17	0.22	2.23	0.86	7.90	690	7.7
	K_2SO_4	MHRW	MHRW	Midpoint	606 (557–659)	3.48 (3.20–3.78)	1.14	7.01	0.348	0.50	0.05	4.32	1.14	8.05	1150	13.2
	Na_2SO_4	MHRW	ALSW	Midpoint	3410 (3150–3700)	24.0 (22.2–26.0)	48.3	0.04	0.364	0.17	0.22	24.18	0.86	7.90	4080	63.4
3	Na_2SO_4	MHRW	MHRW	Midpoint	3260 (3060–3460)	22.9 (21.5–24.4)	47.0	0.05	0.348	0.50	0.05	23.76	1.14	8.00	3970	62.2

(*continued*)

Table 3. (*Continued*)

Set #	Test Chemical	Culture Water	Test Water	LC50 Method	LC50 mg/L (≥95% CL)	LC50 mM (≥95% CL)	Na mM	K mM	Ca mM	Mg mM	Cl mM	SO4 mM	Alk meq/L	pH	LC50 μS/cm	Osmol mOsM
	$MgSO_4$	MHRW	ALSW	Probit	2040 (1880–2230)	16.9 (15.6–18.5)	0.28	0.04	0.364	17.1	0.22	17.10	0.86	7.85	2240	25.2
	$MgSO_4$	MHRW	MHRW	Probit	1990 (1830–2180)	16.6 (15.2–18.1)	1.14	0.05	0.348	17.1	0.05	17.4	1.14	8.00	2280	26.3
	$KHCO_3$	MHRW	ALSW	Probit	322 (306–340)	3.22 (3.06–3.40)	0.28	3.25	0.364	0.17	0.22	0.16	4.08	8.70	487	8.0
	$KHCO_3$	MHRW	MHRW	Probit	454 (407–507)	4.53 (4.07–5.06)	1.14	4.59	0.348	0.50	0.05	0.84	5.68	8.85	844	13.3
	$NaHCO_3$	MHRW	ALSW	Midpoint	1980 (1880–2090)	23.6 (22.3–24.9)	23.8	0.04	0.187[b]	0.17	0.22	0.16	24.4	9.35	1940	41.7
	$NaHCO_3$	MHRW	MHRW	Probit	1610 (1440–1700)	19.1 (17.2–20.3)	20.3	0.05	0.141[b]	0.50	0.05	0.84	20.3	9.25	1680	36.6
	NaCl	MHRW	ALSW	Probit	1910 (1730–2110)	32.7 (29.6–36.1)	33.0	0.04	0.364	0.17	32.9	0.16	0.86	8.00	3110	63.6
	NaCl	MHRW	MHRW	Midpoint	2000 (1830–2190)	34.3 (31.4–37.5)	35.4	0.05	0.348	0.50	34.4	0.84	1.14	8.10	3470	68.1
	$MgCO_3$	MHRW	ALSW	Midpoint	906 (859–956)	10.8 (10.2–11.3)	0.28	0.04	0.443	10.9	0.22	0.16	22.4	9.25	1160	23.2
	$MgCO_3$	MHRW	MHRW	Midpoint	892 (848–938)	10.6 (10.1–11.1)	1.14	0.05	0.426	11.1	0.05	0.84	22.3	9.25	1230	25.2
	$NaHCO_3$	MHRW	0.33× ALSW	Midpoint	1950 (1780–2130)	23.2 (21.2–25.4)	23.3	0.01	0.121	0.06	0.07	0.05	23.5	9.30	1800	40.3
	$NaHCO_3$	MHRW	3.0× ALSW	Probit	1710 (1560–1890)	20.4 (18.6–22.5)	21.2	0.12	0.231[b]	0.50	0.65	0.47	23.0	9.35	1800	39.1
	NaCl	MHRW	0.33× ALSW	Midpoint	1640 (1530–1760)	28.1 (26.2–30.0)	28.2	0.01	0.121	0.06	28.1	0.05	0.29	7.40	2700	53.9
	NaCl	MHRW	3.0× ALSW	Probit	1980 (1770–2160)	33.8 (30.2–36.9)	34.7	0.12	1.093	0.50	34.5	0.47	2.58	8.30	3490	69.1
	Na_2SO_4	MHRW	0.33× ALSW	Probit	1940 (1770–2100)	13.6 (12.5–14.8)	27.3	0.01	0.121	0.06	0.07	13.7	0.29	7.55	2480	36.5
	Na_2SO_4	MHRW	3.0× ALSW	Midpoint	3350 (3140–3570)	23.6 (22.1–25.2)	23.8	0.12	1.093	0.50	0.65	0.47	2.58	8.45	4090	65.4
	KCl	MHRW	0.33× ALSW	Midpoint	192 (180–205)	2.58 (2.41–2.75)	0.09	2.59	0.121	0.06	2.65	0.05	0.29	7.65	430	5.7
	KCl	MHRW	3.0× ALSW	Probit	481 (432–534)	6.45 (5.79–7.16)	0.85	6.57	1.093	0.50	7.10	0.47	2.58	8.45	1220	18.1
	$MgSO_4$	MHRW	0.33× ALSW	Midpoint	1590 (1440–1770)	13.2 (11.9–14.7)	0.09	0.01	0.121	13.3	0.07	13.3	0.29	7.45	1780	19.4
	$MgSO_4$	MHRW	3.0× ALSW	Midpoint	2860 (2620–3130)	23.8 (21.7–26.0)	0.85	0.12	1.093	24.3	0.65	24.2	2.58	8.35	2910	36.9
	$MgCl_2$	MHRW	0.33× ALSW	Probit	374 (344–409)	3.93 (3.61–4.30)	0.09	0.01	0.121	3.98	7.93	0.05	0.29	7.25	910	11.6
4	$MgCl_2$	MHRW	3.0× ALSW	Probit	1290 (1160–1490)	13.6 (12.2–15.7)	0.85	0.12	1.093	14.0	27.8	0.47	2.58	8.35	2760	40.8
	$CaCl_2$	ALSW	0.3× ALSW	Midpoint	1600 (1490–1710)	14.4 (13.4–15.4)	0.09	0.01	14.5	0.06	28.8	0.05	0.29	7.35	2870	38.7
	$CaCl_2$	ALSW	3.0× ALSW	Midpoint	2000 (1870–2130)	18.0 (16.9–19.2)	0.85	0.12	19.1	0.50	36.7	0.47	2.58	7.95	3510	52.4
	K_2SO_4	ALSW	0.3× ALSW	Probit	234 (215–254)	1.34 (1.23–1.46)	0.09	2.70	0.121	0.06	0.07	1.39	0.29	7.40	426	4.5
	K_2SO_4	ALSW	3.0× ALSW	Midpoint	518 (449–598)	2.97 (2.58–3.43)	0.85	6.06	1.093	0.50	0.65	3.44	2.58	8.50	1120	13.7
	$MgCO_3$	ALSW	0.3× ALSW	Midpoint	390 (365–417)	4.63 (4.33–4.95)	0.09	0.01	0.155	4.68	0.07	0.05	9.54	8.95	619	11.8
	$MgCO_3$	ALSW	3.0× ALSW	Midpoint	977 (916–1041)	11.6 (10.9–12.4)	0.85	0.12	0.318[b]	12.1	0.65	0.47	25.8	9.15	1280	28.9
	NaCl	ALSW	0.33× ALSW	Midpoint	1700 (1600–1800)	29.1 (27.4–30.9)	29.2	0.01	0.121	0.06	29.1	0.05	0.29	7.50	2960	55.7
	NaCl	ALSW	ALSW	Probit	1910 (1760–2070)	32.6 (30.1–35.4)	32.9	0.04	0.364	0.17	32.8	0.16	0.86	7.90	3320	63.5
	NaCl	ALSW	3.0× ALSW	Midpoint	2420 (2210–2660)	41.5 (37.8–45.5)	42.3	0.12	1.093	0.50	42.1	0.47	2.58	8.40	4110	83.1
	Na_2SO_4	ALSW	0.33× ALSW	Midpoint	1890 (1760–2020)	13.3 (12.4–14.2)	26.7	0.01	0.121	0.06	0.07	13.4	0.29	7.55	2480	35.7
	Na_2SO_4	ALSW	ALSW	Midpoint	3440 (3220–3670)	24.2 (22.6–25.8)	48.7	0.04	0.364	0.17	0.22	24.4	0.86	7.95	4000	63.8
	Na_2SO_4	ALSW	3.0× ALSW	Probit	3520 (3200–3880)	24.8 (22.5–27.3)	50.4	0.12	1.093	0.50	0.65	25.3	2.58	8.50	4280	68.5
	NaCl	MHRW	Low Ca:Mg	Midpoint	1580 (1420–1740)	27.0 (24.3–29.8)	27.2	0.04	0.075	0.46	27.2	0.15	0.86	7.90	2790	53.0
	NaCl	MHRW	HighCa:Mg	Midpoint	1920 (1790–2050)	32.8 (30.7–35.0)	33.1	0.04	0.475	0.06	33.0	0.15	0.86	7.90	3218	63.8
	$NaHCO_3$	MHRW	Low Ca:Mg	Midpoint	1540 (1440–1640)	18.3 (17.2–19.5)	18.6	0.04	0.075	0.46	0.22	0.15	19.2	9.25	1611	33.8
	$NaHCO_3$	MHRW	HighCa:Mg	Midpoint	2000 (1870–2140)	23.8 (22.2–25.5)	24.1	0.04	0.200[b]	0.06	0.22	0.15	24.6	9.30	1970	41.2
	Na_2SO_4	MHRW	Low Ca:Mg	Probit	1430 (1340–1560)	10.1 (9.41–11.0)	20.4	0.04	0.075	0.46	0.22	10.2	0.86	7.95	2027	28.6
5	Na_2SO_4	MHRW	HighCa:Mg	Midpoint	3140 (2940–3360)	22.1 (20.7–23.6)	44.5	0.04	0.475	0.06	0.22	22.3	0.86	8.00	3822	58.7
	KCl	MHRW	Low Ca:Mg	Midpoint	245 (229–263)	3.29 (3.07–3.53)	0.28	3.32	0.075	0.46	3.50	0.15	0.86	7.95	626	8.4
	KCl	MHRW	HighCa:Mg	Midpoint	281 (258–306)	3.77 (3.46–4.10)	0.28	3.81	0.475	0.06	3.99	0.15	0.86	7.95	663	9.3

(*continued*)

Table 3. (*Continued*)

Set #	Test Chemical	Culture Water	Test Water	LC50 Method	LC50 mg/L (≥95% CL)	LC50 mM (≥95% CL)	Na mM	K mM	Ca mM	Mg mM	Cl mM	SO4 mM	Alk meq/L	pH	LC50 μS/cm	Osmol mOsM
	$MgSO_4$	MHRW	Low Ca:Mg	Probit	935 (857–1020)	7.77 (7.12–8.52)	0.28	0.04	0.075	8.23	0.22	7.92	0.86	7.90	1292	13.3
	$MgSO_4$	MHRW	HighCa:Mg	Midpoint	2060 (1920–2200)	17.1 (15.9–18.3)	0.28	0.04	0.475	17.1	0.22	17.2	0.86	7.95	2232	25.4
	$MgCl_2$	MHRW	Low Ca:Mg	Probit	223 (203–245)	2.34 (2.13–2.57)	0.28	0.04	0.075	2.80	4.90	0.15	0.86	7.90	654	8.5
	$MgCl_2$	MHRW	HighCa:Mg	Probit	935 (865–1015)	9.82 (9.09–10.7)	0.28	0.04	0.475	9.88	19.9	0.15	0.86	7.90	2041	28.1
	Na_2SO_4	MHRW	Low Cl:SO4	Midpoint	3430 (3200–3670)	24.1 (22.5–25.8)	48.5	0.04	0.365	0.17	0.04	24.3	0.86	8.00	4001	63.5
	Na_2SO_4	MHRW	HighCl:SO4	Probit	2990 (2770–3250)	21.1 (19.5–22.9)	42.4	0.04	0.365	0.17	0.40	21.1	0.86	7.95	3632	56.2
	K_2SO_4	MHRW	Low Cl:SO4	Midpoint	377 (355–401)	2.16 (2.04–2.30)	0.28	4.37	0.365	0.17	0.04	2.38	0.86	8.00	710	7.8
	K_2SO_4	MHRW	HighCl:SO4	Midpoint	349 (322–379)	2.00 (1.85–2.17)	0.28	4.04	0.365	0.17	0.40	2.04	0.86	8.00	669	7.6
	$MgSO_4$	MHRW	Low Cl:SO4	Midpoint	1980 (1800–2170)	16.4 (15.0–18.0)	0.28	0.04	0.365	16.6	0.04	16.6	0.86	7.90	2172	24.4
6	$MgSO_4$	MHRW	HighCl:SO4	Probit	1860 (1670–2080)	15.5 (13.9–17.3)	0.28	0.04	0.365	15.6	0.40	15.5	0.86	7.90	2097	23.4
	$NaHCO_3$	MHRW	Low Cl:SO4	Probit	1990 (1830–2180)	23.7 (21.8–26.0)	24.0	0.04	0.190[b]	0.17	0.04	0.22	24.6	9.35	1927	41.9
	$NaHCO_3$	MHRW	HighCl:SO4	Midpoint	2050 (1910–2200)	24.4 (22.8–26.1)	24.7	0.04	0.166[b]	0.17	0.40	0.04	25.2	9.35	2003	42.2
	NaCl	MHRW	Low Cl:SO4	Probit	1660 (1500–1840)	28.4 (25.7–31.5)	28.7	0.04	0.365	0.17	28.4	0.22	0.86	7.95	2816	55.5
	NaCl	MHRW	HighCl:SO4	Midpoint	1700 (1600–1800)	29.1 (27.4–30.9)	29.4	0.04	0.365	0.17	29.5	0.04	0.86	7.90	2921	57.0
	$MgCO_3$	MHRW	Low Cl:SO4	Probit	948 (874–1030)	11.2 (10.4–12.2)	0.28	0.04	0.447	11.4	0.04	0.22	23.4	9.20	1149	24.7
	$MgCO_3$	MHRW	HighCl:SO4	Midpoint	894 (836–957)	10.6 (9.92–11.4)	0.28	0.04	0.442	10.8	0.40	0.04	22.1	9.20	1131	23.8
	NaCl	ALSW	Low K ALSW	Midpoint	1920 (1800–2040)	32.8 (30.9–35.0)	33.2	0.01	0.364	0.17	33.'	0.16	0.86	7.85	3110	63.9
	NaCl	ALSW	High K ALSW	Probit	1980 (1830–2160)	34.0 (31.3–37.0)	34.0	0.26	0.364	0.17	34.1	0.16	0.86	7.85	3216	66.0
	Na_2SO_4	ALSW	Low K ALSW	Probit	2920 (2650–3230)	20.6 (18.7–22.8)	41.5	0.01	0.364	0.17	0.22	20.8	0.86	7.90	3351	54.9
	Na_2SO_4	ALSW	High K ALSW	Probit	3420 (3140–3730)	24.0 (22.1–26.3)	48.2	0.26	0.364	0.17	0.22	24.2	0.86	7.85	3858	63.5
	$NaHCO_3$	ALSW	Low K ALSW	Midpoint	2090 (1960–2220)	24.8 (23.3–26.5)	25.2	0.01	0.139[b]	0.17	0.22	0.16	25.7	9.35	1867	43.8
7	$NaHCO_3$	ALSW	High K ALSW	Midpoint	2220 (2010–2450)	26.4 (23.9–29.1)	26.5	0.26	0.192[b]	0.17	0.22	0.16	27.2	9.35	2007	46.2
	$CaCl_2$	ALSW	Low K ALSW	Probit	1870 (1690–2050)	16.9 (15.2–18.5)	0.33	0.01	17.2	0.17	34.0	0.16	0.86	7.90	3168	46.2
	$CaCl_2$	ALSW	High K ALSW	Probit	1710 (1550–1880)	15.4 (14.0–17.0)	0.08	0.26	15.8	0.17	31.1	0.16	0.86	7.85	2942	42.5
	$MgCl_2$	ALSW	Low K ALSW	Probit	970 (853–1103)	10.2 (8.96–11.6)	0.33	0.01	0.364	10.4	20.6	0.16	0.86	7.85	2022	29.1
	$MgCl_2$	ALSW	High K ALSW	Probit	912 (794–1050)	9.58 (8.34–11.0)	0.08	0.26	0.364	9.75	19.4	0.16	0.86	7.90	1968	27.5
	$MgSO_4$	ALSW	Low K ALSW	Probit	2030 (1790–2300)	16.8 (14.9–19.1)	0.33	0.01	0.364	17.0	0.22	17.0	0.86	7.95	2232	25.1
	$MgSO_4$	ALSW	High K ALSW	Probit	2240 (1980–2470)	18.6 (16.5–20.5)	0.08	0.26	0.364	18.8	0.22	18.8	0.86	8.00	2329	27.3
	KCl	MHRW	Low Alk ALSW	Midpoint	673 (632–718)	9.03 (8.48–9.63)	1.23	9.07	0.364	0.17	9.24	0.95	0.20	7.45	1433	20.2
	KCl	MHRW	High Alk ALSW	Probit	533 (487–584)	7.15 (6.53–7.83)	1.23	7.19	0.364	0.17	7.37	0.16	1.80	8.30	1188	17.6
	NaCl	MHRW	Low Alk ALSW	Probit	1860 (1690–2050)	31.8 (28.9–35.1)	33.1	0.04	0.364	0.17	32.1	0.95	0.20	7.40	3316	62.9
	NaCl	MHRW	High Alk ALSW	Probit	1970 (1790–2120)	33.8 (30.6–36.3)	35.0	0.04	0.364	0.17	34.0	0.16	1.80	8.25	3474	67.3
	$MgCl_2$	MHRW	Low Alk ALSW	Probit	899 (784–1008)	9.44 (8.23–10.6)	1.23	0.04	0.364	9.61	19.1	0.95	0.20	7.30	2076	27.9
8	$MgCl_2$	MHRW	High Alk ALSW	Midpoint	611 (571–654)	6.42 (6.00–6.87)	1.23	0.04	0.364	6.59	13.0	0.16	1.80	8.25	1542	21.0
	Na_2SO_4	MHRW	Low Alk ALSW	Probit	2960 (2700–3240)	20.8 (19.0–22.8)	42.9	0.04	0.364	0.17	0.22	21.8	0.20	7.45	3736	56.3
	Na_2SO_4	MHRW	High Alk ALSW	Probit	2830 (2560–3130)	19.9 (18.0–22.0)	41.0	0.04	0.364	0.17	0.22	20.1	1.80	8.25	3481	54.9
	$MgSO_4$	MHRW	Low Alk ALSW	Midpoint	2250 (2010–2510)	18.7 (16.7–20.8)	1.23	0.04	0.364	18.8	0.22	19.6	0.20	7.30	2475	28.2
	$MgSO_4$	MHRW	High Alk ALSW	Probit	2060 (1850–2450)	17.2 (15.4–20.3)	1.23	0.04	0.364	17.3	0.22	17.3	1.80	8.20	2263	27.1
	$MgCl_2$	MHRW	Low Alk ALSW	Probit	865 (754–985)	9.09 (7.92–10.4)	1.23	0.04	0.364	9.25	18.4	0.95	0.20	7.25	1986	27.0
	$MgCl_2$	MHRW	High Alk ALSW	Probit	623 (559–692)	6.54 (5.87–7.27)	1.23	0.04	0.364	6.71	13.3	0.16	1.80	8.10	1546	21.4
	NaCl	ALSW	ALSW	Probit	2080 (1890–2280)	35.5 (32.3–39.1)	35.8	0.04	0.364	0.17	35.8	0.16	0.86	7.85	3342	68.9
	NaCl	ALSW	Low pH ALSW	Midpoint	2160 (1980–2370)	37.0 (33.9–40.5)	37.3	0.04	0.364	0.17	37.2	0.16	0.86	6.75	3459	71.9
9	NaCl	ALSW	High pH ALSW	Probit	1880 (1730–2050)	32.2 (29.7–35.0)	32.5	0.04	0.364	0.17	32.4	0.16	0.86	8.20	3116	62.7
	$MgCl_2$	ALSW	ALSW	Probit	938 (841–1090)	9.85 (8.83–11.4)	0.28	0.04	0.364	10.0	19.9	0.16	0.86	7.85	2045	28.2

(*continued*)

Table 3. (*Continued*)

