BIOTNK

CITY CORP
RUSSELLVILLE WATER & SEWER

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Russellville, AR 72811-3186
Office (479) 968-2105
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December 28, 2016

Caleb Osborn, Associate Director
Office of Water Quality
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

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DEC 30 2016

Approvable
AF

RE: Request for Modified Pretreatment Program Approval

Mr. Osborne,

In reference to Permit No. AR0021768, AFIN 58-00105 Section B., City Corporation would like to submit the attached documents for approval as an evaluation for the need technically based local limits for the City Corporation Pretreatment Program and to include it into City Corporation's Pretreatment Program as Section 6.0, Appendix C. By performing the evaluation, City Corporation has determined that technically based local limits are not necessary at this time.

Please feel free to contact Megan Jones, Environmental Compliance Supervisor at (479) 968-2080 ext. 231 if you have any questions or concerns regarding Appendix C: Technically Based Local Limits document or the Supplemental TBLL excel file.

Sincerely,

Steve Mallet
Chief Executive Officer

cc: Larry Collins
Randy Bradley
Megan Jones
David Ramsey, ADEQ NPDES ICIS Coordinator
Alan Anderson, ADEQ NPDES Enforcement Analyst
File

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Appendix C

CITY CORP
RUSSELLVILLE WATER & SEWER

Technically Based Local Limits

Prepared by:
Megan Jones, Environmental Compliance Supervisor
December 21, 2016

1. Introduction

1.1 Background

The Clean Water Act Section 307(b) provides the statutory authority for the National Pollutant Discharge System (NPDES) and the General Pretreatment Regulations for Existing and New Sources of Pollutants (40 Code of Federal Regulations (CFR)) developed by The Environmental Protection Agency (EPA). The purpose of these regulations is to protect water quality by reducing the level of pollutants entering Publicly Owned Treatment Works (POTWs). Limiting pollutants helps reduce interference in the treatment facility and prevent pass through into receiving waters and biosolids used for land application. In addition, the regulations encourage opportunities to recycle and reclaim wastewater and address health and safety concerns for POTW workers. The regulations provide guidance for implementation of the National Pretreatment Program at the state and local level. City Corporation, Russellville Water and Sewer System is required by Arkansas Department of Environmental Quality (ADEQ) NPDES Permit Number: AR0021768 Section B.1. option (2).

1.2 Scope of Work

The purpose of Appendix G – Technically Based Local Limits is to determine if there is a need for City Corporation to enforce different limitations for POCs (pollutants of concern) than what is currently being enforced or if the limits should remain the same (based on EPA's categorical standards). Local limits are site-specific. This document will provide justification based on the removal efficiency of the POTW, Water Quality Based Effluent Limitations of the Outfall Stream (Whig Creek), Literature Inhibition Values, Domestic background data, and Class A Sludge Requirements from ADEQ Permit No. 5126-W. The MAHLs (Maximum Allowable Headworks Loadings) and MAILs (Maximum Allowable Industrial Loadings) and to be included in this document are Cadmium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Zinc, Chromium, Cyanide, Arsenic, Molybdenum, and Beryllium. TBLLs should be re-evaluated and established for each permit period, 5 years if there have been significant changes to the City's industry make-up or discharge characteristics.

2. Local Limits Calculations

2.1 Removal Efficiencies

The Removal Efficiency of the POTW was calculated using a combination of the ADRE (Average Daily Removal Efficiency) Method and MRE (Mean Removal Efficiency) Method provided in the EPA's most recent Local Limits Development Guidance, EPA 833-R-04-002A, July 2004. These two were used in conjunction because both would be more reliable methods than using the EPAs recommended removal efficiencies provided in EPA's Local Limits Development Guidance Appendices, Appendix R. Also between the two methods there were numbers provided in one method while missing in the other method due to calculation errors. See Table 1. The more conservative or lower value from the two methods was used in determining MAHL and MAILs.