Set #	Test Chemical	Culture Water	Test Water	LC50 Method	LC50 mg/L (≥95% CL)	LC50 mM (≥95% CL)	Na mM	K mM	Ca mM	Mg mM	Cl mM	SO4 mM	Alk meq/L	pH	LC50 µS/cm	Osmol mOsM
	$MgCl_2$	ALSW	Low pH ALSW	Probit	1040 (894–1230)	10.9 (9.39–13.0)	0.28	0.04	0.364	11.0	22.0	0.16	0.86	6.75	2057	31.0
	$MgCl_2$	ALSW	High pH ALSW	Probit	1130 (1040–1280)	11.9 (10.9–13.4)	0.28	0.04	0.364	12.0	23.9	0.16	0.86	8.50	2257	33.2
	KCl	MHRW	1.6 Na ALSW	Probit	153 (141–167)	2.05 (1.89–2.24)	0.07	2.09	0.364	0.17	2.09	0.16	0.86	7.95	422	5.6
	KCl	MHRW	3 Na ALSW	Probit	241 (206–268)	3.23 (2.76–3.59)	0.13	3.27	0.364	0.17	3.34	0.16	0.86	8.00	599	8.0
10	KCl	MHRW	10 Na ALSW	Midpoint	393 (360–429)	5.27 (4.83–5.75)	0.43	5.31	0.364	0.17	5.68	0.16	0.86	7.95	872	12.5
	KCl	MHRW	30 Na ALSW	Midpoint	513 (469–560)	6.88 (6.29–7.51)	1.30	6.92	0.364	0.17	8.16	0.16	0.86	7.95	1193	17.3
	KCl	MHRW	100 Na ALSW	Midpoint	644 (602–690)	8.64 (8.08–9.26)	4.35	8.68	0.364	0.17	13.0	0.16	0.86	7.95	1656	26.4
	KCl	MHRW	300 Na ALSW	Probit	752 (641–1360)	10.1 (8.60–18.2)	13.0	10.13	0.364	0.17	23.1	0.16	0.86	7.90	2616	45.3
	$NaHCO_3$	ALSW	ALSW Aged	Midpoint	1660 (1531–1790)	19.7 (18.2–21.3)	20.0	0.04	0.134[c]	0.17	0.22	0.16	20.6	9.35	1670	35.5
	$NaHCO_3$	ALSW	3.0× ALSW Aged	Midpoint	1670 (1530–1810)	19.8 (18.3–21.5)	20.7	0.12	0.126[c]	0.50	0.65	0.47	22.4	9.35	1793	38.2
	$NaHCO_3$	ALSW	ALSW Fresh	Probit	2150 (1990–2320)	25.6 (23.7–27.6)	25.9	0.04	0.207[c]	0.17	0.22	0.16	26.4	9.15	2087	47.2
11	$NaHCO_3$	ALSW	3.0× ALSW Fresh	Midpoint	2240 (2080–2420)	26.7 (24.8–28.8)	27.5	0.12	0.139[c]	0.50	0.65	0.47	29.3	9.10	2284	51.7
	$MgCO_3$	ALSW	ALSW Aged	Probit	767 (699–843)	9.10 (8.29–10.0)	0.28	0.04	0.431	9.27	0.22	0.16	19.0	9.30	1043	20.9
	$MgCO_3$	ALSW	3.0× ALSW Aged	Probit	507 (467–551)	6.01 (5.54–6.54)	0.85	0.12	0.147[c]	6.52	0.65	0.47	14.6	9.30	879	18.0
	$MgCO_3$	ALSW	ALSW Fresh	Midpoint	792 (736–853)	9.39 (8.73–10.1)	0.28	0.04	0.433	9.56	0.22	0.16	19.6	9.15	1054	23.8
	$MgCO_3$	ALSW	3.0× ALSW Fresh	Probit	635 (529–752)	7.53 (6.27–8.92)	0.85	0.12	0.152[c]	8.04	0.65	0.47	17.6	9.00	941	18.4
	NaCl	ALSW	ALSW	Midpoint	1950 (1840–2070)	33.4 (31.5–35.5)	33.7	0.04	0.364	0.17	33.6	0.16	0.86	7.85	3296	65.0
	Mannitol	ALSW	ALSW	Probit		73.7 (66.2–82.1)	0.28	0.04	0.364	0.17	0.22	0.16	0.86	7.75		75.7
12	NaGluconate	ALSW	ALSW	Midpoint		39.2 (36.8–42.0)	39.5	0.04	0.364	0.17	0.22	0.16	0.86	7.85	2188	76.1
	CaGluconate	ALSW	ALSW	Probit		32.9 (29.9–36.2)	0.28	0.04	33.3	0.17	0.22	0.16	0.86	7.80	2074	84.6
	MgGluconate	ALSW	ALSW	Probit		17.1 (14.3–18.7)	0.28	0.04	0.364	17.3	0.22	0.16	0.86	7.80	1638	50.6

[a]See text for designations and formulations for test and culture waters; horizontal gaps delineate experiments and horizontal lines delineate experimental sets. For median lethal concentrations (LC50s), "Probit" denotes exposure-effects curve calculation by probit method; "Midpoint" denotes geometric mean of confidence limits; parentheses denote confidence limits; see text for methodology. Except where noted, LC50s and component concentrations are nominal, and expected to be within +/–10% based on analysis of subset of test solutions.
[b]Ca concentrations are an extrapolation of Ca measurements to median lethal concentration based on model for time dependence of Ca as a function of alkalinity; see Supplemental Data for more information.
[c]Ca concentrations are a weighted average of measurements and 24 and 48 hours that bracket the median lethal concentration.
ALSW = amended Lake Superior water; LC50 = median lethal concentration; MHRW = moderately hard reconstituted water.

sampling from intermediate treatments at the beginning and end of exposure to verify that exposure concentrations were stable over the course of the exposure. Every dilution water was analyzed for all 4 cations plus Cl and SO_4. Because cation analysis was more time-efficient than anion analysis, exposure concentrations of the salt tested were verified by analyzing for its cation. For tests of the toxicity of CO_3/HCO_3 salts, which caused oversaturation of $CaCO_3$ even at the low Ca concentrations in dilution water, Ca concentrations were also measured. In the Ca precipitation experiment with $NaHCO_3$ and $MgCO_3$ (set 11), extra test chambers were used to monitor Ca at 0 h, 24 h, and 48 h at the 25%, 50%, and 100% treatment concentrations, in addition to the cation samples normally taken.

For cation analysis, filtered (0.45-μm nylon syringe filter; Grainger) and unfiltered samples were collected in early experiments; but these analyses consistently showed no significant difference between the 2, so later cation samples were not filtered, except for tests with $NaHCO_3$ and $MgCO_3$ in which $CaCO_3$ precipitation was a concern. Samples for cation analysis were acidified by adding 0.2% (v/v) concentrated HNO_3 and held at room temperature; for tests with $NaHCO_3$ and $MgCO_3$, this amount of acid was increased by an amount calculated to neutralize the extra alkalinity. Cation measurements were made using an Agilent 240 FS flame atomic absorption spectrophotometer (Agilent Technologies), calibrated with a blank and a series of 5 standards, and verified with a quality control standard and an independent calibration standard at both the beginning and the end of the run.

Concentrations of Cl and SO_4 were determined on samples filtered into a polypropylene centrifuge tube, stored under refrigeration, and analyzed within 28 d. Quantifications were made using a Dionex DX600 Ion Chromatograph with an AS50 autosampler, an LC25 chromatography oven, an ED50 electrochemical detector, and a GP50 gradient pump (Thermo Fisher Scientific). A typical instrument run included a blank, a series of 8 standards, a blank spike, and a quality control standard analyzed at both the beginning and the end of the run. Thirteen percent of all ion analyses were run in duplicate; the average relative percentage difference was 1.6% (maximum 8%, standard deviation 1.6%).

Across all test solutions (i.e., samples other than controls) of the 10 major ion salts for which LC50s were determined, comparison of measured and nominal cation concentrations averaged 98.7% with a standard deviation of 4.9% ($n = 329$). Individual results ranged from 83% to 116% of nominal, and 95% fell between 90% and 110% of nominal. Conductivity measurements on all treatments confirmed that the intended gradient of exposure existed among samples not sampled for cation analysis. Based on these results, and the complexity of estimating concentrations in test solutions that were not directly measured, nominal exposure concentrations were used for calculating LC50 values.

Analysis of dilution waters yielded a similarly high average agreement between the measured cation concentrations and nominal values based on past reported measurements (99.3%, $n = 313$) but a higher standard deviation of 10.2%; 97% of values fell between 80% and 120% of nominal and 79% of samples fell between 90% and 110% of nominal. This higher variability is associated with the much lower ion concentrations in control waters, which can inflate percentage error values; in the more dilute waters, K in particular was at very low concentrations, sometimes lower than can be confidently quantified by the methods used (e.g., <0.5 mg/L). Wherever measured concentrations deviated more than 20% from nominal ($n = 8$), all data from that test were reviewed; and in each instance, the information suggested the large deviation was likely spurious (e.g., concentrations of all other ions measured in the same water were close to nominal). Accordingly, ion concentrations in dilution water were also assumed to be equal to nominal in the data analyses, except for Ca concentrations in tests on the toxicity of CO_3/HCO_3 salts, in which case Ca was based on measured concentrations. Because these Ca concentrations varied with time and added salt concentration, this involved interpolation of Ca measurements, which is further discussed in the Supplemental Data.

Data analysis

Concentration–response curves were extremely steep, so that even with the closely spaced exposure concentrations (0.8×), it was common for there to be only 1 (or no) exposure treatment with partial survival less than that attributable to background (control) mortality. For such tests, continuous concentration–effect models cannot be fit to provide point estimates for LC50s. Consequently, a tiered approach was used, based on the type of calculation the data would support. For each test, a background mortality range was defined as all treatments up to the highest concentration at which the fraction of mortality was no greater than at any lower concentration. The number of treatments with partial mortality (i.e., above this background mortality range and below the lowest treatment with complete mortality) was then determined and used to select the type of analysis.

For tests with at least 2 partial mortalities that increased with concentration, a tolerance distribution analysis was conducted, using a 3-parameter model that included a background survival parameter and assumed a log-normal distribution for the lethal concentrations. Parameters were estimated by maximum likelihood analysis using custom software written with Intel Professional Fortran Composer XE 2011. Of the 149 LC50s reported in the present study, 82 supported calculation of such "probit LC50s." The 95% confidence limits were calculated using the likelihood ratio method [29]. Statistical significance of LC50 differences between treatments within an experiment was assessed based on these confidence limits not overlapping, so that such differences have a significance level of at least 95%.

For tests with insufficient partial mortalities for this probit LC50 analysis, the same likelihood ratio method was used to calculate confidence limits for the LC50 (such confidence limits can be assigned even when a unique point estimate for the LC50 cannot be calculated). For these tests, we assigned the geometric mean of these confidence limits to be the point estimate for the LC50 ("midpoint LC50s"). For cases in which there were no partial mortalities, these confidence limits are the bracketing concentrations (the upper end of the background mortality range and the lowest treatment with complete mortality) and the LC50 is equivalent to linear interpolation of survival versus log concentration between these 2 concentrations. To test the performance of this methodology when tolerance distribution assumptions are met, it was applied to simulated data sets generated based on the range of observed parameters, which demonstrated the bias for LC50 estimation to be <1% and the confidence limits to equal or exceed 95%.

These LC50 calculations were based on the nominal concentration of added salt, without consideration of background ion concentrations, because different ion ratios in the dilution water and the added salt make it impossible to express total ion concentrations as an equivalent concentration of salt. Initial comparisons of how dilution water differences affect salt toxicity are also on the basis of added salt for the same reason.

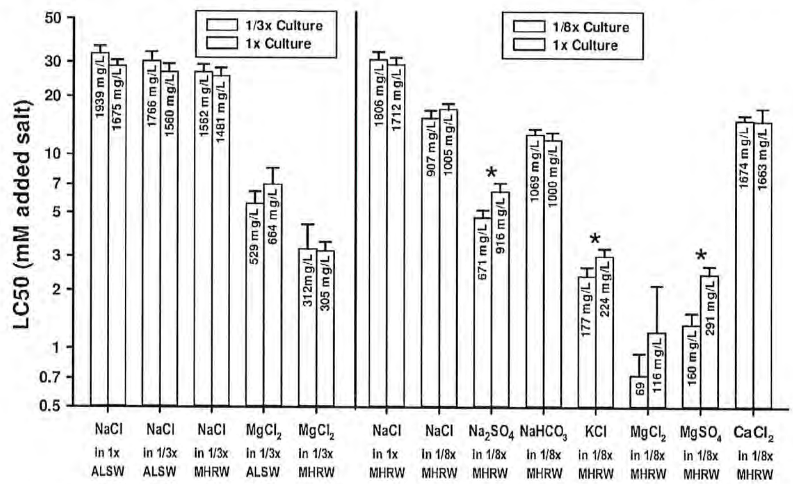

Figure 1. Effects of culturing and testing organisms in different strengths of amended Lake Superior water and moderately hard reconstituted water on median lethal concentrations for selected major ion salts to *Ceriodaphnia dubia*. Error bars denote upper 95% confidence limits, and asterisks denote where confidence limits do not overlap. ALSW = amended Lake Superior water; LC50 = 48-h median lethal concentration; MHRW = moderately hard reconstituted water.

Background concentrations of the component ions of the test salt were <5% in all but 6 tests and never >10%; these had negligible impact on comparisons based on added salt except as noted in *Results and Discussion*. However, for further analyses of the aggregated data, exposure metrics included both background and added ions.

Although test preparation and chemical analysis were based on weight of the salts and the various ions, this is not a good basis for comparing the relative toxicity of the individual salts and ions because the toxic action of these ions should be related to their molarity, not their mass. As such, salt and ion concentrations were converted to molarity, which is the primary basis for toxicity comparisons of the added salts. In addition, evaluation of the dosimetry at these elevated ion concentrations should consider formation of complexes between the various cations and anions, which would affect their chemical reactivities and thus their toxicities. It should also consider that the high ionic strength of these solutions will reduce the reactivity of the ions, as represented in lower activity coefficients, and that exposure metrics thus would be best expressed as chemical activity rather than molarity. To this end, the ion composition at each LC50 was analyzed using the chemical speciation program Visual MINTEQ (Ver 3.0) to estimate chemical speciation and the chemical activity of each chemical species. The osmolarity of each LC50 solution was also calculated based on these MINTEQ activity estimates using the method described by Robinson and Stokes [30].

RESULTS AND DISCUSSION

For each test ($n = 149$), added-salt LC50 values with confidence limits are provided in Table 3, as both milligrams per liter and millimolarity, along with total ion concentrations and osmolarities at these LC50s. The pH associated with each LC50 at the end of exposure is also provided based on measurements in treatments bracketing the LC50. All reported tests had conductivity measurements that varied across treatments in a manner consistent with the intended exposure concentrations, and LC50s directly based on these conductivities are also provided in Table 3. Dissolved oxygen was always above 7.5 mg/L, and temperature was always within 1 °C of 25 °C. Measurements made at the beginning and end of experiments indicated that evapoconcentration during the experiment was low (<5%). Over the background mortality range, as defined in *Data analysis*, survival was ≥90% in all toxicity tests and averaged 98% overall.

Effects of acclimation to dilution water

Figure 1 compares LC50s for *C. dubia* cultured in dilute solutions to those from our standard culture waters. Culturing organisms in 1/3× ALSW or 1/3× MHRW had no significant effect on the toxicities of NaCl and $MgCl_2$, either in test waters at these dilutions or (for NaCl only) in 1× ALSW, the LC50 estimates differing by 20% or less. Culturing organisms in 1/8× MHRW also had no effect on the toxicities of NaCl, $NaHCO_3$, and $CaCl_2$, the LC50s differing by no more than 10%. However, for Na_2SO_4, KCl, $MgCl_2$, and $MgSO_4$, LC50s for 1/8× MHRW test water are 20% to 45% lower for organisms cultured in 1/8× MHRW than those cultured in 1× MHRW, these differences being statistically significant except for $MgCl_2$, for which the LC50 is uncertain because of highly variable responses in this dilute test water.

Thus, "acclimation" to 1/8× MHRW resulted in *C. dubia* being more, rather than less, sensitive to some salts when tested in this dilute solution. Although both we and Elphick et al. [19] established successful cultures in this water, based on our experience with *C. dubia*, such a dilute solution appears to be stressful, an indication of this being the greater variability of organism response to salt toxicity. It is not clear whether this should be considered an artificial stress created by manipulating organisms long adapted to laboratory waters with higher ion concentrations, or a natural consequence for a species not adapted to and not endemic to such dilute waters.

These acclimation experiments were prompted by the work of Elphick et al. [19], who acclimated cultures to dilutions waters (for 2 generations or more) and found that, relative to 1× MHRW, the 7-d NaCl LC50 for *C. dubia* decreased by 2.1-fold in 1/2× MHRW, 3.6-fold in 1/4× MHRW, and 8.4-fold in 1/8× MHRW. In contrast, for organisms both cultured and tested in the waters, we found only a 9% decrease in the NaCl LC50 between 1× MHRW and 1/3× MHRW and only a 1.9-fold decrease between MHRW and 1/8× MHRW (Figure 1). The lack of culture water effect on our LC50s for NaCl suggests that these differences between the 2 studies resulted from other factors, such as the longer duration in Elphick et al. [19] or a variability associated with culturing and/or testing *C. dubia* in such dilute waters. More recent communication with J. Elphick has indicated that they have observed variability in NaCl LC50s for *C. dubia* in very dilute test waters (D.R. Mount, personal communication).

Overall, we concluded that the absence of dilution water-specific culturing was not a substantial factor for most of our experiments but that data for the 1/8× MHRW waters should be interpreted with caution. The results presented hereafter will be only for organisms from our standard culture waters and will consider LC50s for the most dilute test waters to be more useful for qualitative insights into ion toxicity rather than establishing quantitative relationships. Any quantitative uncertainties of LC50s for such dilute waters are probably of limited practical concern because few unimpacted surface waters will likely experience elevations of a single salt to toxic levels while other ions remain at such low levels.

Our culture experiments only addressed more dilute waters than our standard culture water because discrepancies of our results from that of Elphick et al. [19] were noted for those waters. Although we did not evaluate effects of culturing at higher ion concentrations, the relationship of our NaCl LC50s to Ca concentration shows good agreement with that of Soucek et al. [18] and Elphick et al. [19], who did culture organisms in their different test waters. Also, Soucek and Kennedy [16] reported only small and statistically nonsignificant differences among Na_2SO_4 LC50s in MHRW for *C. dubia* cultured in MHRW versus MHRW with elevated Na_2SO_4 levels. This suggests that acclimation to higher ion concentrations may not be a significant factor, but more study would be needed to reach a definitive conclusion.

Salt toxicity in MHRW versus ALSW

Figure 2 compares LC50s for 10 major ion salts tested in both ALSW and MHRW. For NaCl, $MgCl_2$, $CaCl_2$, Na_2SO_4, $MgSO_4$, and $MgCO_3$, LC50 differences are <15% and not statistically significant. For $NaHCO_3$, the LC50 is 20% lower for MHRW and is statistically significant; however, this test involved significant precipitation of Ca, and this precipitation was more pronounced in the MHRW test (Table 3). Given previous studies on the effect of hardness on salt toxicity [16–21], such a Ca difference would contribute to the observed LC50 difference. The fact that MHRW provides a higher background Na concentration and alkalinity would also contribute to the difference in LC50s expressed in terms of added $NaHCO_3$.

Only for the 3 K salts are there clear, substantial differences between the 2 dilution waters. The LC50s are 32% to 67% higher for MHRW than for ALSW, and these differences were all statistically significant. Notable compositional differences between these waters (Table 1) include 4-fold higher Na in MHRW (because of the use of $NaHCO_3$ to add alkalinity), 3-fold higher Mg in MHRW (but similar Ca), 5-fold higher SO_4, and 3-fold lower Cl. The higher Na for MHRW is of particular interest because Na and K are linked physiologically through the central role of Na K adenosine triphosphatases in ion regulation and other key cellular processes [2]. Additional information regarding this issue is provided below (see *Effects of sodium on potassium toxicity*).

Comparing the LC50s in Figure 2 across salts also supports some inferences regarding the contributions of individual ions to toxicity. On a total molarity basis, the Na salts are significantly less toxic than salts of other cations with the same anion. On a total molarity basis NaCl is also significantly less toxic than the other Na salts. For Na_2SO_4, the greater toxicity could be caused by it containing 2, instead of 1, Na atoms, in addition to any anion effects. For $NaHCO_3$, the greater toxicity should be partly the result of lower Ca concentrations (Table 3) from the $CaCO_3$ precipitation induced by this salt. These differences among Na salts will be further addressed below (see *Effects of calcium on the toxicities of sodium salts*).

The K salts are much more toxic than the corresponding salts with other cations, especially Na (Figure 2). The ratio of the Na salt LC50 to the K salt LC50 ranges across the different anions from 4.2 to 6.6 for MHRW and from 5.8 to 9.1 for ALSW, with smaller ratios for MHRW resulting from the aforementioned dilution water effect on K toxicity. These large ratios indicate that K is the principal source of toxicity for these salts because the anion concentrations at the LC50s for K salts are in all cases a small fraction of those present at the LC50s for the Na salts. The LC50 on a molarity basis for K_2SO_4 is approximately half that of KCl, consistent with toxicity being related to the molarity of K rather than the molarity of the salt. Factors controlling K salt toxicity are explored further below (see *Effects of sodium on potassium toxicity*).

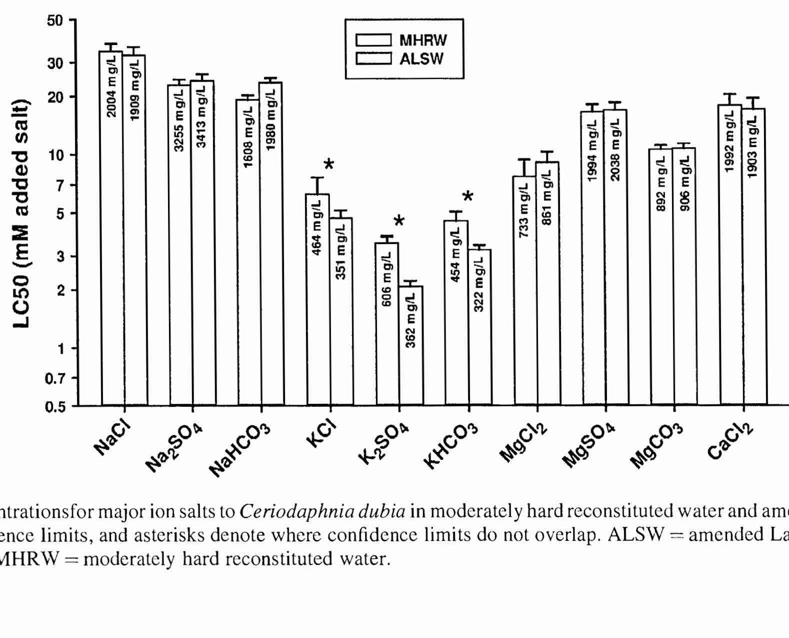

Figure 2. Median lethal concentrationsfor major ion salts to *Ceriodaphnia dubia* in moderately hard reconstituted water and amended Lake Superior water. Error bars denote upper 95% confidence limits, and asterisks denote where confidence limits do not overlap. ALSW = amended Lake Superior water; LC50 = 48-h median lethal concentration; MHRW = moderately hard reconstituted water.

Although less toxic than the K salts in these test waters, the Mg salts are also significantly more toxic than their corresponding Na salts (ratios of 1.4–4.4; Figure 2), suggesting that, like K, Mg is also more important to the toxicity of these salts than are the anions. On a total molarity basis, $MgSO_4$ was approximately 2-fold less toxic than $MgCl_2$. Given the same Mg stoichiometry in each salt, this suggests that the toxicity of Mg is differentially modified by the anions, perhaps by SO_4 complexing Mg and thus reducing its toxicity. Unlike for $NaHCO_3$, there was no Ca precipitation in the tests with $MgCO_3$ (Table 3; and see Supplemental Data for more information on Ca precipitation relationships), and $MgCO_3$ was only slightly less toxic than $MgCl_2$. The relationship of these toxicity differences among Mg salts to ion speciation and activity is discussed later (see *Effects of calcium on the toxicities of magnesium salts*).

For Ca, only the Cl salt was acutely toxic below its solubility. On a total molarity basis, $CaCl_2$ is more toxic (by 1.9 fold) than NaCl (Figure 2); however, because $CaCl_2$ has twice as many chlorides as NaCl, this result by itself provides no clear evidence regarding relative ion toxicities.

Salt toxicity in different strengths of ALSW

Figure 3 shows the effect of varying all ions in dilution water by comparing LC50s for 1/3×, 1×, and 3× ALSW. These comparisons were developed by combining data from simultaneous tests in 1/3× and 3× ALSW with the 1× ALSW data generated separately (Figure 2). Also, NaCl and Na_2SO_4 were evaluated in an additional experiment with all 3 waters tested simultaneously (marked "dup" in Figure 3); this was done to determine if combining data across experiments might influence conclusions. For the 3× ALSW water, ions in the dilution water equaled between 3% and 8% of the added salt LC50, so that any amelioration of toxicity in this water would be slightly underestimated when based just on the added salt.

For the K salts, there is a 2.3-fold to 2.5-fold increase in LC50s from 1/3× to 3× ALSW (Figure 3), with the LC50 for 1× ALSW being near the midpoint of these ranges. Because all ions varied proportionately between these dilution waters, the specific factors responsible for these differences are not directly identifiable. However, the decreased toxicity from 1× to 3× ALSW (entailing a 3-fold change in both Na and hardness) is similar to the change between ALSW and MHRW (Figure 2), between which Na differs 4-fold but hardness is just 1.5-fold different and Ca is virtually constant, suggesting that Na is more important than other cations to these toxicity differences.

For the Mg salts, there are substantial increases in the LC50s from 1/3× to 3× ALSW, totaling 3.4-fold, 2.5-fold, and 1.8-fold for $MgCl_2$, $MgCO_3$, and $MgSO_4$, respectively (Figure 3). For $MgCO_3$, the lack of difference between 1× and 3× ALSW is associated with substantial precipitation of $CaCO_3$ in 3× ALSW (Table 3). For $MgCl_2$ and $MgSO_4$, the LC50 increases between 1× and 3× ALSW are similar to the corresponding K salts; but because these Mg salts show no LC50 difference between ALSW and MHRW whereas the K salts do, the underlying reasons must be different. These effects of dilution water strength should reflect the effects of the anions on the speciation of Mg and Ca; whether such consideration of speciation accounts well for LC50 differences among dilution waters, and among the salts, is addressed later.

For the Na salts, LC50s show responses to ALSW strength that are different from each other and from the K and Mg salts (Figure 3). The LC50 for Na_2SO_4 increases by 1.8-fold from 1/3× to 3× ALSW in both replicate tests, similar to $MgSO_4$ and K_2SO_4; but the increase is all between 1/3× to 1× ALSW. The LC50 for NaCl increases much less from 1/3× to 3× ALSW (1.2-fold and 1.4-fold in the different replicates). For $NaHCO_3$, there is a nonsignificant but slight decrease of the LC50 from 1/3× to 3× ALSW. This is again associated with precipitation of Ca, this precipitation being more extensive in the higher ALSW strengths, leading to Ca concentrations actually being similar across these waters (Table 3) despite the original formulations being 9-fold different. Possible reasons for these LC50 differences across Na salts, including chemical speciation and the ameliorative effects of Ca, are further addressed below (see *Effects of calcium on the toxicities of sodium salts*).

For $CaCl_2$, there is an increase of only 1.2-fold in the LC50 from 1/3× to 3× ALSW of marginal statistical significance. This small dependence of Ca toxicity on ALSW strength, compared with the large dependence of Mg toxicity, results in the toxicity of $MgCl_2$ being very similar to $CaCl_2$ in 3× ALSW (a factor of 1.3 difference) and very different in 1/3× ALSW (a

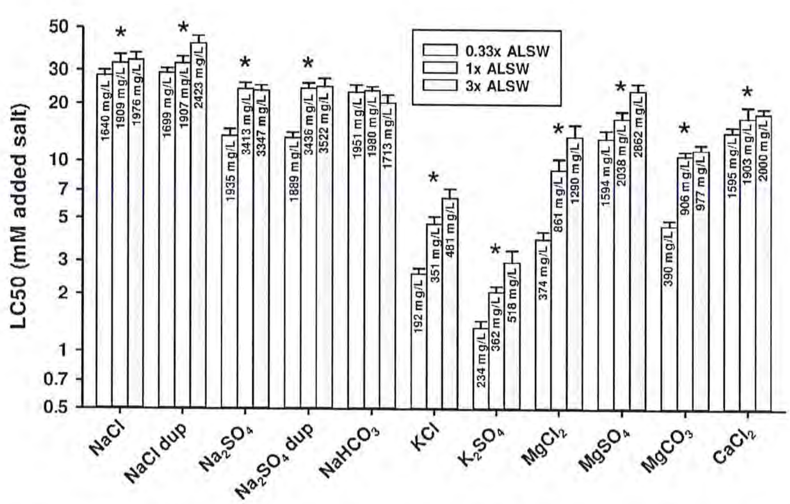

Figure 3. Median lethal concentrations for selected major ion salts to *Ceriodaphnia dubia* in different strengths of amended Lake Superior water (ALSW). Error bars denote upper 95% confidence limits, and asterisks denote where confidence limits do not overlap for 0.33× and 3× ALSW. LC50 = 48-h median lethal concentration.

factor of 3.7 difference). To the extent that the toxicity of $MgCl_2$ (or another salt) depends on Ca, judging relative potencies is best done at high, but nontoxic, Ca concentrations because any adverse consequences of low Ca cannot, by definition, affect Ca toxicity. Thus, Ca and Mg should be considered to have similar intrinsic toxicities.

Effects of manipulating specific ion ratios

To evaluate the factors behind the responses in the 1/3× versus 3× ALSW and MHRW versus ALSW, 3 sets of experiments were conducted in which the Ca:Mg, $Cl:SO_4$, and Na:K ratios were manipulated whereas other ions remained constant. The LC50s for $MgCl_2$, Na_2SO_4, and $MgSO_4$ are at least 2-fold greater at high Ca:Mg than low (Figure 4). Because total hardness and all other ion concentrations were the same in high Ca:Mg and low Ca: Mg waters, these differences are presumably attributable to Ca, rather than overall hardness. These same salts have large LC50 differences in the 1/3× versus 3× ALSW comparisons (Figure 3), for which Ca also changed substantially (in concert with other ions), but small LC50 differences for the MHRW versus ALSW comparisons (Figure 2), for which Ca was essentially the same but other ions varied markedly. Overall, this suggests that Ca is the important factor in differences among these various dilution waters for these salts. The LC50s of NaCl and $NaHCO_3$ had smaller (20–30%) increases at high Ca:Mg (Figure 4), but the magnitude of these effects is also consistent with the results shown in Figures 2 and 3 and their associated Ca concentrations (Table 3). In contrast, although KCl has a higher (15%) LC50 at high Ca:Mg, this is not statistically significant and is much smaller than the LC50 differences for both the MHRW and ALSW comparison (Figure 2) and the 1/3× to 3× ALSW comparison (Figure 3) for this salt. This reinforces the earlier suggestion of the importance of Na to K salt toxicity (see *Salt toxicity in MHRW versus ALSW*).

When the $Cl:SO_4$ ratio was altered (Figure 4), no significant differences in LC50s (<15%) exist for any of the tested salts (Table 2), indicating that these anions are not important characteristics of dilution water for major ion toxicity to *C. dubia*. When the Na:K ratio was altered (Table 3), there also are no significant effects on the LC50s of the tested salts. No K salts were included in Na:K ratio studies because the effect of Na on K salt toxicity was evaluated separately.

Effects of manipulating alkalinity and pH

Two sets of toxicity tests evaluated the effects of dilution water alkalinity and pH on salt toxicity (Figure 5). In the first set, alkalinity was decreased (by dilution, then restoring other ions) and increased (by $NaHCO_3$ addition) relative to 1× ALSW water, resulting in pHs of approximately 7.4 and 8.3 in the low-alkalinity and high-alkalinity treatments, respectively, compared with a typical pH of approximately 7.9 in ALSW. The effects of these combined changes in alkalinity and pH on LC50s are <10% and not statistically significant for NaCl, Na_2SO_4, and $MgSO_4$, but are larger and statistically significant for $MgCl_2$ and KCl. For $MgCl_2$, increasing the alkalinity decreased the LC50 by 1.4-fold. This test was repeated, yielding virtually identical results (Table 3). We initially speculated that complexation by the higher HCO_3/CO_3 decreased Ca activity and thus increased toxicity. However, to maintain a constant Na concentration in these tests, the low-alkalinity water had higher SO_4, which also complexes Ca. As a result, the calculated Ca activity in the high-alkalinity treatment is actually higher than that in the low-alkalinity treatment, so it would not explain the observed LC50 shift. We similarly have no explanation for the lower LC50 (20%) for KCl at high alkalinity. One area of needed future work is direct ion activity measurements to verify speciation model calculations before further exploring the cause of these effects.

In the second set of tests, pH was manipulated by CO_2 partial pressure, leaving alkalinity and all other ions constant as pH varied. For this experiment, pH had no effect on NaCl toxicity over the pH range 6.75 to 8.20 or on $MgCl_2$ toxicity over the pH range 6.75 to 8.50 (Figure 5). (The high pH treatment for the NaCl tests had lower pH than for the $MgCl_2$ tests because of an air leak in the chamber for the low CO_2 treatment, so that the range of tested pHs was less than intended.) This insensitivity of toxicity to pH manipulation suggests that something other than pH itself is responsible for the effects of altered alkalinity on $MgCl_2$ toxicity noted in the previous experiment. However, although these tests at different pHs and alkalinities indicate limited or no effect of these factors on the toxicity of SO_4 and Cl salts, they do not

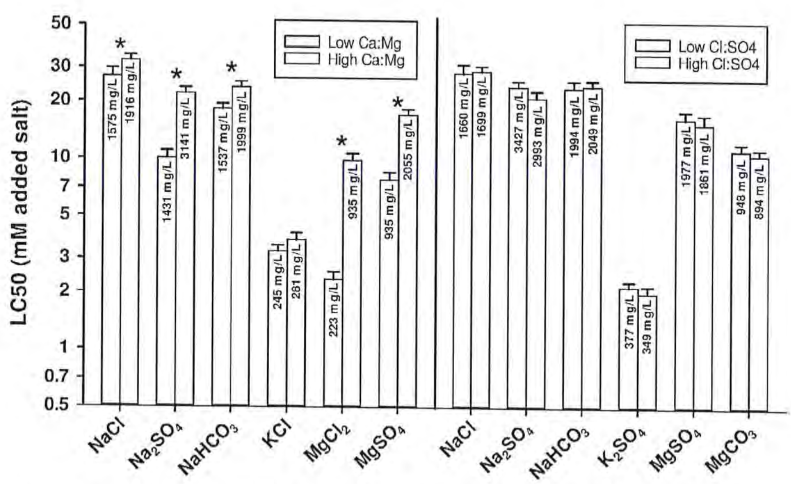

Figure 4. Median lethal concentrations for selected major ion salts to *Ceriodaphnia dubia* in amended Lake Superior water modified to have different ratios of Ca to Mg and different ratios of Cl to SO_4. Error bars denote upper 95% confidence limits, and asterisks denote where confidence limits do not overlap. LC50 = 48-h median lethal concentration.

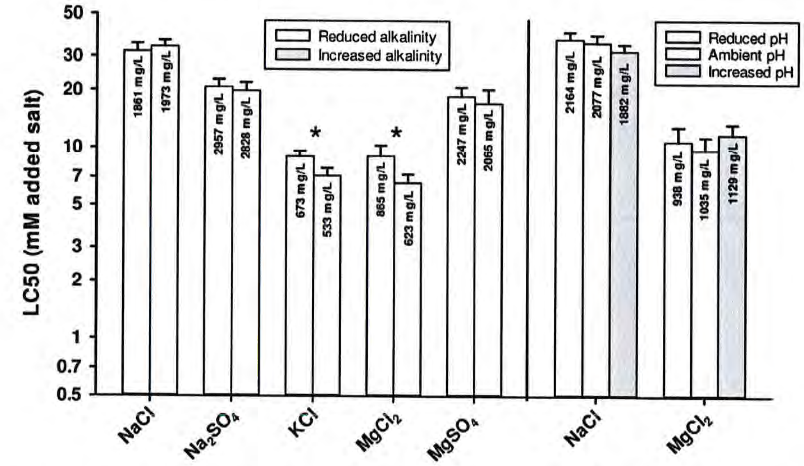

Figure 5. Median lethal concentrations for selected major ion salts to *Ceriodaphnia dubia* in amended Lake Superior water modified to have different alkalinities and pH or different pH with alkalinity unchanged. Error bars denote upper 95% confidence limits, and asterisks denote where confidence limits do not overlap. LC50 = 48-h median lethal concentration.

encompass the much higher pHs and buffering levels of the tests with HCO_3/CO_3 salts. Therefore, pH might still have a role in the relative toxicity of those salts.

Effects of sodium on potassium toxicity

To evaluate the suspected effect of Na on the toxicity of K salts, 6 dilution waters were prepared, each having the composition of ALSW except that the Na^+ concentrations were varied to be 0.070 mM (background in LSW), 0.13 mM, 0.43 mM, 1.3 mM, 4.3 mM, and 13 mM (1.62 mg/L, 3 mg/L, 10 mg/L, 30 mg/L, 100 mg/L, and 300 mg/L), added as NaCl so that the anion was the same as for the toxicant, KCl. The LC50 of KCl differs consistently and substantially across these dilution waters (Figure 6), from a low of 2.05 mM (153 mg/L) at the lowest Na to a high of 10.1 mM (752 mg /L) at the highest Na. The magnitudes of these changes are consistent with the behavior observed for KCl in the MHRW versus ALSW and 1/3× versus 3× ALSW experiments (Figures 2 and 3 and included in Figure 6).

Mount et al. [3] and our initial experiments (Figure 2) demonstrated that K is the most toxic of the major ions to *C. dubia* and, as a result, the effects of K seem to greatly exceed any

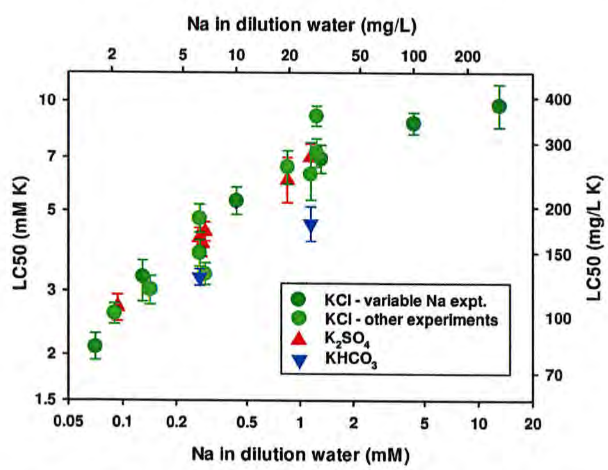

Figure 6. Effect of Na on median lethal concentrations for K salts to *Ceriodaphnia dubia*. Error bars denote 95% confidence limits. LC50 = 48-h median lethal concentration.

effect of the different anions. This is demonstrated in Figure 6, which shows agreement of other K salts and dilution waters with the experiment regarding KCl toxicity across different NaCl levels. Note that by compiling data for tests conducted across a variety of dilution water compositions, the correlation of Na with other major ions that might exist in a single experiment is reduced, strengthening the case for Na being the primary factor influencing toxicity of K salts. There might be some lesser effects of other factors, as evidenced by slightly lower LC50s (expressed as K) for $KHCO_3$ than for KCl and K_2SO_4 (Figures 2 and 6). As noted previously, the carbonate tests entailed much higher pH and buffering for which effects are uncertain. However, any such effects appear to be of less consequence than the primary effect of Na on K toxicity.

One implication of the Na dependence of K toxicity demonstrated in the present study is that the high toxicity of K in typical test waters with low Na may be of limited field relevance because K would be unlikely to be present at toxic concentrations when Na is so low. For example, the K-dominated effluent evaluated by Jop and Askew [11] had approximately 1.5 mM Na, which would put the expected acute LC50 for K at 10 mM or higher (Figure 6). This is similar to the toxicity of Mg salts and only 2-fold to 3-fold more toxic than Na salts.

Effects of calcium on the toxicities of sodium salts

Aside from the effect of Na on the toxicity of K, Ca is the only other ion in the present study which exerted a substantial influence on the acute toxicity of major ion salts to *C. dubia*. Several studies have shown that hardness influences major ion toxicity to *C. dubia* [16–20], though the way in which hardness was manipulated differed across studies. Experiments by Soucek et al. [16–18] varied hardness by adding $CaCl_2 + MgCl_2$ (for NaCl toxicity tests) or $CaSO_4 + MgSO_4$ (for Na_2SO_4 toxicity tests) in fixed ratios and keeping the remaining ions constant, whereas Elphick et al. [19,20] varied all ions proportionately (as in the 1/8×, 1/3×, and 1× MHRW waters used in the present study). In the present experiments, the combination of manipulating all ions simultaneously in some tests and only specific ion pairs in others (at constant hardness) allowed us to conclude that the "hardness effect" on the toxicity of Na salts is primarily an effect of Ca, rather than total hardness or the other ions that covary with hardness. The same conclusion was reached by Davies and Hall [21], who manipulated both total hardness and the Ca:Mg ratio to show the dominance of Ca in determining toxicity of Na_2SO_4 to *D. magna*.

Figure 7 shows the relationship of LC50s to Ca for all our Na salt toxicity tests using organisms cultured in 1× ALSW or MHRW. Each panel considers different exposure metrics for how LC50 and Ca are expressed. As a comparative performance measure for these different metrics, residual standard deviations of the logLC50s (RSD_{log}) around the mean trend of logLC50 with Ca are provided. Mean data trends were calculated by least-square regression of logLC50 versus logCa using Sigmaplot with a model for an exponential rise to a maximum. This is not intended to provide a definitive model for the relationship of toxicity to Ca but rather only an empirical description of the mean data trend suitable for calculating the RSD_{log}.

In Figure 7A, LC50s are plotted as millimolarity of added salt and Ca is plotted as total concentration (measured Ca for $NaHCO_3$ tests, nominal for others). Although the 3 inorganic salts have a similar and substantial (2-fold to 3-fold) dependence

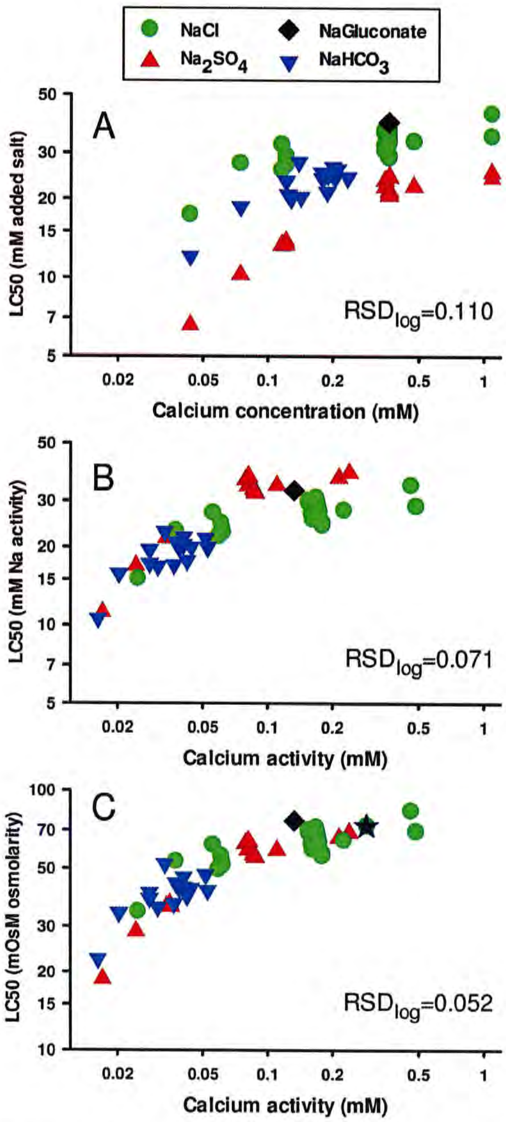

Figure 7. Effect of Ca on 48-h median lethal concentrations (LC50s) for Na salts to *Ceriodaphnia dubia* using different exposure metrics. (**A**) Metrics are LC50 as concentration of added salt and Ca concentration. (**B**) Metrics are Na and Ca activities. (**C**) The LC50 metric is changed to osmolarity. RSD_{log} denotes the residual standard deviation of log(LC50)s from their mean trend with Ca.

on Ca, there is an apparent difference in the relative toxicities of the salts, with LC50s being ordered NaCl ≈ Na gluconate > $NaHCO_3$ > Na_2SO_4. The RSD_{log} is 0.110, for which ±2 SDs corresponds to nearly a 3-fold range in LC50 at a fixed Ca concentration, indicative of the substantial variability among the different salts.