References

Local Limits Development Guidance. EPA 833-R-04-002A. Washington, DC: U.S. Environmental Protection Agency, Office of Wastewater Management 4023, July 2004

Local Limits Development Guidance Appendices. EPA 833-R-04-002B. Washington, DC: U.S. Environmental Protection Agency, Office of Wastewater Management 4203, July 2004

Table 1: ADRE vs. MRE vs EPA's Recommended Removal Efficiencies

	ADRE	MRE	EPA % REM
Cadmium	NONE	100	67
Copper	73	81	86
Lead	83	84	61
Mercury	84	88	60
Nickel	33	44	42
Selenium	NONE	100	50
Silver	NONE	82	75
Zinc	56	64	79
Chromium	96	98	82
Cyanide	NONE	NONE	69
Arsenic	NONE	55	45
Molybdenum	NONE	100	50
Beryllium	NONE	NONE	50

Removal Efficiency Used in Calculating MAHL and MAIL

The data used in calculating the ADRE methods and MRE was compiled from approximately 5 years of data from influent and effluent samples dating from January 2012 to October 2016 (at least 17 data points) and can be found as attached or in the supplemental excel file "Supplemental TBLL".

2.2 MAHL and MAIL

The Maximum Allowable Headworks Loading and Maximum Allowable Industrial Loading were calculated using the information provided from the WQS_Limits tab on the Supplemental TBLL excel file and are determined by ADEQ.

Table 2: MAHL Development

	Water Quality	Sludge	Inhibition	MAHL
	lbs/day	lbs/day	lbs/day	lbs/day
Cadmium	0.28	0.23	49.46	0.23
Copper	1.69	10.87	49.46	1.69
Lead	0.79	1.87	49.46	0.79
Mercury	0.00414	0.13	4.95	0.00414
Nickel	7.16	2.35	49.46	2.35
Selenium	0.55	0.37	9.89	0.37
Silver	0.18	0.00	12.36	0.18
Zinc	9.61	24.71	39.56	9.61
Chromium	365.27	0.00	49.46	49.46
Cyanide	0.93	0.00	4.95	0.93
Arsenic	31.38	0.31	4.95	0.31
Molybdenum	0.00	0.28	9.89	0.28
Beryllium	0.59	0.00	4.95	0.59

Loading used to calculate MAHL; The most limiting loading was used

Table 3: MAIL Development

	MAHL	Domestic	Allocation for Safety Factor (10%)	MAIL
	lbs/day	lbs/day	lbs/day	lbs/day
Cadmium	0.23	0.01	0.21	0.20
Copper	1.69	1.33	1.52	0.20
Lead	0.79	0.07	0.71	0.64
Mercury	0.00414	0.04	0.11	0.08
Nickel	2.35	0.30	2.11	1.81
Selenium	0.37	0.10	0.33	0.23
Silver	0.18	0.00	0.17	0.16
Zinc	9.61	4.05	8.65	4.60
Chromium	49.46	0.01	44.51	44.50
Cyanide	0.93	0.21	0.83	0.63
Arsenic	0.31	0.04	0.28	0.24
Molybdenum	0.28	0.17	0.25	0.08
Beryllium	0.59	0.01	0.53	0.52

The MAHL was then used to calculate the MAIL, Maximum Allowable Industrial Loading. The Safety Factor used in the development of MAIL was 10% of the MAHL and was the recommended value from the EPA Local Limits Guidance Manual dated July 2004. It is used to address data "uncertainties" that can affect the ability of the POTW to calculate accurate local limits. The Allocation for Safety Factor loading is 10% of the MAHL subtracted from the MAHL. Domestic loading is the result of sampling from areas throughout the collection system before any loading from industrial users. The MAIL is then found by subtracting the Domestic Background Loading from the Safety Factor. The Maximum amount of industrial loading is the estimated maximum loading of a pollutant that can be received at a POTW's headworks from all permitted industrial users and other controlled sources without causing pass through or interference.

2.3 Industrial Loadings of POCs

The data used to provide this information can be found in the Supplemental TBLL Excel Document. The data dates range from January 2011 to January 2016. The concentrations from each industry that is permitted under City Corporations Pretreatment Program that discharge any quantity of the listed POCs was added to the table. Grace Manufacturing, POM, and Taber are the only industrial categorical users permitted through the City Corporation Pretreatment Program.