Because chemical reactions are governed by chemical activity rather than concentration, the relative toxicities of salts and their relationships to Ca should be based on chemical activities rather than total concentrations, as in Figure 7A. Activities will differ from total concentrations because of formation of chemical complexes as well as reduced activity coefficients associated with high ion concentrations (especially for the divalent Ca ion), and these factors will differ among the salts and dilution waters. Another issue for comparing toxicities across these salts is that, per mole of salt, Na_2SO_4 provides twice as many Na ions and 1.5 times as many total ions as do the other salts. To address these issues, in Figure 7B, Ca is plotted as Ca activity and the LC50s are based on the activity of Na. This results in much closer agreement among the salts, with the RSD_{log} reduced to 0.071 and the ±2 SD range for LC50 reduced to less than 2-fold; NaCl and $NaHCO_3$ now show similar toxicity because complexation of Ca by CO_3 and HCO_3 in the $NaHCO_3$ exposures causes Ca activity to be lower than that in NaCl exposures at the same total Ca concentration. Accounting for Na_2SO_4 having twice as many Na atoms as other Na salts has also made its LC50s more similar to the other salts; however, Na_2SO_4 now appears to be less, rather than more, toxic than NaCl, based on the repeated tests with Na_2SO_4 and NaCl in 1× ALSW and other waters with similar Ca concentration (i.e., the cluster of red triangles near 0.1 mM Ca activity and green circles near 0.2 mM Ca activity). This continued discrepancy between Na_2SO_4 and NaCl suggests that the anions play some role in determining toxicity beyond their effects on cation speciation.

A simple metric for expressing the aggregate effect of Na and anions is osmolarity, which reflects the combined, unweighted influence of all dissolved species. Figure 7C provides LC50s on the basis of calculated osmolarity, resulting in excellent agreement among all the tests of Na salt toxicity. The LC50s for the different salts now overlap within experimental variability; the RSD_{log} is reduced to 0.052 and the ±2 SD range to 1.6-fold. Further support for using osmolarity as an exposure metric comes from the test conducted with mannitol (black star in Figure 7C), whose LC50 is not significantly different from those of the Na salts even though its only expected effect would be on osmolarity. While this case for osmolarity is simply correlative and does not establish osmotic potential as the primary stressor, an exposure metric such as osmolarity that includes multiple ions in a nonspecific manner is indicated by these data.

Effects of calcium on magnesium toxicity

Figure 8 examines the relationship of LC50s to Ca for all our Mg salt toxicity tests using organisms cultured in 1× ALSW or MHRW. The panels address different exposure metrics parallel to those examined in Figure 7 for Na salts and include RSD_{log} as a performance measure for these different expressions of exposure.

In Figure 8A, LC50s are plotted as millimolarity of added salt and Ca is plotted as total concentration (measured Ca as appropriate for $MgCO_3$ tests, nominal for others). There is an even greater effect of Ca (~ 10-fold LC50 range over the 0.05–1.0 mM Ca range) for Mg salts than for Na salts (note scale change from Figure 7). On the basis of total added salt

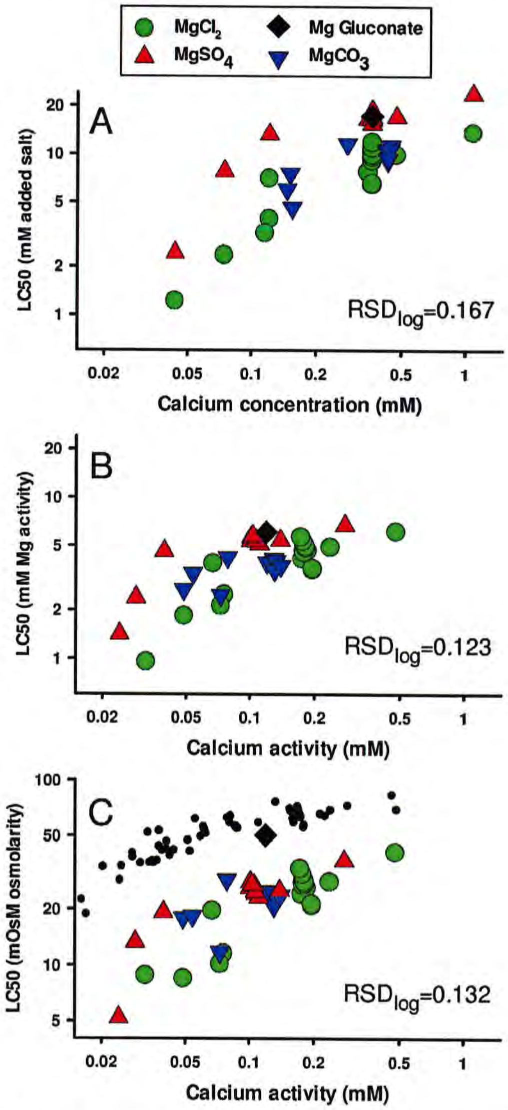

Figure 8. Effect of Ca on 48-h median lethal concentrations (LC50s) for Mg salts to *Ceriodaphnia dubia* using different exposure metrics. (**A**) Metrics are LC50 as concentration of added salt and Ca concentration. (**B**) Metrics are Mg and Ca activities. (**C**) The LC50 metric is changed to osmolarity, and black dots provide comparison to Na salt data from Figure 7C. RSD_{log} denotes the residual standard deviation of log(LC50)s from their mean trend with Ca.

concentrations, the salts have different apparent toxicities, with $MgSO_4$ and Mg gluconate being approximately 2-fold to 3-fold less toxic than $MgCl_2$ and $MgCO_3$. These differences make the RSD_{log} (0.167) even larger than for Na salts (Figure 7A), corresponding to a ± 2 SD range of almost 5-fold at a fixed Ca concentration.

Expressing exposure on the basis of chemical activities of Mg and Ca (Figure 8B) reduces the residual variability and the differences between the salts because of the different degrees of complexation of both Ca and Mg by the different anions. The total range of the LC50s is also less because of a concentration dependence for complexation and activity coefficients. However, the closer agreement among the data is mainly for Ca activity >0.05 mM; at lower Ca activity, there remains considerable disparity between $MgSO_4$ and $MgCl_2$. As noted earlier (see *Effects of acclimation to dilution water*), these tests in very dilute test water raised some concerns about variable response and stresses associated with low ions, which might involve effects other than from Mg and Ca. Thus, although basing LC50s on Mg activity does provide a better metric than total Mg concentration, it does not account for all factors of significance. For all the data, the RSD_{log} is reduced to 0.123; but if only the data at Ca activity >0.05 mM are considered, the RSD_{log} is 0.102 and the ± 2 SD range is then 2.5-fold, half of what is was for LC50s based on total added salt concentration.

Although osmolarity provides a possible unifying exposure metric for Na salts (Figure 7C), it is not a useful metric for Mg salt toxicity (Figure 8C). Using osmolarity to express Mg salt toxicity did not improve, but rather increased, the RSD_{log} of the data. More importantly, the osmolarities at the LC50 for Mg salts are 2-fold to 4-fold lower than those for Na salts at the same Ca activity. This indicates specific action of Mg and is incompatible with using a nonspecific, total ion metric such as osmolarity for the toxicity of Mg salts.

Our results indicate a strong effect of Ca on $MgSO_4$ and $MgCl_2$ toxicity, nearly a 10-fold change in LC50s from the Ca concentration in 1/8× MHRW (0.044 mM) to that in 1× MHRW (0.35 mM), with Figure 1 indicating even lower LC50s at 1/8× MHRW if organisms are cultured in this water. This is in contrast to results from van Dam et al. [31] for an Australian cladoceran (*Moinodaphnia macleayi*) collected from and cultured in very low ionic strength water (Ca <0.02 mM). In 6-d to 7-d reproductions tests, the $MgSO_4$ concentration reducing reproduction by 50% for *M. macleayi* was 2.6 mM in the culture water but only 2-fold higher (5.0 mM) when $CaSO_4$ was added to increase the Ca concentration by roughly 20-fold, to 0.34 mM. While there are several possible explanations for the difference in Ca effect for the 2 species, the van Dam et al. [31] study does reinforce concerns that species like *C. dubia* tested at very low ionic strength may not respond the same way as species (or strains) naturally adapted to low ionic strength water.

The toxicity of calcium

Because of solubility constraints, only limited testing of Ca salts could be conducted; and conclusions about any specific Ca toxicity could not be made based on simple comparisons of the toxicities of $CaCl_2$ and NaCl in our standard test waters. However, there are some indications that the toxicity of $CaCl_2$ is dominated by the cation, as are the toxicities of K and Mg salts. First, any comparison of the toxicity of $CaCl_2$ to NaCl should be made for NaCl tests in the dilution waters with the highest Ca. Otherwise, the comparison is confounded by the exacerbation of Na toxicity by low Ca. For the $CaCl_2$ tests (Table 3), osmolarities at the LC50s average 45 milliosmoles/L (range, 39–52), well below the average osmolarity of 76 milliosmoles/L (range, 69–83) for the NaCl tests in 3× ALSW. Unless the Cl from these 2 salts acts differently, this indicates some Ca-specific toxicity beyond the toxicity exerted by Na and the various anions (Figure 7). Second, in ALSW, the calculated Ca activity is 7.5 mM for $CaCl_2$ and 8.1 mM for Ca gluconate; such similarity would not be expected if these disparate anions were contributing to toxicity. However, the conclusion that there is some specific toxicity of Ca is tentative and will be further addressed in the next article in this series.

Relationship of toxicity to conductivity

Figure 9 replots the data from Figures 7 and 8 with LC50s based on conductivity. Given the results already presented for the toxicity of different salts, it is not surprising that these conductivity LC50s also show a strong dependence of toxicity on Ca and substantial variation across the different salts. The

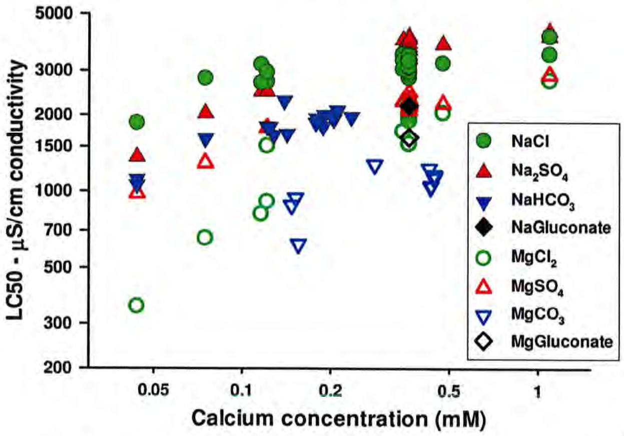

Figure 9. Median lethal concentration of Na and Mg salts expressed as conductivity. LC50 = 48-h median lethal concentration.

total range of conductivity LC50s is approximately 10-fold, with up to a 5-fold range among salts at the same Ca concentration. This indicates that assessment approaches using conductivity as an exposure metric should have a restricted scope of applicability regarding relative ion concentrations, as is the case for the conductivity benchmark of Cormier et al. [14,15].

SUMMARY AND IMPLICATIONS

In the present study, the key influences of background water chemistry on the acute toxicity of major ions salts to *C. dubia* were the effect of Na on toxicity of K salts and the effects of Ca on the toxicity of Na and Mg salts. Although the practical implications of the Na effect on K toxicity are limited because of the unlikelihood of K-dominated exposures, this result does mean that when K exposures are of concern [11] effects concentrations based on typical laboratory tests with low Na concentrations would overestimate risk. Regarding the Ca effects, although a hardness dependence of toxicity was already known for some Na and Mg salts [16–20] and Davies and Hall [21] implicated Ca as the specific factor for Na_2SO_4 toxicity, our results more thoroughly establish a role of Ca for a variety of salts. Predicting salt toxicity across waters will thus be more accurate if done on the basis of Ca rather than hardness, but the benefits of accuracy must be weighed against the availability of Ca versus hardness data. Uncertainties associated with using hardness as a surrogate for Ca can be addressed based on the regional variability of the Ca:Mg ratio, the resultant uncertainty on Ca, and the consequent uncertainty on toxicity estimated from Ca (e.g., Figures 7 and 8); in many cases, the resultant uncertainty should be limited.

An important tool in addressing the toxicity of ion mixtures has been the model of Mount et al. [3], and part of the purpose of the present study was to address some limitations of that model. The present results do indicate that not addressing the hardness (or Ca specifically) of the background water can introduce uncertainty into this model and raise questions regarding how joint toxicity across the different ions was addressed by Mount et al. [3]. However, any quantitative evaluation of that model relative to our results must wait for the alternative model to be presented in our subsequent article.

In addition to describing the dependence of major ion salt toxicities on background water chemistry, the results of the present study allowed some inferences about mechanisms and some conclusions about how salt toxicity dosimetry should be expressed. At least 3 separate mechanisms were apparent. First, a K-related mechanism is indicated by the high toxicities of K salts, the dependence of this toxicity on Na concentration, and its good correlation to K concentration. Second, a Mg-related mechanism is indicated based on the greater toxicity of Mg salts than Na salts and the correlation of Mg salt toxicity to Mg activity. Third, a mechanism related to multiple ions is indicated, based 1) on Na salts being less toxic than salts of other cations, 2) on anions affecting the toxicity of Na salts, 3) on the good correlation of this toxicity to osmolarity, and 4) on the agreement of toxicity from Na gluconate and mannitol with that of inorganic Na salts when expressed as osmolarity. Calcium salt toxicity also likely represents a mechanism different from that of Na salts because of the greater toxicity of $CaCl_2$ compared with Na salts tested at high but nontoxic Ca concentrations; however, this might be the same mechanism as Mg, which has similar toxicity to Ca when tested in waters with higher Ca background.

Regarding dosimetry, rigorously understanding and describing salt toxicity requires examining toxicity on the basis of chemical activities and consideration of various ion interactions. The cation-related mechanisms would be expected to be best related to cation activities, and the multiple ion mechanism associated with Na salts requires some measure, such as osmolarity, which addresses multiple chemical species. These conclusions regarding mechanisms and dosimetry are preliminary and will be further addressed in the subsequent articles mentioned in the *Introduction*, but it is evident that regulations based solely on a single ion may lack robustness from failing to address the relative toxicities and interactions of multiple ions.

One limitation of the present results is that they just concern the toxicities of single salts, with other ions being at low to moderate background concentrations reported for US waters. Most field situations would involve enrichment of more ions—to well above ambient levels, if not to toxic levels. For example, it would not be expected that Mg would be enriched to toxic levels while Ca stays at background levels, and the high toxicity of K salts depends on very low Na concentrations, which would be an unusual exposure scenario. The exposure metrics and relationships noted in the present study would be expected to apply to more complex mixtures (e.g., all ions contributing to osmolarity), but there is a need to better define the scope of applicability of these relationships. Their extension to more complex mixtures will be the subject of subsequent articles.

Although a complete model for the acute toxicity of major ions to *C. dubia* will be forthcoming, Figures 6 through 8 make it clear that this will be complicated, involving chemical speciation calculations, multiple toxicity mechanisms, and interactions among 7 toxicants. Any practical application will require simplifications, but we feel that the detail provided in the present study and in later articles will provide a starting point for determining what simplifications are possible and how they should be structured. Another application issue concerns the relevance of acute ion toxicity for *C. dubia* to the assessment of an entire aquatic community, especially in low-ion, lotic systems. This toxicity endpoint is the starting point for work that will address more endpoints and species. However, the relationships developed for *C. dubia* will be directly relevant to many aquatic systems and will also have value in developing and interpreting major ion toxicity data for other species.

Supplemental Data—The Supplemental Data are available on the Wiley Online Library at DOI: 10.1002/etc.3487.

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Disclaimer—The views expressed in the present study are those of the authors and do not necessarily reflect the views or policies of the US Environmental Protection Agency. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

Data availability—Data are available through the USEPA Environmental Dataset Gateway (https://edg.epa.gov/metadata/catalog/main/home.page) or on request from the corresponding author (erickson.russell@epa.gov).

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EFFECTS OF HARDNESS, CHLORIDE, AND ACCLIMATION ON THE ACUTE TOXICITY OF SULFATE TO FRESHWATER INVERTEBRATES

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Abstract—The acute toxicity of sulfate to *Ceriodaphnia dubia*, *Chironomus tentans*, *Hyalella azteca*, and *Sphaerium simile* was assessed to support potential updates of Illinois (USA) sulfate criteria for the protection of aquatic life. The mean lethal concentrations to 50% of a sample population (LC50s), expressed as mg SO_4^{2-}/L, in moderately hard reconstituted water (MHRW) were as follows: 512 mg/L for *H. azteca*, 2,050 mg/L for *C. dubia*, 2,078 mg/L for *S. simile*, and 14,134 mg/L for *C. tentans*. At constant sulfate (~2,800 mg/L) and hardness (106 mg/L), survival of *H. azteca* was positively correlated with chloride concentration. Hardness also was found to ameliorate sodium sulfate toxicity to *C. dubia* and *H. azteca*, with LC50s for *C. dubia* increasing from 2,050 mg SO_4^{2-}/L at hardness = 90 mg/L to 3,516 mg SO_4^{2-}/L at hardness = 484 mg/L. Using a reformulated MHRW with a similar hardness but higher chloride concentration and different calcium to magnesium ratio than that in standard MHRW, the mean LC50 for *H. azteca* increased to 2,855 mg/L, and the LC50 for *C. dubia* increased to 2,526 mg/L. Acclimation of *C. dubia* to 500 and 1,000 mg SO_4^{2-}/L for several generations nominally increased mean LC50 values compared with those cultured in standard MHRW.

Keywords—Sulfate Total dissolved solids Osmoregulation *Hyalella* Toxicity

INTRODUCTION

Aquatic ecotoxicological research has primarily focused on the impairment of fauna by contaminants that are toxic at minute concentrations; however, ordinarily benign major ions (e.g., sodium, sulfate) can reach concentrations in wastewater discharges that severely impair sensitive in-stream macroinvertebrates and laboratory test organisms [1–5]. Concentrations of these major ions and therefore, of total dissolved solids (TDS), which is essentially the sum of the concentrations of all common ions (e.g., sodium, potassium, calcium, magnesium, chloride, sulfate, and bicarbonate) in freshwaters, can be elevated by numerous practices, such as reverse osmosis systems, pH modifications, and mining operations [6]; and investigations of major-ion toxicity have involved irrigation drainage water [1,7–9], inundation of freshwater systems by brackish water [3,10], laboratory-formulated salt solutions [11,12], and mining activities [4,5,13].

Coal preparation facilities wash coal to reduce sulfur emissions prior to burning in coal-fired power plants and treat wastewaters for acid-soluble metals. This practice often produces a waste containing sulfuric acid that is usually neutralized by the addition of sodium hydroxide or sometimes quicklime (CaO) prior to release to a receiving system [14]. The result is an effluent containing high concentrations of sulfate, sodium, and/or calcium ions and therefore, TDS. Other ions potentially present at high concentrations because of coal preparation activities include magnesium and chlorides; therefore, the interacting effects of these various ions should be considered. Researchers have found hardness and multiple "nontoxic" cations in solution to ameliorate major-ion toxicity ([8,11,15] (http://scholar.lib.vt.edu/theses/available/etd-051499-130633/), and several studies indicate that calcium is more important than magnesium in this regard [16–18].

There are no federal water quality criteria for the protection of freshwater life for TDS, sulfate, or sodium [19], but several states, including Illinois, are developing standards for sulfate to protect aquatic life. Although major-ion (i.e., TDS) toxicity is caused by osmoregulatory stress from the combination of all cations and anions, chloride standards currently exist, and Illinois plans to additionally regulate for sulfate in order to address the major non-chloride component of TDS in these waters. Therefore, the objectives of the current study were to generate lethal concentrations to 50% of a sample population (LC50s) and lethal concentrations to 10% of a sample population (LC10s) for sulfate with selected freshwater invertebrates (*Ceriodaphnia dubia*, *Chironomus tentans*, *Hyalella azteca*, and *Sphaerium simile*) in the U.S. Environmental Protection Agency (U.S. EPA)'s [20] moderately hard reconstituted water (MHRW) and to determine the effects of laboratory water composition, water hardness, and test organism acclimation on the acute toxicity of sulfate. The endpoints generated are described in terms of sulfate concentrations to address regulatory issues; however, it is important to note that in our exposures, sodium was the major cation, and effects observed are probably caused by the combination of all dissolved ions.

MATERIALS AND METHODS

Toxicity of sulfate to freshwater invertebrates in MHRW

Four invertebrates were selected for initial testing. Three of these, *C. dubia*, *H. azteca*, and *C. tentans*, are standard U.S. EPA organisms used to test for either water column or sediment toxicity [20,21]. The fourth, *S. simile*, is a fingernail clam (Bivalvia, Sphaeriidae) that was easily obtained from the field and represented the phylum Mollusca. Reliable toxicity data for sodium sulfate have been generated for *C. dubia* [11], so this organism was used in the present study for comparative

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purposes. Additionally, previous studies have found *C. dubia* to be more sensitive to major-ion or TDS toxicity than other U.S. EPA-recommended test species (e.g., *Daphnia magna*, *Pimephales promelas*) [5,9,11].

The cladoceran, *C. dubia*, was cultured in-house (Soucek Laboratory, Illinois Natural History Survey) according to U.S. EPA methods [20]. The mean LC50 in NaCl reference tests for these *C. dubia* cultures was 2,030 mg NaCl/L, which was comparable to the value of 1,960 mg/L reported in previous studies [11]. The midge, *C. tentans*, also was cultured in-house according to U.S. EPA methods [21]. Prior to testing, larvae were fed a diet of ground Tetra Min® (TetraWerke, Melle, Germany) flake food and rabbit pellets (free of antibiotics). Amphipods, *H. azteca*, were obtained from a commercial source (Aquatic Research Organisms, Hampton, NH, USA) and were acclimated to MHRW at 22°C and a 16:8-h (light: dark) photoperiod for at least 7 d prior to testing. Sphaeriid clams were collected from Spring Creek, near Loda, Illinois, USA, and acclimated to MHRW at 22°C and a 16:8-h (light: dark) photoperiod for 5 to 7 d prior to testing. Clams were identified to species by Gerald Mackie (University of Guelph, Department of Zoology, Guelph, ON, Canada).

For toxicity testing, a pure (99%) grade of anhydrous sodium sulfate (Na_2SO_4) (CAS 7757-82-6) was obtained from Fisher Scientific (Pittsburgh, PA, USA) to serve as the source of sulfate. A concentrated solution of this salt (19,040 mg SO_4^{2-}/L), as well as a sample of laboratory-deionized water, was acidified to pH <2.0 and analyzed for priority metal concentrations at the Illinois State Water Survey (Champaign, IL, USA) using inductively coupled plasma-atomic emission spectrometry according to U.S. EPA methods [22]. All metals analyzed were below acute standard levels ([19], and R. Mosher, Illinois Environmental Protection Agency, Springfield, IL, USA, personal communication) in the concentrated sulfate sample, and all were below detection limits in the deionized water sample except for iron (37 μg/L) and zinc (9 μg/L). The actual metal concentrations have already been reported [23].

For definitive static, nonrenewal toxicity tests, conducted according to American Society for Testing and Materials E729-96 methods [24], treatments comprised a 75% dilution series (i.e., the 100% concentration was serially diluted by 25%), rather than the standard 50%, because major-ion toxicity tests often cause 100% mortality in one concentration and 0% mortality in the next highest concentration if the spread is too great. Five to six concentrations were tested using MHRW as both the diluent and control, with four replicates tested per concentration. Tests with *C. dubia* and *C. tentans* were conducted for 48 h with a 16:8-h (light:dark) photoperiod, with the *C. dubia* tests being conducted at 25°C and the *C. tentans* tests at 22 °C. *H. azteca* and *S. simile* were exposed for 96 h at 22°C and a 16:8-h (light:dark) photoperiod. *C. dubia*, *C. tentans*, and *H. azteca* were exposed in 50-ml glass beakers with five organisms per beaker, and for *C. tentans* and *H. azteca*, 1 g of quartz sand was added to each beaker to serve as substrate. Clam tests were conducted in 150-ml glass beakers (no substrate) with three to five organisms per replicate, depending on the animal size. All clams used were juveniles. In the first experiment, clams averaged 4.6 mm in length (anterior to posterior margin), whereas in the second and third tests, they averaged 5.4 and 8.3 mm in length, respectively. This slight difference in size for the last test did not substantially affect toxicity. *C. dubia* used were <24 h old, *C. tentans* were 10 d old, and *H. azteca* were approximately third instar (7–14 d old). Percent survival in each replicate was recorded every 24 h and at the end of the exposure period. A dissecting microscope was used to assess survival of *Hyalella* and *Sphaerium*.

Standard water chemistry parameters, including temperature, pH, conductivity, dissolved oxygen, alkalinity, and hardness, were measured at both the beginning and the end of each exposure period. The pH measurements were made using an Accumet® (Fisher Scientific, Pittsburgh, PA, USA) model AB15 pH meter equipped with an Accumet gel-filled combination electrode (accuracy <±0.05 pH at 25°C). Dissolved oxygen was measured using an air-calibrated Yellow Springs Instruments (Yellow Springs, OH, USA) model 58 meter with a self-stirring biochemical oxygen-demand probe. Conductivity measurements were made using a Mettler Toledo® (Fisher Scientific) model MC226 conductivity/TDS meter. Alkalinity and hardness were measured (beginning of tests only) by titration as described in work by the American Public Health Association [25]. Samples from each treatment were analyzed to confirm sulfate concentrations by ion chromatography at the Illinois Natural History Survey Aquatic Chemistry Laboratory (Champaign, IL, USA).

All LC50 values were calculated using either the Spearman-Karber method or probit analysis. To increase confidence in LC50 values, three assays were conducted with each organism, except that only two were conducted for *C. tentans* because of their relative tolerance and low variation in LC50s for the first two tests. This provided a stronger estimate of the mean LC50 value for each species. Geometric means are reported because they are less affected by extreme values. In addition, LC10 values were calculated for all species. With the exception of those for *H. azteca*, all LC50 values presented are geometric means of the Spearman-Karber LC50s for a given species, generated from measured sulfate concentrations. The *H. azteca* data did not permit use of the Spearman-Karber method, so probit analysis was used. The LC10 values presented were generated using probit analysis (the Spearman-Karber program does not calculate LC10s) with the combined data from all tests for a given species.

Influence of dilution water composition on sulfate toxicity

Based on observations of others that *H. azteca* had much better control survival in water-only whole-effluent toxicity tests using modified laboratory water [26], experiments were conducted to determine sulfate LC50 values for *C. dubia* and *H. azteca* using the alternate water type referred to as reformulated moderately hard reconstituted water (RMHRW). Reformulated moderately hard reconstituted water is similar to MHRW with two basic differences: The nominal chloride concentration in RMHRW is nearly 18-fold higher than that in MHRW, and the calcium and magnesium salt concentrations are adjusted so that RMHRW has a Ca:Mg molar ratio of 3.25:1, whereas MHRW has a Ca:Mg molar ratio of 0.88:1 (Table 1). A minor modification in the present study was that anhydrous $CaSO_4$ (CAS 7778-18-9) was used for both RMHRW and MHRW. The nominal concentrations shown in Table 1 take this modification into account. Mean LC50s and LC10s were generated for both species in this water using the same laboratory and calculation methods as described above, with the only exception being the changed diluent/control water.

An additional experiment was conducted with *H. azteca* to attempt to isolate the two basic differences between MHRW and RMHRW. In this experiment, only one nominal sulfate

Table 1. Nominal chemical composition of two laboratory waters used in testing with *Hyalella azteca* and *Ceriodaphnia dubia*

Component (units)	MHRW[a]	RMHRW[b]
K^+ (mg/L)	2.1	2.1
Na^+ (mg/L)	26.3	26.3
Ca^{2+} (mg/L)	17.6	32.7
Mg^{2+} (mg/L)	12.1	6.1
SO_4^{2-} (mg/L)	90.2	59.2
Cl^- (mg/L)	1.9	33.9
HCO_3^- (mg/L)	69.7	69.7
Hardness (mg/L as $CaCO_3$)	94	107
Ca/Mg (molar ratio)	0.88	3.25
pH[c]	7.9	7.9
Conductivity (S/cm)[d]	295	341

[a] MHRW = moderately hard reconstituted water [20].
[b] RMHRW = reformulated moderately hard reconstituted water [26].
[c] The average pH for all treatments during all tests was 8.0 ± 0.2 (standard deviation), and dissolved oxygen never dropped below 6.5 mg/L.
[d] Conductivity of samples in MHRW varied depending upon SO_4^{2-} concentration and followed a linear trend described by the formula: Conductivity (S/cm) = 1.7111[SO_4^{2-} (mg/L)] + 717.15, $r^2 = 0.9963$.

concentration (2,500 mg/L) was tested with various base waters. The first of these was MHRW; the second was RMHRW; the third, called chloride, had the same chloride concentration (33.9 mg/L) as RMHRW (Table 1) but the same Ca:Mg molar ratio (0.88:1) as MHRW; and the final medium, called Ca/Mg, had the same Ca:Mg molar ratio (3.25:1) as RMHRW, but the same chloride concentration (1.9 mg/L) as MHRW. *Hyalella* was exposed to these four treatments for 96 h at 22°C. Mean percent survivorship values for each treatment were compared using analysis of variance with JMP-IN® software [27].

Influence of hardness on the toxicity of sodium sulfate

In these experiments, we tested the toxicity of sulfate (with sodium as the major cation) to *C. dubia* in six freshwater solutions having nominal hardness values of <100 (standard U.S. EPA MHRW), 200, 300, 400, 500, and 600 mg/L (as $CaCO_3$). Hardness was increased by adding enough $CaSO_4$ (CAS 7778-18-9) and $MgSO_4$ (CAS 7487-88-9) in the same molar ratio as that in U.S. EPA MHRW (Ca/Mg = 0.88) to achieve the nominal hardness values. Then Na_2SO_4 was added, as was done with the standard MHRW. Whole carboys were made at each elevated hardness level, and this water was used as both diluent and control; therefore, each concentration within a given test had the same hardness (i.e., [Ca^{2+}] and [Mg^{2+}] did not change with dilution). The only parameters that varied within a particular test were sodium, sulfate, and conductivity. At least three tests were conducted for each hardness level to provide a mean LC50 value and standard deviation. Exposures were conducted using the same laboratory and calculation methods described above, with the only exception being the hardness of the diluent. An additional assay was conducted with *H. azteca* at only one sulfate concentration (1,460 mg/L) and three different hardness levels (90, 200, and 300 mg/L as $CaCO_3$). *Hyalella* was exposed to sulfate at each of these hardness levels for 96 h, and mean percent survival was compared between treatments using analysis of variance with JMP-IN [27].

Influence of chloride on the toxicity of sulfate

In this experiment, we tested the toxicity of sulfate to *H. azteca* in six freshwater solutions having nominal chloride concentrations of 1.9, 10, 15, 20, 32, and 60 mg/L. Chloride, as NaCl (CAS 7647-14-5, Fisher Scientific AC42429-0010), was added at appropriate concentrations to a solution with a hardness of approximately 106 mg/L (Ca/Mg = 3.25, molar ratio) and a nominal sulfate concentration of 2,800 mg/L. The only parameters that varied between treatments were sodium and chloride. In general, tests were conducted using the same laboratory methods as described above for *Hyalella*. Sulfate, chloride, and bromide were measured in test solutions by ion chromatography. *Hyalella* was exposed to sulfate at each of the six chloride levels for 96 h, and mean percent survival was compared between treatments using analysis of variance with JMP-IN[27]. One additional aspect of this experiment that was different from others in this study using *Hyalella* was that the organisms were cultured in RMHRW and not acclimated to MHRW, as in previous experiments, to potentially improve the health of the test organisms [26]. Finally, two test endpoints were recorded. Tests were checked for survival under a dissecting microscope, and total survival included all living individuals, even if they were lying on the bottom and only legs were twitching. Functional survivors included only those individuals that were active and upright or burrowing.

Table 2. Toxicity of sulfate to freshwater organisms in MHRW[a]

Species	*n*	Mean LC50[b] (mg SO_4^{2-}/L)	Range (mg SO_4^{2-}/L)	LC10[c] (mg SO_4^{2-}/L)
Ceriodaphnia dubia	3	2,050	1,869–2,270	1,759
Chironomus tentans	2[d]	14,134	14,123–14,146	11,682
Sphaerium simile	3	2,078	1,901–2,319	1,502
Hyalella azteca	3	512	431–607	262

[a] MHRW = moderately hard reconstituted water [20].
[b] Lethal concentrations to 50% of a sample population (LC50s) are geometric means of all Spearman-Karber values generated for a given organism using measured sulfate concentrations. Control survival was >90% in all exposures.
[c] Lethal concentration to 10% of a sample population (LC10) values were generated using probit analysis with the combined data from all tests for a given species.
[d] Tests produced similar LC50s and because values were so high, a third test was not conducted.

Influence of acclimation on the toxicity of sulfate to C. dubia

This experiment was designed to determine the effects of acclimation to relatively high sulfate levels on the response of *C. dubia* to sulfate. *C. dubia* were cultured in U.S. EPA MHRW with Na_2SO_4 added to achieve sulfate concentrations of 500 and 1,000 mg/L. After two to three generations had been cultured in these two sulfate concentrations, acclimated organisms were tested in high sulfate solutions using standard MHRW as a diluent and control as described above. Three replicate tests were conducted for each acclimation level to provide a mean LC50 value and standard deviation.

RESULTS

Toxicity of sulfate to freshwater invertebrates in MHRW

Of the four species tested in MHRW, the most sensitive was *H. azteca*, with a mean LC50 of 512 mg SO_4^{2-}/L (Table 2). *C. dubia* and the fingernail clam, *S. simile*, were similar in sensitivity, with mean LC50s of 2,050 and 2,078 mg SO_4^{2-}/L, respectively. *C. tentans* was tolerant to sulfate exposure, with a mean LC50 of 14,134 mg SO_4^{2-}/L. The LC10 values were calculated by analyzing all tests for each species

Table 3. Influence of culture/testing water composition on toxicity of sulfate to *Hyalella azteca* and *Ceriodaphnia dubia*

Species	Water type	Mean[a] LC50[b] (mg SO_4^{2-}/L)	Range	LC10[c] (mg SO_4^{2-}/L)
H. azteca	MHRW[d]	512 B	431–607	262
H. azteca	RMHRW[e]	2,855 A	2,835–2,876	2,185
C. dubia	MHRW	2,050 B	1,869–2,270	1,759
C. dubia	RMHRW	2,526 A	2,436–2,607	2,216

[a] Different capital letters indicate means are significantly different ($p < 0.05$). Only intraspecific comparisons were tested.
[b] LC50 = lethal concentration to 50% of a sample population.
[c] LC10 = lethal concentration to 10% of a sample population.
[d] MHRW = moderately hard reconstituted water [20].
[e] RMHRW = reformulated moderately hard reconstituted water [26].

simultaneously, and these ranged from 262 mg SO_4^{2-}/L for *Hyalella* to 11,682 mg SO_4^{2-}/L for *C. tentans* (Table 2).

Influence of dilution water composition on sulfate toxicity

Testing *H. azteca* in RMHRW produced a strikingly different response compared to results of tests in MHRW (Table 3). The mean LC50 in RMHRW (2,855 mg SO_4^{2-}/L) was more than 5.5-fold higher ($p < 0.0001$) than that generated using MHRW (512 mg SO_4^{2-}/L), with a >8-fold increase in the LC10 value. *C. dubia* also had a significantly different ($p = 0.0205$), though not as striking, response, with the mean LC50 increasing from 2,050 mg SO_4^{2-}/L in MHRW to 2,526 mg SO_4^{2-}/L in RMHRW. The LC10 for *C. dubia* increased from 1,759 mg / L in MHRW to 2,216 mg SO_4^{2-}/L in RMHRW (Table 3).

In the experiment with *H. azteca* designed to dissect the effects observed in RMHRW, only 45% and 55% of the test organisms exposed to 2,500 mg SO_4^{2-}/L were alive in the MHRW and Ca/Mg treatments, respectively, after 48 h, whereas 85% and 80% survived in the RMHRW and chloride media, respectively (Fig. 1). After 96 h, all of the organisms had died in MHRW and Ca/Mg, whereas 80% still survived in RMHRW and 25% survived in chloride. These data suggest that chloride played the larger role in protecting *H. azteca* against sulfate toxicity and that the different Ca:Mg ratio played a smaller role.

Influence of hardness on the toxicity of sodium sulfate

Increasing water hardness decreased the toxicity of sodium sulfate to *H. azteca* (Fig. 2). In controls, 90% of test organisms survived in MHRW (no sulfate added), whereas after 96 h, all organisms were dead in the hardness = 100, SO_4^{2-} = 1,460 mg/L treatment. However, in the hardness = 200 and hardness = 300 mg/L treatments, 15% and 60% of test organisms survived, respectively.

Whereas the mean LC50 for *C. dubia* in standard MHRW (hardness = 90) was 2,050 mg SO_4^{2-}/L, the mean LC50s substantially increased at hardness values of 200 and 300 mg/L (Table 4). Mean LC50s were even higher at the higher hardness values of 390, 484, and 578 mg/L, with a maximum of 3,516 mg SO_4^{2-}/L at a hardness of 484 (Table 4). The LC10s increased as well, from 1,759 mg SO_4^{2-}/L at a hardness of 90 mg/L to 2,173 mg SO_4^{2-}/L, and 2,389 mg SO_4^{2-}/L at hardness values of 200 and 300 mg/L, respectively. Whereas in the 90 through 500 nominal hardness tests, measured sulfate concentrations were very close to nominal sulfate concentrations, measured sulfate in the 600 nominal hardness tests was somewhat lower than nominal sulfate concentrations, suggesting that some precipitation of $CaSO_4$ occurred. Therefore, results may be questionable at this hardness level. If the mean LC10 at that hardness is excluded, a linear relationship exists between water hardness and LC10, described by the formula LC10 (mg SO_4^{2-}/L) = 2.685(hardness) + 1595.5, $r^2 = 0.959$. When the LC10 at a hardness of 578 (nominal hardness of 600) is included, the relationship is better described by a logarithmic function with the formula LC10 (mg SO_4^{2-}/L) = 526.24(ln[hardness])−574.81 ($r^2 = 0.8713$).

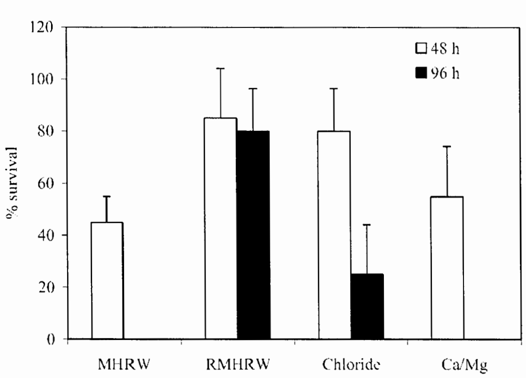

Fig. 1. Effect of various components of reformulated, moderately hard, reconstituted water (RMHRW) on percent survival of *Hyalella azteca* in elevated (2,500 mg SO_4^{2-}/L) sulfate solutions. The chloride and Ca/Mg treatments consisted of standard moderately hard reconstituted water (MHRW) with chloride or Ca:Mg molar ratio adjusted to match RMHRW.

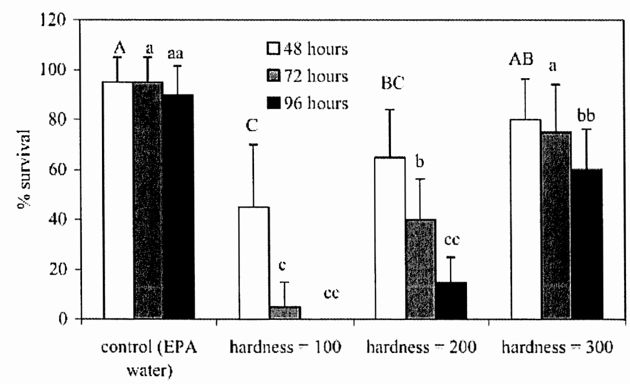

Fig. 2. Effect of hardness on toxicity of elevated sulfate to *Hyalella* in moderately hard reconstituted water. Average measured sulfate concentration was 1,460 mg/L (standard deviation = 25) for the three treatments excluding the control (106 mg/L sulfate). EPA = Environmental Protection Agency. Different upper- or lower-case letters indicate means are significantly different ($p < 0.05$).

Table 4. Influence of water hardness on toxicity of sulfate to *Ceriodaphnia dubia* in MHRW[a]

Hardness, nominal (actual)	*n*	Mean LC50[b] (mg SO_4^{2-}/L)	Range (mg SO_4^{2-}/L)	LC10[c] (mg SO_4^{2-}/L)
90 (89)	3	2,050	1,869–2,270	1,759
200 (194)	3	3,000	2,706–3,265	2,173
300 (288)	4	2,946	2,383–3,361	2,389
400 (390)	3	3,174	3,073–3,369	2,744
500 (484)	3	3,516	3,338–3,716	2,793
600 (578)	3	3,288	2,761–4,220	2,547

[a] MHRW = moderately hard reconstituted water [20].
[b] Lethal concentrations to 50% of a sample population (LC50s) are geometric means of all Spearman-Karber values generated for a given organism using measured sulfate concentrations.
[c] Lethal concentration to 10% of a sample population (LC10) values were generated using probit analysis with the combined data from all tests for a given treatment.