Table 4: Comparison of MAIL to Average POC Loadings from Industries

Average Metal Loadings from Industries									
	Cd Daily	Cu Daily	Pb Daily	Hg Daily	Ni Daily	Ag Daily	Zinc Daily	Cr Daily	Cn Daily
	Loading lb/day	Loading lb/day	Loading lb/day	Loading lb/day	Loading lb/day	Loading lb/day	Loading lb/day	Loading lb/day	Loading lb/day
Bridgestone							0.040		
Grace	0.000	0.111	0.068		0.662	0.002	0.015	2.121	0.003
Hackney Ladish		0.006		0.000		0.006	0.016	0.001	0.006
Mahle		0.008		0.001		0.000	0.007	0.029	0.000
POM		0.000			0.000			0.002	
Taber							0.026	0.001	0.002
Average	0.000	0.031	0.068	0.000	0.331	0.003	0.021	0.431	0.003
Total	0.000	0.125	0.068	0.001	0.662	0.008	0.103	2.154	0.011
MAIL	0.200	0.197	0.639	0.076	1.814	0.161	4.598	44.502	0.625
% of MAIL	0.0%	63.6%	10.7%	0.9%	36.5%	5.2%	2.2%	4.8%	1.7%

The row labeled "% of MAIL" is the percentage total pollutant loading of the MAIL. Section 6.1.1 of the EPA's latest Local Limits Development Guidance recommends that local limits are needed when the maximum daily influent loading of a toxic pollutant exceeds 80% of the MAHL any time in the 12-month period preceding the analysis. The totals for each pollutant as a percentage of MAIL does not exceed 80% for any of the pollutants evaluated in this document.

3. Conclusion

By comparing the percentage pollutants to MAIL and none of them exceed 80% shows that local limits do not need to be allocated at this time.

City Corporation believes it has demonstrated technically based local limits are not necessary at this time per 40 CFR 403.8(f)(4).

See the additional spreadsheets (Supplemental Material for TBLL 2016) for more thorough analysis of the calculations used for the evaluation for Technically Based Local Limits. The Technically Based Local Limits will be updated continuously and officially reevaluated every permitting period (5 years). The next due will be in the year 2020.

CALCULATIONS OF ARKANSAS WATER QUALITY-BASED EFFLUENT LIMITATIONS

For an Arkansas River/Stream

	(Reserved)	
STEP 1:	INPUT TWO LETTER CODE FOR ECOREGION (Use Code at Right)	AV
	Basin Name	AR River

FACILITY

Permittee	Russellville
NPDES Permit No.	AR0021768
Outfall No. 001 **(Discharge to Whig Creek)**	001
Plant Ave Flow (MGD) (2011-2015)	5.93
SIUs Ave Flow (MGD) from R Bradley email dated 5-13-2008	0.94
Domestic Flow (MGD)	4.99
Plant Design Flow (MGD)	7.30
Plant Design Flow (cfs)	11.28

RECEIVING STREAM

Is this a large river? (see list at right)(enter "1" if yes, "0" if no; make entry as a number)			0
Name of Receiving Stream:			Whig Creek
Waterbody Segment Code No.			3F
Is this a lake or reservoir? (enter '1' if yes, ' 0 ' = no; make entry as a number)			0
Is seasonal critical flow applicable (1=yes, 0=no); see Reg 2 page 1-3 for details.			0
(Reserved)	DO NOT INPUT DATA INTO CELL H25, H26 & H27....LEAVE BLANK		?
(Reserved)			?
(Reserved)	(Reserved)		?
	(Reserved)		(Reserved)
	(Reserved)		(Reserved)
	(Reserved)		(Reserved)
Arkansas River Valley Ecoregion TSS (mg/l)			3.00
Arkansas River Valley Ecoregion Hardness (mg/l)			25.00
Enter 7Q10 (cfs)	(Reserved)	0.00	(Reserved
Long Term Ave / Harmonic Mean Flow (cfs)		0.00	(Reserved (Reserved)
Using Diffusers (Yes/No)			No
pH (Avg)			7.00
Percent (%) of 7Q10 for Chronic Criteria			0.67
Percent (%) of 7Q10 for Acute Criteria			0.33
Water Effect Ration (WER)			1.00
EPA Statistical Factor for Data (Not Applicable to these calculations)			N/A
Ave Monthly Limit LTA Multiplier (Ref: page 103 TSD for WQ-Based Toxics Control)			1.55
Max Daily Limit LTA Multiplier (Ref: " " " ")			3.11