Influence of chloride on the toxicity of sulfate

Sulfate toxicity to *H. azteca* decreased with increased levels of chloride when hardness was held constant (Fig. 3). At the lowest measured chloride concentration tested (5 mg/L), only 20% of the test organisms exposed to 2,846 mg SO_4^{2-}/L were alive after 96 h, and none of these organisms were functionally alive. At 13 mg Cl^-/L, both total and functional survival increased nominally, but not significantly ($p > 0.05$); however, significant increases in total and functional survival were observed at and above 18 mg Cl^-/L ($p < 0.05$). Survival was 85% and 100% in the 36 and 67 mg Cl^-/L treatments, respectively. Bromide concentrations in all treatments were below detection limits (<0.01 mg/L).

Influence of acclimation on the toxicity of sulfate to C. dubia

In this experiment, with *C. dubia* acclimated for several generations to either 500 or 1,000 mg SO_4^{2-}/L, nominal increases in mean LC50 values were observed; however, these means were not significantly greater ($p < 0.05$) than that for organisms cultured in standard MHRW (Fig. 4).

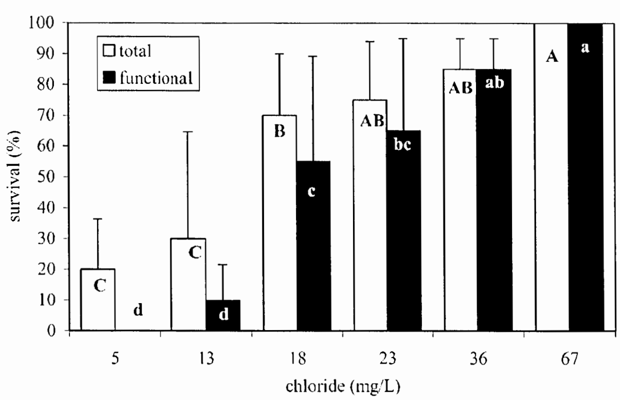

Fig. 3. Effect of increasing chloride concentrations on sulfate toxicity to *Hyalella azteca*. Mean ± standard deviation sulfate concentration for all treatments was 2,846 ± 80 mg SO_4^{2-}/L, mean hardness was 106 ± 2 mg/L as $CaCO_3$, and Ca:Mg was 5.4:1. Different upper- or lower-case letters indicate means are significantly different ($p < 0.05$). Total = all survivors including those lying on bottom barely moving; functional = survivors that are moving about.

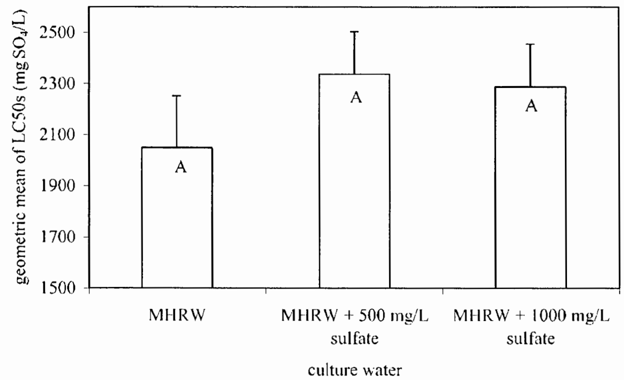

Fig. 4. Effect of acclimation on sulfate toxicity to *Ceriodaphnia dubia*. Organisms were cultured for at least two generations in moderately hard reconstituted water (MHRW), MHRW with 500 mg SO_4^{2-}, or MHRW with 1,000 mg SO_4^{2-}. Three tests were conducted with each population of organisms. Treatments with the same upper-case letters indicate that means are not significantly different ($p < 0.05$). LC50 = median lethal concentration.

DISCUSSION

Toxicity of sulfate to freshwater invertebrates in MHRW

The geometric mean for the three tests with *C. dubia* in this study was 2,050 mg SO_4^{2-}/L (Table 2), which compares favorably with the value of 3,080 mg Na_2SO_4/L (equivalent to 2,082 mg SO_4^{2-}/L) generated in previous studies [11]. Values generated in this study for *H. azteca* and *S. simile* were lower than values generated by others for the fathead minnow, *P. promelas* (5,380 mg/L), and *D. magna* (3,096 mg/L) [11]. The midge, *C. tentans*, was relatively insensitive compared with other invertebrates. This finding agrees with the observation of no significant reductions in relative chironomid abundance in waters exceeding 3,000 mg SO_4^{2-}/L below a coal processing discharge facility (A.J. Kennedy, unpublished data). The British Columbia Ministry of Environment, Land and Parks (BCMELP) has an online database (wlapwww.gov.bc.ca/wat/wq/BCguidelines/sulphate/index.html) that includes a variety of sulfate toxicity data for a number species. The values generated by BCMELP for *Hyalella* were quite variable and not similar to that obtained in this study using MHRW; however, with the exception of hardness estimates, water quality data were not presented in the database, so it is difficult to make comparisons with our study. As will be discussed below, water quality data, including cations and anions present, are critical for predicting the responses of freshwater organisms (especially *Hyalella*) to elevated sulfate concentrations.

Influence of chloride on the toxicity of sulfate

The composition of dilution water used during testing in this study had a dramatic effect on the toxicity of sulfate to *Hyalella*. In fact, the 96-h LC50 in RMHRW was 5.5-fold higher than that generated using MHRW. Both dilution waters were similar in terms of hardness (~90–106 mg/L as $CaCO_3$), alkalinity, and pH, but one potential reason for the difference in response is the difference in chloride concentrations between the two media (see Table 1). Freshwater organisms tend to osmoregulate hypertonically with respect to the surrounding medium, achieved by active transport of ions into the hemolymph [28,29]. The principal inorganic anion of crustacean hemolymph is chloride, and it has been suggested that low chloride concentrations may limit the distribution of at least one euryhaline amphipod (*Corophium curvispinum*) in freshwaters [30]. *H. azteca* is a euryhaline amphipod [7], and perhaps when encountering high ion (Na^+ and SO_4^{2-}) concentrations in MHRW, it is not able to osmoregulate because of the relatively low concentration of chloride. This same effect was observed, to a lesser extent, with *C. dubia.*

The experiment with *Hyalella*, in which hardness and sulfate were held constant and chloride was variable (see Fig. 3), supports the hypothesis that chloride has a protective effect against sulfate toxicity, because incremental increases in chloride were associated with incremental increases in survival. Borgmann [31] included bromide as one of the ions required by *Hyalella* for long-term survival, stating that chloride is not required; however, chloride is chemically similar to bromide, and results of this study indicate that if chloride is not indeed required, it does appear to at least provide protection from salt toxicity. Bromide was not present at measurable concentrations (<0.01 mg/L) in our experiments. The results of this study further support the findings of others that MHRW may not be an acceptable medium for water-only testing with *Hyalella* [26].

The fingernail clam, *S. simile*, had a marginally lower LC10 value for sulfate than that of *C. dubia* in MHRW, but the former was not tested in RMHRW because of temporal restrictions in its availability. It remains unclear whether or not mollusks will have the same physiological response as two crustaceans to increased chloride in toxicity experiments with sulfate. In a field study, 76% of transplanted Asian clams (*Corbicula fluminea*) in and below a treated mining discharge survived sulfate levels of approximately 3,600 mg SO_4^{2-}/L with ~700 mg Cl^-/L, although, as will be discussed below, hardness (700–800 mg/L as $CaCO_3$) likely played a role in this system [5]. Chloride is a principal anion in the hemolymph of most bivalves [32], but others have found that in the unionoidean *Toxolasma texasensis*, chloride and bicarbonate are equivalent anionic components [33]. Because bicarbonate is readily available via respiration and metabolism, this mussel may not depend on external chloride concentrations for osmoregulation to the extent that some crustaceans do. If this is the case, the effect of chloride observed for *Hyalella* and *Ceriodaphnia* might not be manifested in some unionoidean bivalves, and further work should be done to clarify this.

Influence of hardness on the toxicity of sodium sulfate

Another factor that appears to have a strong effect on the toxicity of sulfate is the presence of other major cations, in this case, calcium and magnesium, measured as hardness. In our sodium-dominated system, increased hardness reduced the toxicity of sulfate to *Hyalella* (see Fig. 2) and had a dramatic effect on the 48-h LC50 for *C. dubia* (see Table 4). Mount et al. [11] obtained a similar result in that when using only Na_2SO_4, the LC50 for *C. dubia* was 2,082 mg SO_4^{2-}/L, but when using a 1:1 ratio of Na_2SO_4 and $MgSO_4$, the LC50 increased to 2,335 mg SO_4^{2-}/L. They were careful to point out that the effect was not necessarily caused by hardness, but rather by multiple major cations, citing that the LC50 (expressed as mg Cl^-/L) for *C. dubia* in NaCl was nearly identical to that in $CaCl_2$, despite the fact that the two solutions had very different hardness values. However, increased calcium is known to decrease the passive permeability of gill epithelia to water and ions in seawater-adapted fish and crabs [34,35]. A similar phenomenon may explain the results of the hardness experiments conducted in this study; i.e., we hypothesize that the increased calcium concentrations at higher hardness levels reduced epithelial permeability, thus reducing passive diffusion and the energy required to osmoregulate and accounting for the decrease in toxicity. In support of this hypothesis, the decreased toxicity of sulfate to *Hyalella* in RMHRW was not entirely explained by the increased chloride concentration (see Fig. 1). The different Ca:Mg ratio also appeared to have an effect, and hardness in RMHRW was similar to that in MHRW (~106 and ~90 mg/L as $CaCO_3$, respectively). An alternative hypothesis is that increased calcium is competing for binding sites in a manner similar to that proposed for metals like copper [36]; however, this may be unlikely, because sulfate is an anion and sodium is a monovalent cation. Further experiments are required to test these hypotheses.

Others have observed reduced toxicity of saline solutions because of increased hardness. Dwyer et al. [8] demonstrated that increasing the hardness of an NaCl-dominated irrigation return water reduced its toxicity to striped bass and *D. magna.* A similar phenomenon was observed with a coal processing discharge in Ohio, USA [5,15]. Although this discharge did include elevated sulfate (3,672 mg/L) and chloride (792 mg/L) concentrations, the nature of the toxicity was complicated by other ions in solution. The hardness of the field-collected effluent (~792 ± 43 mg/L as $CaCO_3$) and several synthetic solutions of varying hardness appeared to reduce sodium and sulfate-dominated TDS toxicity in a fashion similar to that observed in the current study, on both an acute and chronic scale [5; Alan J. Kennedy, unpublished data]. In addition, the BCMELP database suggests a hardness effect on sulfate toxicity for both *D. magna* and *Hyalella.* The present study has shown quantitatively that, in a sodium-dominated system, sulfate toxicity is reduced as hardness progressively increases, although results may require further investigation at the highest hardness tested (578 mg/L). Higher hardness levels should be tested to determine whether the relationship remains linear or is logarithmic and reaches an asymptote.

Influence of acclimation on the toxicity of sulfate to C. dubia

We hypothesized that *C. dubia* acclimated to varying levels of sulfate would be less sensitive to sulfate than naive organisms, as implied in other studies addressing TDS acclimation [1,37] and shock [38]. Although the LC50s for the sulfate-acclimated organisms were nominally higher, the means were not significantly different from those of unacclimated organisms. Perhaps more generations of exposure are required before a significant benefit is seen, and further work should be done in this area.

CONCLUSIONS

In conclusion, sulfate toxicity is a complex issue, and a number of factors may interact to determine the responses of various organisms to sodium and sulfate-dominated, saline waters. We have found that in MHRW, *H. azteca* is the most sensitive to sulfate of the four invertebrates tested, followed by *C. dubia* and *S. simile*, then *C. tentans*. Furthermore, we demonstrated that increasing chloride concentration reduces the toxicity of sulfate to *Hyalella*, and increasing water hardness ameliorates sodium sulfate toxicity to *Hyalella* and *C. dubia.* More research is required into the hardness issue to determine whether it was truly calcium that ameliorated sulfate toxicity, because only one Ca:Mg ratio was used in this study when increasing hardness, and other major cations like potassium were not investigated. In addition, the actual mechanism behind the mode of protection from multiple cations should be studied. Finally, the aforementioned issues should be examined at a chronic scale using sublethal and/or multigenerational endpoints as more accurate indicators of population-level effects.

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INFLUENCE OF WATER HARDNESS AND SULFATE ON THE ACUTE TOXICITY OF CHLORIDE TO SENSITIVE FRESHWATER INVERTEBRATES

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Abstract—Total dissolved solids (TDS) represent the sum of all common ions (e.g., Na, K, Ca, Mg, chloride, sulfate, and bicarbonate) in freshwater. Currently, no federal water quality criteria exist for the protection of aquatic life for TDS, but because the constituents that constitute TDS are variable, the development of aquatic life criteria for specific ions is more practical than development of aquatic life criteria for TDS. Chloride is one such ion for which aquatic life criteria exist; however, the current aquatic life criteria dataset for chloride is more than 20 years old. Therefore, additional toxicity tests were conducted in the current study to confirm the acute toxicity of chloride to several potentially sensitive invertebrates: water flea (*Ceriodaphnia dubia*), fingernail clams (*Sphaerium simile* and *Musculium transversum*), snail (*Gyraulus parvus*), and worm (*Tubifex tubifex*), and determine the extent to which hardness and sulfate modify chloride toxicity. The results indicated a significant ameliorating effect of water hardness (calcium and magnesium) on chloride toxicity for all species tested except the snail; for example, the 48-h chloride median lethal concentration (LC50) for *C. dubia* at 50 mg/L hardness (977 mg Cl^-/L) was half that at 800 mg/L hardness (1,836 mg Cl^-/L). Conversely, sulfate over the range of 25 to 600 mg/L exerted a negligible effect on chloride toxicity to *C. dubia*. Rank order of LC50 values for chloride at a given water hardness was in the order (lowest to highest): *S. simile* < *C. dubia* < *M. transversum* < *G. parvus* < *T. tubifex*. Results of the current study support the contention that the specific conductivity or TDS concentration of a water body alone is not a sufficient predictor of acute toxicity and that knowledge of the specific ion composition is critical. Environ. Toxicol. Chem. 2011;30:930–938. © 2010 SETAC

Keywords—Chloride Sulfate Acute toxicity Invertebrates Water hardness

INTRODUCTION

Total dissolved solids (TDS), a water quality parameter that represents the sum of the concentrations of all major ions (e.g., Na, K, Ca, Mg, chloride, sulfate, and bicarbonate) in freshwaters, can reach concentrations in wastewater discharges that severely impair sensitive aquatic species [1–5]. Common causes of elevated TDS include road salting, reverse osmosis systems, pH modifications of wastewater, agricultural runoff, gas and oil production, and coal or metal mining operations [6]. Unfortunately, our understanding of the influence of TDS from such sources on the general health and well-being of aquatic organisms is generally lacking. A number of others have conducted field and laboratory studies to investigate major ion toxicity [3–5,7–17]; however, insufficient data exist from which to derive protective criteria for TDS. In the United States, no Federal water quality criteria exist for the protection of freshwater aquatic life for TDS, sulfate, Na, Ca, Mg, L, or bicarbonate [18], although both acute and chronic criteria currently exist for chloride (860 and 230 mg/L, respectively).

Numerous freshwater species have been tested for sensitivity to sodium chloride, and invertebrates tend to be more sensitive than fish. Within the invertebrates, a wide range of sensitivity can be seen in acute exposures, with mollusks tending to be the most sensitive [16,19–22], followed by crustaceans [11,16,23–25], then insects [16,20,22,26]. The five most sensitive genera tested thus far are *Sphaerium* [22], *Ceriodaphnia* [11,23,24], *Tubifex* [27], *Daphnia* [11,23,24], and *Gyraulus* [22], with median lethal concentrations (LC50s) ranging from 682 to 1,941 mg Cl^-/L. The damselfly nymph *Argia sp.* appears to be the least sensitive, with a mean acute value of 14,252 mg Cl^-/L [16,22].

The fact that TDS toxicity is dependent on the ionic composition of surface water or effluent has been well established [7,9,11,14,15]. Several researchers have observed that hardness or presence of multiple major cations in solution can ameliorate major ion toxicity [7,9,11], and laboratory experiments with synthesized freshwaters have demonstrated that increasing hardness at a constant Ca:Mg ratio results in decreased sodium sulfate toxicity to *C. dubia* and *Hyalella azteca* [14,15]. In addition, chloride concentration has been shown to regulate the toxicity of sodium sulfate to *H. azteca,* and to a lesser extent, *C. dubia* [15]. Although some work has been done to determine how various ions affect the toxicity of sodium sulfate, very little has been done to explore how additional cations or anions impact the toxicity of sodium chloride to freshwater organisms (see Mount et al. [11]).

The purpose of the current study was to generate acute toxicity data for chloride as sodium chloride in support of the development of updated aquatic life criteria for this common component of TDS. In doing so, we had several objectives. Our first aim was to generate new acute chloride toxicity data for several of the most sensitive genera (*Sphaerium, Gyraulus,* and *Tubifex*) using standard methods [28,29] and dilution waters with known ionic composition. Second, we sought to characterize the effect of hardness on the toxicity of chloride to

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freshwater invertebrates. This was done primarily with *C. dubia* but also to a lesser extent with the three previously mentioned species. Finally, given that chloride has been shown to regulate sulfate toxicity [15], our third goal was to determine whether varying sulfate concentration has an impact on chloride toxicity to *C. dubia*.

MATERIALS AND METHODS

General

Acute chloride toxicity tests were performed at the Great Lakes Environmental Center (GLEC; Columbus, OH, USA) and Illinois Natural History Survey (Champaign, IL, USA). The acute toxicity tests for all species followed U.S. Environmental Protection Agency (U.S. EPA) and American Society for Testing and Materials (ASTM) protocols [28,29]. Reconstituted water at different total hardness and sulfate levels was used as dilution water for the chloride toxicity tests for all species. The base water used to prepare the reconstituted dilution water was deionized tap water from the cities of Columbus (OH, USA) and Champaign (IL, USA), respectively. Reagent grade salts were added in the appropriate amounts to deionized water to achieve the desired ionic composition for each test (Table 1).

Organism acquisition and acclimation

Ceriodaphnia dubia. Tests were initiated with *C. dubia* from stock cultures maintained at GLEC and Illinois Natural History Survey. Subcultures of *C. dubia* were grown in and acclimated to the above hardness- and sulfate-adjusted reconstituted dilution water mixes. The subcultures were subjected to hardness and sulfate acclimation over two generations. Such an acclimation period allowed the test population sufficient time to adjust to the conditions they encountered during the chloride toxicity testing aside from the elevated sodium chloride concentrations.

Briefly, each subculture was initiated with neonates in reconstituted dilution waters with similar concentrations of water hardness and sulfate found in the main stock culture water. These neonates were then transferred to fresh reconstituted dilution waters daily. Each daily transfer represented an incremental (50 mg/L) increase or decrease of the hardness or sulfate concentration from the previous day. This daily transfer process was continued until all animals reached their target acclimation concentration. The single exception to this acclimation regimen was for the group of *C. dubia* acclimated, and subsequently tested, at the nominal 800 mg/L total water hardness level. Because of the large increase needed to reach this nominal target total water hardness acclimation level, and because of the short life span of *C. dubia* (14–21 d), acclimation for this group was increased by 50 and 100 mg/L hardness (or sulfate) on alternating days.

After the acclimation period, test organisms were held at that level for 24 to 48 h with no further incremental increases or decreases until their neonates were collected. Second-generation *C. dubia* were cultured at their respective target total water hardness and sulfate levels, and third-generation *C. dubia* were used for testing. Reproduction rates in all test waters were sufficient to provide the required number of neonates for each test.

Aside from the above details, culturing of *C. dubia* followed U.S. EPA methods [28]. *Ceriodaphnia dubia* were fed approximately 0.3 ml of a yeast-trout chow-cereal leaves/ *Pseudokirchneriella subcapitata* (3.0×10^7 cells/ml) mixture (1:2, v.v) daily throughout the entire acclimation process.

Sphaerium simile *and* Musculium transversum. *Sphaerium simile* were field-collected from Spring Creek, near Loda, Illinois, in Iroquois County. *Musculium transversum* were field collected from the Kankakee River near Aroma Park, Illinois, in Kankakee County. This species was identified by its fused siphons and distinctive shell shape. Both clam species were collected as adults, returned to the laboratory (at Illinois Natural History Survey, Champaign, IL, USA) in site water, and shortly thereafter, allowed to release juveniles from their brood chambers in the laboratory. Juveniles were used for testing.

The juvenile clams were gradually acclimated to laboratory conditions for approximately two weeks. Twenty percent of the water was changed daily until the desired nominal hardness level (50–200 mg/L as $CaCO_3$) was achieved; afterward, 50% of the water was changed daily. The temperature of the clam holding water was recorded daily and gradually adjusted (1°C/d) from the water temperature at the time of collection (24.7°C) to a test temperature of 22 ± 1°C. The clams were held in aquaria containing 6 L gently aerated reconstituted water, and maintained in environmental chambers under controlled conditions (photoperiod 16:8 h light:dark). Before testing, clams were fed daily a suspension of a green alga (*Ankistrodesmus falcatus*) at a rate of 1.25 mg (dry wt, determined by filtering a known volume and drying) per gram of clam (wet wt). Other details of clam holding conditions followed recommendations of ASTM E729 [29]. *Musculium transversum* was only tested at the 50 mg/L hardness level because of organism availability.

Gyraulus parvus. Snails (mixed ages; 3–5 mm in diameter) were collected from a vernal pool in Big Run Park, southwest Columbus, Ohio, USA (Franklin County). Snails were transported in 2-L, precleaned plastic containers with site water to GLEC, Columbus, Ohio, USA. Snails were held in the GLEC laboratory in site water at the water temperature measured in the field and with field-collected foliage and detritus material. Water quality parameters (water hardness, alkalinity, dissolved oxygen, pH, and specific conductivity) of the site water were measured and recorded at GLEC.

Table 1. Salt concentrations added to deionized water for generation of the acclimation/dilution and test waters used for definitive chloride toxicity testing at different water hardness and sulfate levels (all test organisms)

	Nominal total hardness of dilution water (mg/L as $CaCO_3$)						
	25	50	100	200	400	600	800
Salt	Salt (mg/L) added at each hardness level						
KCl	4	4	4	4	4	4	4
$NaHCO_3$	96	96	96	96	96	96	96
$MgCl_2$*	10	20	40	80	160	240	320
$CaCl_2$*	16	32	64	130	260	380	510
Na_2SO_4	96	96	96	96	96	96	96

	Nominal sulfate concentration of dilution water (mg/L)					
	25	50	100	200	400	600
Salt	Salt (mg/L) added at each sulfate concentration					
KCl	4	4	4	4	4	4
$NaHCO_3$	96	96	96	96	96	96
$MgCl_2$*	121	121	121	121	121	121
$CaCl_2$*	192	192	192	192	192	192
Na_2SO_4	37	74	148	296	592	887

* Anhydrous salts used.

Snails were gradually acclimated to laboratory conditions over a period of approximately five weeks. The temperature of the snail holding water was recorded daily. The snail holding water required only minor temperature adjustment from the water temperature at the time of collection (23°C) to a test temperature of 22 ± 1°C. Snails were cultured in 10-L glass aquaria in their natural source water that was gently aerated and maintained in environmental chambers under controlled conditions (16:8 h light:dark photoperiod). A 90% water replacement occurred four times a week, with the first replacement consisting of a mixture of 80% site water and 20% reconstituted dilution water of designated hardness (i.e., 50 or 200 mg/L as $CaCO_3$). Gradually, the percentage of dilution water at the designated hardness was increased by 10% with each transfer until the holding water was 100% test dilution water. Fresh food sources (leaf material with associated detritus) collected from the site along with TetraMin fish food were provided to the snails with each transfer. Other details of acclimation and holding conditions for snails followed the recommendations in ASTM E729 [29].

Tubifex tubifex. Freshwater tubificid worms (mixed ages) were obtained from Aquatic Research Organisms (ARO). The organisms were shipped in moderately hard reconstituted water prepared by ARO. On receipt, temperature, water quality parameters, and the condition of the organisms were recorded. The annelids were then placed inside a 10-L aquarium with crushed TetraMin fish food and a sand substrate provided by ARO, and with GLEC moderately hard reconstituted water. Great Lakes Environmental Center moderately hard reconstituted water was of similar water hardness, but lower total alkalinity; to mimic the reconstituted water from ARO, additional sodium bicarbonate was added.

Temperature of the annelid cultures was recorded daily and gradually adjusted (1°C/d) from the water temperature at the time of receipt (24°C) to a test temperature of 22 ± 1°C to acclimate the worms for subsequent toxicity testing. Annelids were maintained in environmental chambers under controlled conditions (photoperiod 16:8 h light:dark). Four times a week, a 90% water replacement occurred, with the first replacement consisting of a mixture of 80% moderately hard reconstituted water and 20% reconstituted dilution water with a hardness of 50 or 200 mg/L as $CaCO_3$. The percentage of dilution water at a hardness of 50 or 200 mg/L was gradually increased by 10% with each change over until the culture water was 100% test dilution water. Freshly ground TetraMin fish food was provided with each water replacement. Other details of acclimation and holding conditions for the annelids followed the recommendations in ASTM E729 [29].

Toxicity testing procedures

Ceriodaphnia dubia. Forty-eight hour static acute toxicity tests were used for the chloride toxicity tests with ≤ 24-h-old *C. dubia* neonates. After test initiation, beakers were placed into environmental chambers to maintain proper conditions for the duration of the test. Some test conditions, including the number of organisms per chamber (five), number of chambers per treatment (four), lighting regimen (16:8 h light:dark), and endpoint (mortality) were the same for all species. Conditions that varied among species are detailed in Table 2. In addition, tests with *C. dubia* were fed one drop of a mixture of *Pseudokirchneriella subcapitata* and Yeast-cereal leaves-trout chow at test initiation and at 24 h. This is a deviation from U.S. EPA [28] methods, but was done to reduce stress to these organisms. Addition of food would be highly unlikely to alter availability of the toxicant. Tests with other species were not fed.

S. simile, M. transversum, G. parvus, *and* T. tubifex. Ninety-six-hour static acute toxicity tests were used for the chloride/hardness toxicity tests with these four invertebrates. Testing procedures followed those outlined in ASTM E729 [29]. After test initiation, test beakers were placed into environmental chambers to maintain proper test conditions for the duration of the test (Table 2). For *S. simile* and *M. transversum*, mortality was determined daily by examination under a dissecting microscope while still in test chambers. Clams that were obviously gaping and not siphoning were gently probed with a blunt object and closely examined for ciliary movement. If no response or movement was observed, clams were considered dead and removed. At the end of the test, clams were placed in control water with food and checked for active siphoning to determine final mortality numbers. For *G. parvus* and *T. tubifex*, mortality was determined daily by noting organism color and determining whether they moved over a 2-h period.

Stock and test solution preparation

Reagent-grade sodium chloride (NaCl, EMD Chemicals, CAS 7647–14–5; Lot 3628B013) was used to make the test solutions for each respective test. The test solutions were prepared by dissolving a specified amount of the reagent-grade salt into the various hardness- and sulfate-adjusted reconstituted dilution water mixes to form the highest test solution (see Table 1). After the reagent-grade salt for the highest test concentration was completely dissolved in solution, the remaining test concentrations were prepared using a 0.65× dilution factor. The range of test concentrations for each water type was determined on the basis of results from 48-h or 96-h static acute range-finding toxicity tests performed 2 to 3 d before definitive testing. Solutions were not renewed in any of the tests because of the known stability of chloride ion in solution and the desire to reduce organism handling stress. Total chloride concentrations comprised chloride contributed from the NaCl stock solution and dilution water. Measured chloride concentrations for each test were within 10% of nominal.

Table 2. Test conditions and specifications for definitive acute chloride toxicity testing with the five invertebrate species[a]

Test condition	*C. dubia*	*S. simile*	*G. parvus*	*T. tubifex*	*M. transversum*
Temperature (°C)	25 ± 1	22 ± 1	22 ± 1	22 ± 1	22 ± 1
Beaker size	30 ml/50 ml[b]	250 ml	250 ml	250 ml	250 ml
Solution volume	25 ml/40 ml[b]	200 ml	150 ml	150 ml	150 ml
Test duration	48 h	96 h	96 h	96 h	96 h

[a] Only conditions that were different for different species are shown.
[b] Illinois Natural History Survey, chamber size; *Ceriodaphnia dubia, Sphaerium simile, Gyraulus parvus, Tubifex tubifex, Musculium transversum.*

Different hardness levels

To determine the influence of hardness on the acute toxicity of chloride to *C. dubia*, organisms were acclimated to and tested in reconstituted dilution water at seven different nominal hardness concentrations: 25, 50, 100, 200, 400, 600, and 800 mg/L as $CaCO_3$. For each of these seven different acclimation and test dilution water compositions, the sulfate concentration was held constant at approximately 69 to 74 mg/L through the addition of Na_2SO_4 (Tables 1 and 3). Chloride concentrations in dilution waters (control treatment—no additional NaCl added) solutions ranged from approximately 20 mg/L at the lowest total hardness level to approximately 570 mg/L in the highest (based on calculation from the salts added; see Table 1). Chloride concentrations varied in dilution water solutions because reagent-grade $MgCl_2$ and $CaCl_2$ (anhydrous) were used to manipulate water hardness to the desired level. These salts were selected over $MgSO_4$ and $CaSO_4$ to maintain the sulfate level near 65 mg/L. The Ca:Mg mass ratio was maintained at approximately 2.25 for all hardnesses (Table 3).

For the other three chloride-sensitive invertebrate test species (*S. simile*, *G. parvus*, and *T. tubifex*), the acclimation and dilution water used for acute chloride toxicity testing was reconstituted dilution water mixed with the salts to achieve a nominal total hardness of 50 and 200 mg/L $CaCO_3$. As with *C. dubia*, $MgCl_2$ and $CaCl_2$ were used to manipulate water hardness to the desired level, and the Ca:Mg mass ratio was maintained at approximately 2.25 for both hardnesses (Table 4). Sulfate was maintained at approximately 60 mg/L in tests with each species (Table 4).

Different sulfate levels

To determine the influence of sulfate on the acute toxicity of chloride to *C. dubia* (only species tested), organisms were acclimated to and tested in reconstituted dilution water at one of six different nominal sulfate concentrations: 25, 50, 100, 200, 400, and 600 mg/L (Table 1). Nominal total water hardness was approximately 300 mg/L as $CaCO_3$ for all test solutions. For each of the six final reconstituted dilution water types, the desired sulfate concentrations were achieved through the addition of Na_2SO_4, whereas reagent-grade $MgCl_2$ and $CaCl_2$ were used to achieve the water hardness as described previously. The nominal chloride concentration in base solutions of all six reconstituted dilution water types was approximately 215 mg/L (based on calculation from the salts added per Table 1). As was the case for tests at different hardnesses with *C. dubia* and the other species, one test was conducted by each laboratory for each sulfate concentration.

Water quality measurements and chloride and sulfate analysis

Total hardness and alkalinity of the reconstituted dilution waters were measured before making test solutions. Temperature, pH, dissolved oxygen, and conductivity were measured at test initiation. For the duration of the tests, temperature, pH, and dissolved oxygen were measured every 24 h after test initiation. To reduce the risk of contamination in the test solutions during chemistry measurements, a fifth replicate of each test concentration was used for chemistry measurements. This fifth replicate contained test organisms, but observations for survival and mortality were not performed, and test solution from the replicate was not used for chloride or sulfate determinations.

The methods used for the chemical measurements supporting each toxicity test were as reported by Eaton et al. [30]. The dissolved oxygen and pH meters used for water chemistry measurements to support the tests were calibrated daily according to routine procedures for these instruments.

The quantification of chloride, sulfate, and other select anions (F, Br) and cations (Ca, Mg) in water samples was completed by Stantec Consulting Services (Columbus, OH, USA). Samples were collected from all test concentrations and controls at test initiation and termination and analyzed for chloride and sulfate. All samples were collected in trace clean plastic bottles and stored at 4°C during storage and shipment to the analytical laboratory for analysis. Chloride and sulfate in the various test solutions were quantified using U.S. EPA method 325.2 and 375.4, respectively; Ca and Mg were quantified using U.S. EPA-SW6010B and U.S. EPA-SW3010A (http://water.epa.gov/scitech/drinkingwater/labcert/analyticalmethods.cfm). Duplicate analysis indicated good precision between replicate measurements of

Table 3. Mean 48-h chloride median lethal concentration values (LC50s) for *Ceriodaphnia dubia* at various water hardness[a,b] and sulfate concentrations[c]

Nominal Hardness	Hardness (range)	Ca (mg/L) (range)	Mg (mg/L) (range)	Nominal SO_4^{2-} (mg/L)	SO_4^{2-} (mg/L) (range)	Mean 48 h LC50 (mg Cl^-/L)
Different hardness levels						
25	28 (25–30)	5.3 (5.1–5.5)	2.3 (2.2–2.4)	65	74 (70–79)	977
50	47 (44–49)	10.8 (10.6–10.9)	4.8 (4.7–4.9)	65	72 (68–76)	861
100	96 (95–96)	20.9 (20.8–20.9)	9.3 (9.3–9.4)	65	72 (70–74)	1,249
200	187 (180–194)	42.0 (41.8–42.2)	18.7 (18.2–19.1)	65	69 (68–70)	1,402
400	388 (375–400)	81.8 (78.2–85.4)	36.9 (36.0–37.8)	65	74 (69–79)	1,589
600	565 (560–570)	123.0 (117.0–129.0)	56.1 (53.9–58.3)	65	72 (68–76)	1,779
800	796 (792–800)	170.5 (163.0–178.0)	77.3 (75.2–79.3)	65	73 (71–76)	1,836
Different sulfate concentrations						
300	280 (279–280)	66.1 (NM–66.1)	28.1 (NM–28.1)	25	26 (23–28)	1,356
300	278 (276–280)	63.8 (NM–63.8)	27.5 (NM–27.5)	50	55 (50–60)	1,489
300	282 (280–283)	65.4 (63.7–67.1)	28.9 (28.8–28.9)	100	112 (107–117)	1,317
300	281 (280–281)	64.1 (NM–64.1)	27.3 (NM–27.3)	200	234 (229–239)	1,357
300	285 (280–290)	63.8 (62.8–64.8)	28.2 (27.6–28.7)	400	472 (461–482)	1,154
300	279 (278–280)	63.7 (NM–63.7)	27.5 (NM–27.5)	600	712 (694–729)	1,192

[a] Nominal Ca:Mg mass ratio for all test solutions was 2.25.
[b] Unless otherwise noted, all concentrations shown are measured values, and with the exception of LC50s and confidence intervals, are arithmetic averages of measurements in all treatments at test initiation and termination.
[c] NM = not measured.

Table 4. Ninety-six-hour chloride median lethal concentration values (LC50s) for four freshwater invertebrates at various water hardness[a,b] and sulfate concentrations[c]

Species Tested	Hardness (mg/L as CaCO3)	Ca (mg/L)	Mg (mg/L)	SO_4^{2-} (mg/L)	96 h LC50 (mg Cl⁻/L)	95% CI (mg Cl⁻/L)
Sphaerium simile	51	NM	NM	59.9	740	678–807
	192	45.3	19.5	61.7	1,100	1,040–1,164
Gyraulus parvus	56	13.5	3.04	60.9	3,078	2,771–3,418
	212	49.9	22.4	59.7	3,009	2,728–3,318
Tubifex tubifex	52	11.5	4.9	57.9	4,278	3,848–4,717
	220	44.9	20.7	58.9	6,008	5,563–6,489
Musculium transversum	48	NM	NM	58.9	1,930	1,655–2,251

[a] Nominal Ca:Mg mass ratio for all test solutions was 2.25.
[b] All concentrations shown are measured values, and with the exception of LC50s and confidence intervals, are arithmetic averages of measurements in all treatments at test initiation and termination.
[c] NM = not measured; CI = confidence intervals.

chloride and sulfate within a sample (mean relative percent difference of 2.2 for chloride [$n = 56$ duplicate samples] and 5.0 for sulfate [$n = 5$ duplicate samples]).

Statistical analysis

The LC50 values based on measured concentrations for all acute toxicity tests were calculated using the U.S. EPA Probit Analysis Program, the Spearman-Karber Method, or the Trimmed Spearman-Karber method following U.S. EPA-821-R-02-012 [28]. The mean of the day 0 and day 2 measured concentrations was used to calculate values, because the total chloride concentrations measured at test initiation and at test termination were only minimally different in all tests. All LC50 values are expressed as milligrams chloride per liter based on the measured chloride in the test solutions, which included chloride added in preparation of the reconstituted dilution water and NaCl that was used to prepare the test concentrations. To analyze relationships between chloride LC50s and hardness or sulfate concentration, we generated scatter plots with LC50 as the dependent variable and hardness or sulfate concentration as the dependent variable, and used Sigma Plot version 9.0 to fit various types of lines through the distribution. We used the following fit options in Sigma Plot: linear, sigmoidal (3 parameter), exponential rise to maximum (single 2 parameter and simple exponent 2 parameter), hyperbola (single rectangular), power (2 parameter), and logarithm (2 parameter I). The line that provided the highest r^2 value was considered to be the best fit.

RESULTS

Although we varied hardness, sulfate, and chloride concentrations of the test solutions according to our experimental design, these variations had virtually no effect on alkalinity, pH, or dissolved oxygen of the solutions. Mean alkalinity values ranged from 56 to 64 mg/L as $CaCO_3$, whereas pH and dissolved oxygen ranged from 7.65 to 8.02 and 7.56 to 8.07 mg/L, respectively. Variation was even lower within tests for a particular species. Temperature was maintained to within ± 1°C of the target test temperatures of 25°C (*C. dubia*) and 22°C (other test organisms) in both laboratories (data not shown). For all tests, controls met performance criteria of ≥90% survival.

In tests with *C. dubia* at hardnesses ranging from 27.5 to 795.5 mg/L (as $CaCO_3$) and constant sulfate concentration (72.4 ± 1.6 mg SO_4^{2-}/L), mean (of single tests from each of the two laboratories) 48-h LC50s ranged from 861 to 1,836 mg Cl^-/L (Table 3). Plotting individual LC50s from each laboratory with corresponding hardnesses showed a strong (statistically significant) positive relationship best described (highest r^2) by a power function ($r^2 = 0.8481$; Fig. 1).

To explore the relationship between hardness and LC50 in terms of TDS, nominal concentrations of all constituent ions (except H^+ and OH^-) were calculated at the concentration associated with the LC50s for *C. dubia* in each test solution type. The total dissolved solids was then calculated as the sum of all nominal constituent ion concentrations. Ions that varied in concentration in these different test solutions included not only Na and chloride but also Ca, Mg, and sulfate because of the increasing hardness. A significant positive relationship between LC50 (mg TDS/L) and hardness was observed, best described by a power function ($r^2 = 0.9005$; Fig. 1).

In tests with *C. dubia* at sulfate concentrations ranging from 26 to 712 mg SO_4^{2-}/L and constant hardness (280.3 ± 2.3 [standard deviation] mg SO_4^{2-}/L), mean (of tests from both laboratories) 48-h LC50s ranged from 1,154 to 1,489 mg Cl^-/L (Table 3). Plotting individual LC50s from each laboratory with corresponding sulfate concentrations showed a negative but not statistically significant ($\alpha = 0.05$) relationship as described by an exponential function ($r^2 = 0.3092$; Fig. 2).

Calculating LC50s in terms of TDS as described, a significant positive relationship between LC50 (mg TDS/L) and sulfate concentration was observed, best described by an exponential function ($r^2 = 0.5372$; Fig. 2).

Mean chloride 96-h LC50s for *S. simile*, *G. parvus*, *T. tubifex*, and *M. transversum* at hardnesses of 50 and 200 mg/

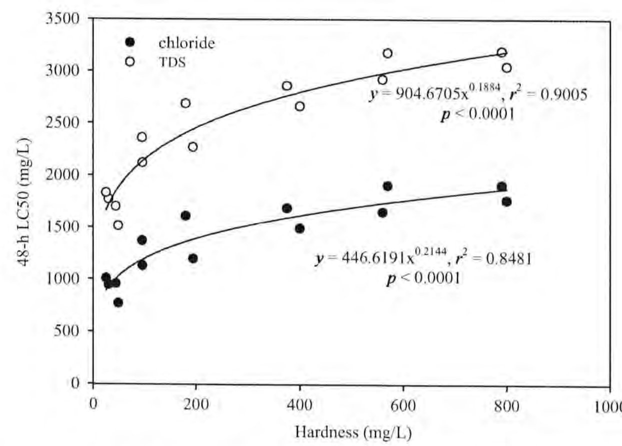

Fig. 1. Relationship between water hardness (mg/L as $CaCO_3$) in diluent and 48-h median lethal concentration (LC50s) values for *Ceriodaphnia dubia* in terms of chloride (mg Cl^-/L) and total dissolved solids (mg TDS/L).

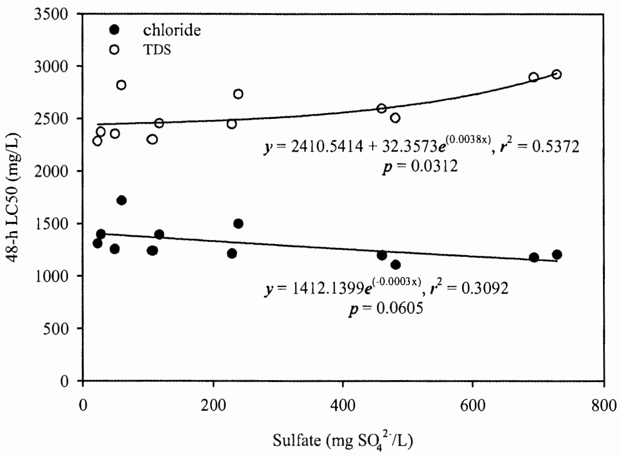

Fig. 2. Relationship between sulfate concentration in diluent and 48-h median lethal concentration (LC50s) values for *Ceriodaphnia dubia* in terms of chloride (mg Cl^-/L) and total dissolved solids (mg TDS/L).

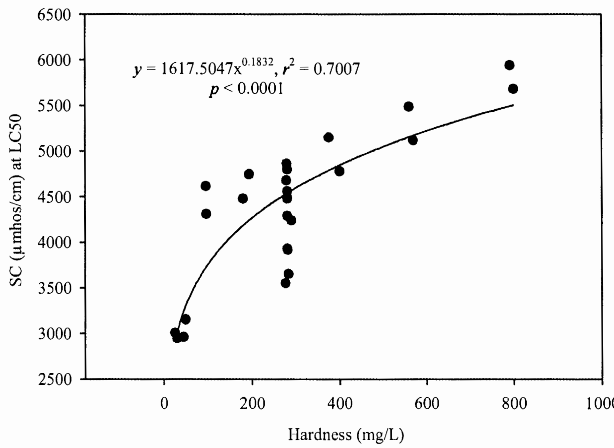

Fig. 4. Relationship between 48-h median lethal concentration (LC50s) values in terms of specific conductivity and dilution water hardness for chloride toxicity tests with *Ceriodaphnia dubia*. SC = specific conductivity.

L ranged from 740 to 6,008 mg Cl^-/L (Table 4 and Fig. 3). As stated previously, *M. transversum* was only tested at the 50-mg/L hardness level. The most sensitive species of all tested (including *C. dubia*) was *S. simile*, whereas *T. tubifex* was the least sensitive. *Ceriodaphnia dubia* and *S. simile* were relatively similar in sensitivity, however, and *G. parvus* and *T. tubifex* had LC50 values from approximately three-fold to 5.5-fold higher. *Musculium* had an LC50 that was intermediate between the more sensitive and the less sensitive species. For two of the three additional species, increasing hardness resulted in higher LC50 values (740–1,100 mg Cl^-/L for *S. simile*, and 4,278–6,008 mg Cl^-/L for *T. tubifex*), whereas for *G. parvus* hardness did not affect the LC50s (3,078 and 3,009 mg Cl^-/L at 50 and 200 mg/L hardness, respectively).

Comparing the relationship between chloride LC50 and hardness at hardness values of approximately 50 and 200 mg/L, relatively similar slopes were obtained for three of the four species tested (power functions were used in this case to make slopes comparable to those developed for *C. dubia*; Fig. 3). *Tubifex*, *Sphaerium,* and *Ceriodaphnia* had slopes of 0.2354, 0.2990, and 0.3503, respectively, whereas *Gyraulus* had a slope of close to zero (−0.017). Note that when including data over the whole range of hardness values tested, the slope for *Ceriodaphnia* was 0.2144.

To evaluate and compare (with chloride concentration) the ability of conductivity to predict TDS toxicity, we plotted the specific conductivity (µmhos/cm) measured in the treatment nearest the LC50 concentration for each chloride toxicity test conducted with *C. dubia* over the range of hardnesses and sulfate concentrations. We observed a significant positive relationship between specific conductivity and hardness that was best described by a power function ($r^2 = 0.7007$; Fig. 4).

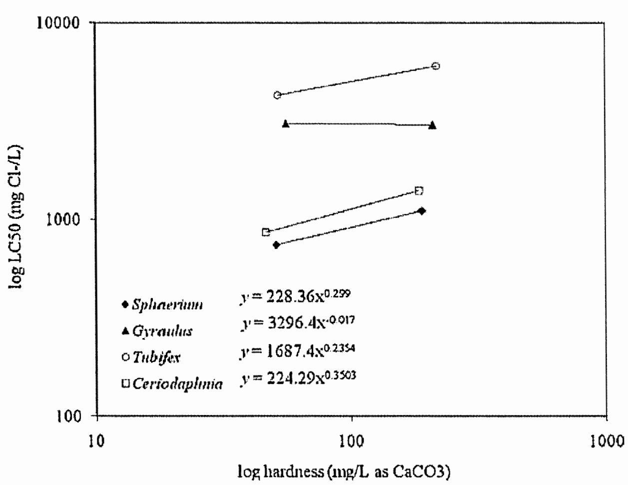

Fig. 3. Relative acute toxicity of chloride (as NaCl) to four freshwater invertebrates at two different hardness levels. Data shown are 96-h log median lethal concentration (LC50s) values for *Gyraulus parvus*, *Sphaerium simile*, and *Tubifex tubifex*, and mean 48-h log LC50s for *Ceriodaphnia dubia*.

DISCUSSION

We determined the acute toxicity of chloride to five freshwater invertebrate species: water flea (*Ceriodaphnia dubia*), fingernail clams (*Sphaerium simile* and *Musculium transversum*), planorbid snail (*Gyraulus parvus*), and tubificid worm (*Tubifex tubifex*). Rank order of LC50 values for chloride at a given water hardness was in the order (lowest to highest): *S. simile* < *C. dubia* < *M. transversum* < *G. parvus* < *T. tubifex*. Tests with *C. dubia* acclimated and tested under different levels of hardness and sulfate were performed by two different laboratories with comparable results. The 48-h chloride LC50 for *C. dubia* at 25 to 50 mg/L hardness was approximately half that of *C. dubia* exposed at 600 to 800 mg/L hardness. Conversely, sulfate over the range of 25 to 600 mg/L exerted a nonsignificant effect on chloride toxicity to *C. dubia*. The mean 48-h LC50 at 25 mg/L sulfate was approximately 1,356 mg Cl/L, whereas at 600 mg/L sulfate, it was 1,192 mg Cl^-/L (reduction of 12%).

Chloride LC50s from the literature for *C. dubia* under various water quality conditions range from 447 to 1,698 mg Cl^-/L [11,23,24,31], with a geometric mean of 1,172 mg/L. Data reported in the current study span a similar range (861–1,836 mg/L). Wurtz and Bridges [22] generated 96-h chloride LC50s for *Sphaerium tenue* and *Gyraulus circumstriatus* of 682 and 1,941 mg Cl^-/L, respectively, at a hardness of 100 mg/L. Although we tested related species (*S. sphaerium* and *G. parvus*) at both lower (50 mg/L) and higher (200 mg/L) hardnesses, our LC50 values were all higher than the respective values reported by Wurtz and Bridges [22]. In tests with *Tubifex*

tubifex, Kangharot [27] generated a 96-h chloride LC50 of 1,203 mg/L at a hardness of 245 mg/L. Again, this value was much lower than ours despite the hardness for both of our tests being lower.

Although the influence of water hardness on chloride toxicity has not been tested for a freshwater fish species, and despite the limited dataset for three of the five species evaluated in the current study, these results indicate that acute chloride toxicity expressed as a function of water hardness is likely appropriate. Given this finding, conducting tests using the K, Ca and magnesium chlorides to determine whether the relationship established here between acute chloride toxicity and water hardness also applies to these other (K, Ca, and Mg) chloride salts as well may be prudent.

The apparent lack of a relationship between acute chloride toxicity and water hardness for *G. parvus* warrants additional research. *Gyraulus parvus* (family Planorbidae) is in the subclass Pulmonata, and although these species are characterized as aquatic snails, they lack gills. Gaseous exchange is via a large pulmonary sac in the mantle cavity. As such, the mechanism of chloride exchange in this species is likely different from that of the other aquatic invertebrate species tested. However, Wurtz and Bridges [22] tested another pulmonate snail (*Physa heterostropha*) at hardnesses of 20 and 100 mg/L and generated 96-h chloride LC50s of 2,487 and 3,444 mg/L, respectively, suggesting that hardness did ameliorate chloride toxicity in that species.

Effect of water hardness on acute chloride toxicity to C. dubia

As indicated, in experiments with *C. dubia*, increasing hardness reduced the toxicity of chloride. The relationship between hardness and LC50 in terms of milligrams Cl^-/L was best described as a power function, with the steepest part of the line occurring between hardness of 25 and 200 mg/L as $CaCO_3$ (Fig. 1). A number of other researchers have observed that increased concentrations of Ca, and to a lesser extent Mg, reduce the toxicity of Na-dominated, high TDS solutions to freshwater species [7,9,11,14,15,22], but to our knowledge, the current study is the first to extensively quantify this relationship for sodium chloride. In the current study, the hardness solutions were adjusted using a constant Ca:Mg ratio (2.25 based on mass). Increasing hardness using only Mg or with a different Ca:Mg ratio may produce different results. Furthermore, our data show that increasing Ca and Mg reduced the toxicity of sodium chloride. Our data do not necessarily support the general claim that increasing total hardness reduces the toxicity of chloride, because we did not investigate how additional cations impact the toxicity of $CaCl_2$, $MgCl_2$ chloride, or KCl. Mount et al. [11] provided an excellent illustration of this point by generating LC50s for NaCl, $CaCl_2$, and $MgCl_2$. Although the Ca and Mg salt solutions would have higher hardnesses than the Na salt solutions, in terms of mg Cl^-/L, the 48-h LC50s for *C. dubia* were 1,187, 1,172, and 655 for NaCl, $CaCl_2$, and $MgCl_2$, respectively [11].

The precise mechanism for the reduction in sodium chloride toxicity to freshwater invertebrates at elevated Ca and Mg concentrations is unknown. Others have shown that Ca reduces membrane permeability to both water and ions. This has been shown in physiological studies with fishes [32–34], and Robertson [35] reviewed studies providing evidence of the same effect in invertebrates nearly 70 years ago. In most cases, these studies dealt with the problem of animals losing ions in freshwater, but in 1932, Pruthi [36] proposed that unusually high Ca concentrations in saline waters of the Salt Range, Punjab, allowed for their colonization by mayflies and hydrophilid beetles, normally freshwater insects. Calcium and Mg are known to reduce the toxicity of metals by competing for binding sites. These divalent cations could have been competing with Na in the solutions used in the current study, which would explain the reduced toxicity of NaCl at higher hardnesses, but Mount et al. [11] observed that Ca and Na were not significant variables in models developed to predict toxicity attributable to major ions, so they concluded that toxicity attributable to salts of these cations were attributable to the corresponding anion. That suggests that competition at binding sites is not likely the sole mechanism for the reduced toxicity observed at higher hardnesses in the current study. Furthermore, analysis of our nominal ion concentrations using Visual MINTEQ (data not shown) suggests that at least 98% of chloride would exist in our solutions as free Cl^- ion, even at high hardnesses, suggesting that complexation of the toxic ion is not the mechanism either. Therefore, the most likely explanation for this phenomenon is that increased concentrations of Ca, and to a lesser extent, Mg (as shown by Potts and Fleming [34]) tighten cellular junctions, thereby reducing the passive diffusion of chloride ions into the animal (acknowledging that not all movement of chloride into freshwater animals is passive) and the energy required for ionoregulation.

Effect of sulfate on acute chloride toxicity to C. dubia

Although hardness had a strong effect on chloride toxicity to *C. dubia* and a variety of other invertebrates in the current study (except *G. parvus*), varying sulfate concentration from 26 to 712 mg/L had a much weaker, statistically insignificant effect in tests with *C. dubia*. This relationship was investigated because Soucek [15] observed a strong influence of chloride on sodium sulfate toxicity; at chloride concentrations ranging from 5 to 33 mg/L, sulfate toxicity to *Hyalella azteca* decreased substantially, whereas, for both *H. azteca* and *C. dubia*, increasing chloride from approximately 33 to 500 mg/L resulted in lower sulfate LC50s. The trend over the higher chloride range suggested that additive toxicity was observed with chloride concentrations reaching toxic levels, thereby requiring less sulfate to generate an LC50. In the current study, a nominally negative slope in the plot of chloride LC50 versus dilution water sulfate concentration was seen, again suggesting an additive effect. Plotting the same data in terms of TDS resulted in a significant positive slope (Fig. 2), reflecting the relatively constant chloride LC50 at the increasing sulfate concentrations in the dilution water.

Sulfate over a lower concentration range was not expected to affect chloride toxicity as was observed by Soucek [15] in the opposite scenario (increasing chloride from 5 to 33 mg/L decreased sulfate toxicity), because this phenomenon was likely a product of the fact that *H. azteca* simply performs better in water-only toxicity tests when the dilution water has a higher chloride concentration than, for example, is provided in the U.S. EPA's [28] moderately hard reconstituted water. Moderately hard reconstituted water has a nominal chloride concentration of 1.9 mg/L, and *H. azteca* performs poorly in toxicity tests using this water ([37]; D. J. Soucek, personal observation). As a result, others have developed reconstituted water recipes with higher chloride concentrations to achieve better test performance with this species [37,38].

Finally, the plot of conductivity at LC50 versus hardness of dilution water (Fig. 4) was included to illustrate the point that when assessing the impacts of elevated major ion concentrations on freshwater organisms, surrogate measures do not provide adequate information. Others have observed correlations between TDS or conductivity and changes in benthic macroinvertebrate communities, with widely disparate results. For example, Kennedy et al. [5] observed an impairment threshold of 3,700 μmhos/cm, whereas Pond et al. [39] saw effects at approximately 500 μmhos/cm. This difference was attributed to variation in sensitivity of endemic communities [39], but in our experiments with a single species, the conductivity at the LC50 for chloride varied from less than 3,000 to nearly 6,000 μmhos/cm, depending on the hardness of the water. In a similar analysis using data generated in sodium sulfate toxicity tests with *C. dubia* and *H. azteca*, conductivities at the respective LC50s ranged from approximately1,000 to more than 8,000 μmhos/cm [15]. These large ranges are a result of the fact that TDS toxicity is highly dependent on the *specific* ionic composition of the water. Less is known about the toxicity of chloride or sulfate when sodium is not the dominant cation; however, as stated previously, the toxicity of K, Ca, and $MgCl_2$ is generally more profound. For example, Mount et al. [11] generated a chloride LC50 of 655 mg/L for *C. dubia* using $MgCl_2$. Bicarbonate is more toxic than both sulfate and chloride, with 8-d EC50s as low as 289 mg HCO_3^-/L [11,24,25,40]. High TDS solutions dominated by Mg salts or bicarbonates would generate LC50s at much lower TDS concentrations or conductivities than $NaCl_2$ or sulfate-dominated solutions. Evidence from the current study and the literature clearly support the importance of knowing the composition of water with high conductivity before predicting its toxicity.

CONCLUSIONS

Acute toxicity of chloride at different hardness (Ca and Mg) levels was determined for five freshwater invertebrate species with the following rank order of LC50s: *S. simile* < *C. dubia* < *M. transversum* < *G. parvus* < *T. tubifex*. Increasing hardness reduced toxicity of chloride to *C. dubia* by a factor of approximately 2 over the range 25 to 800 mg/L. The relationship was best described by the following power function:

$$LC50\,(mgCl^-/L) = 446.6191\,(hardness\,in\,mg/L)^{0.2144}$$

The acute toxicity of chloride to two other invertebrates species (*T. tubifex* and *S. simile*) was similarly affected between the range of 50 and 200 mg/L hardness. Conversely, increasing sulfate from 25 to 600 mg/L did not significantly affect acute chloride toxicity to *C. dubia*. Because toxicity in terms of TDS or conductivity can vary widely depending on ion composition, measuring toxicity in terms of specific ions, that is, chloride, sulfate, bicarbonate, Ca, Mg, Na, K, is the most useful and practical mechanism to derive protective criteria for freshwater organisms from the adverse effects of TDS.

Acknowledgement—The authors thank Martin Knapp and Mick Micacchion (Ohio Environmental Protection Agency) for their assistance in locating and identifying *Gyraulus parvus* for organism collection and subsequent toxicity testing. The authors also thank Charles Stephan (U.S. EPA) for comments related to study design and results. This study was funded by the U.S Environmental Protection Agency.

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Heather Ferguson

From: Kesler, Karen [Kesler.Karen@epa.gov]
Sent: Friday, November 04, 2016 2:29 PM
To: PJD; 'Heather Ferguson'
Cc: 'Sarah Clem'; 'James Malcolm'; Crocker, Philip
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Hi Pat,

Yes, thank you for the clarification and additional papers.

- Karen

From: PJD [mailto:pjd@ftn-assoc.com]
Sent: Friday, November 04, 2016 2:27 PM
To: Kesler, Karen <Kesler.Karen@epa.gov>; 'Heather Ferguson' <hlf@ftn-assoc.com>
Cc: 'Sarah Clem' <clem@adeq.state.ar.us>; 'James Malcolm' <jtm@ftn-assoc.com>; Crocker, Philip <crocker.philip@epa.gov>
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Karen,

"More than one chemical" refers to a study (maybe 2) that looked at ions plus metals. In those studies the main toxicant was the metal so they were not relevant to this analysis. I have attached several studies that look at combinations of ions.

We hope that this provides sufficient information for you to complete your review.

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From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Friday, November 04, 2016 2:03 PM
To: Heather Ferguson
Cc: 'Sarah Clem'; James Malcolm; Patrick Downey; Crocker, Philip
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Hi Heather,

Yes, the supplemental information that you have submitted adequately addresses my request for lethal and sublethal minerals tolerance values. I appreciate you putting this together and especially pulling out the associated hardness values with these studies where you could find them.

The one additional question that I have is that I noticed in your filtering of the data that you removed any tests that used more than one chemical. Did any of these tests with two chemicals involve both chlorides and sulfates? If so, those would probably be useful data to see as well.

Thanks,
Karen

From: Heather Ferguson [mailto:hlf@ftn-assoc.com]
Sent: Wednesday, November 02, 2016 2:15 PM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Cc: 'Sarah Clem' <clem@adeq.state.ar.us>; James Malcolm <jtm@ftn-assoc.com>; Patrick Downey <pjd@ftn-assoc.com>
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Hi Karen,

I just wanted to check in with you regarding the supplemental information we provided to you in September in support of the third-party rulemaking for SWEPCO (for dissolved minerals in the lower Red River in Arkansas). We need to proceed with the next steps in the third-party rulemaking and would like to confirm that the supplemental information we submitted adequately addressed your request regarding lethal and sublethal tolerance values for minerals.

Please let us know at your earliest convenience. If you have questions or comments regarding the information, please do not hesitate to call Jim Malcolm, Pat Downey, or me at (501) 225-7779. Thank you!

Kindest regards,

Heather Ferguson
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3 Innwood Circle, Suite 220 • Little Rock, AR 72211 (501) 225-7779 • fax (501) 225-6738
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From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Thursday, September 29, 2016 11:34 AM
To: Heather Ferguson
Subject: RE: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Hi Heather,

Thank you for sending this information over. Once I have a chance to review it, I will let you know if I have any questions or comments.

Thanks,

Karen

From: Heather Ferguson [mailto:hlf@ftn-assoc.com]
Sent: Tuesday, September 27, 2016 2:19 PM
To: Kesler, Karen <Kesler.Karen@epa.gov>; Crocker, Philip <crocker.philip@epa.gov>; Nelson, Russell <nelson.russell@epa.gov>
Cc: 'Allan Gates' <AGates@mwlaw.com>; 'Frank Mills' <flmills@aep.com>; Patrick Downey <pjd@ftn-assoc.com>; James Malcolm <jtm@ftn-assoc.com>; 'Sarah Clem' <clem@adeq.state.ar.us>
Subject: Toxicity Endpoints and Hardness Data in support of SWEPCO Dissolved Minerals UAA in the Red River in Arkansas

Good afternoon Karen,

On behalf of Southwestern Electric Power Company, please find attached the requested supplemental information for dissolved minerals tolerance values.

The attached information includes a memorandum that briefly describes our approach to obtaining the information you requested and a spreadsheet summarizing lethal and sublethal toxicity endpoints and associated hardness values. We believe this information satisfies your request and demonstrates through a weight-of-evidence approach the protection of aquatic life in the downstream reach of the Red River.

If you have any questions or comments regarding the attached information, please do not hesitate to call Jim Malcolm, Pat Downey, or me at (501) 225-7779.

Respectfully submitted,

Heather Ferguson
FTN Associates, Ltd.
3 Innwood Circle, Suite 220 • Little Rock, AR 72211 (501) 225-7779 • fax (501) 225-6738
hlf@ftn-assoc.com http://www.ftn-assoc.com

Heather Ferguson

From: Jim Malcolm [jtm@ftn-assoc.com]
Sent: Friday, November 04, 2016 3:16 PM
To: 'Kesler, Karen'; 'Clem, Sarah'
Cc: Patrick J. Downey; "Heather Ferguson"; 'Crocker, Philip'; James Malcolm
Subject: SWEPCO Red River SSC for TDS

Hi Karen,

Thanks for the quick reply to Pat. I scanned back through some relevant email threads to review where we are at now regarding SWEPCO's revised proposal for a site specific criterion for TDS in the lower Red River (see below). I believe, from reading your most recent email to Pat (just received), that we have now addressed your request for the supplemental information (see your July 26, 2016 email below). If my interpretation is correct and you have a chance, would you give us an indication affirming that? We'd like to finalize the package of supplemental information to be included in the re-opened rulemaking to give to the AR Pollution Control & Ecology Commission. Of course, you will see all of this again once it winds its way through the rulemaking process here in AR and gets back to EPA for final review.

Thanks, Jim

From: Kesler, Karen [mailto:Kesler.Karen@epa.gov]
Sent: Tuesday, July 26, 2016 11:15 AM
To: Jim Malcolm
Subject: RE: Additional SWEPCO information

Thanks Jim,

I'll let you know if we have any further questions. Again, thank you for putting the additional information together.

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From: Jim Malcolm [mailto:jtm@ftn-assoc.com]
Sent: Tuesday, July 26, 2016 11:13 AM
To: Kesler, Karen <Kesler.Karen@epa.gov>
Cc: 'Clem, Sarah' <CLEM@adeq.state.ar.us>; Crocker, Philip <crocker.philip@epa.gov>; 'Philip Massirer' <phm@ftn-assoc.com>; Patrick J. Downey <pjd@ftn-assoc.com>; James Malcolm <jtm@ftn-assoc.com>
Subject: RE: Additional SWEPCO information

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Thanks again, don't hesitate to let me or Sarah know if you, Phil, Russell or others have further questions or comments.

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Karen Kesler, Ph. D.
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Water Division
EPA Region 6
(214)665-3185

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Heather Ferguson

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To: Jim Malcolm
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Subject: RE: SWEPCO Red River SSC for TDS

Hi Jim,

I just wanted to let you know that I spoke with Phil and we do not have any additional requests for supplemental data in regard to the SWEPCO rulemaking.

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Thanks again Karen, have a good weekend !!

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Have a good week, Jim

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