Codes & TSS for Ecoregions and Large Rivers

Ouachita Mts. Eco (OM) =	2.0 mg/l	Arkansas (Ft. Smith to Dardanelle Dam	12.0 mg/l
Ozark Highlands Eco (OH) =	2.5 mg/l	Arkansas (Dardanelle Dam to Terry L&	10.5 mg/l
Boston Mts. Eco (BM) =	1.3 mg/l	Arkansas (Terry L&D to L&D No. 5)	8.3 mg/l
Ark River Valley Eco (AV) =	3.0 mg/l	Arkansas (L&D No. 5 to Mouth)	9.0 mg/l
Gulf Coastal Eco (GC) =	5.5 mg/l	White (Above Beaver Lake)	2.5 mg/l
Delta Ecoregion (DL) =	8.0 mg/l	White (Below Bull Shoals to Black Riv)	3.3 mg/l
		White (From Black River to Mouth)	18.5 mg/l
		St. Francis River	18.0 mg/l
		Ouachita (Above Caddo River)	2.0 mg/l
		Ouachita (Below Caddo River)	5.5 mg/l
		Red River	33.0 mg/l

Total Hardness for:

Arkansas River = 125 mg/l	Red River = 211 mg/l
Ouachita River = 28 mg/l	St. Francis River = 103 mg/l
White River = 116 mg/l	
Gulf Coastal = 31 mg/l	Ouachita Mount = 31 mg/l
Ozark Highlands = 148 mg/l	Ark River Valley = 25 mg/l
Boston Mount = 25 mg/l	Delta = 81 mg/l

Large Rivers

Mississippi River, Arkansas River, Red River
White (Below confluence with Black River)
Ouachita (Below confluence with Little Miss. River)

For industrial and federal facility, use the highest monthly average flow for the past 24 months. For POTWs, use the design flow.

#VALUE! => No violation or Not Applicable

CALCULATIONS OF ARKANSAS WATER QUALITY-BASED EFFLUENT LIMITATIONS

FACILITY

Permittee	Russellville	
Permit number	AR0021768	
Flow (Qe)	7.30	MGD
Flow (Qe)	11.28	CFS

RECEIVING STREAM

Receiving Stream Name	Whig Creek	
7Q10	0.00	CFS
Long Term Ave	0.00	CFS
Using Diffusers? (Yes/No)	No	Yes/No
pH	7.00	S.U.
Total Hardness	25.00	mg/l
TSS	3.00	mg/l
(% of 7Q10 for Chronic)	0.67	
(% of 7Q10 for Acute)	0.33	
Upstream Flow (Qb) Chronic	0.00	
Upstream Flow (Qb) Acute	0.00	
AML factor	1.55	
DML/AML	3.11	

WQ Limits for the Russellville

								Aquatic Life				Human Health			
	Cb	WQSa	WLAa	LTAa	WQSc	WLAc	LTAc	LTAa/LTAc	AML, ug/l	DML, ug/l	WQSb	WLAb	AML, ug/l	DML, ug/l
Alpha-BHC	0.00	2.00	2.00	1.14	0.0800	0.08	0.06	0.06	0.09	0.18	0.04	0.04	0.04	0.12
Beta-BHC	0.00	2.00	2.00	1.14	0.0800	0.08	0.06	0.06	0.09	0.18				
Gamma-BHC	0.00	2.00	2.00	1.14	0.0800	0.08	0.06	0.06	0.09	0.18				
Delta-BHC	0.00	2.00	2.00	1.14	0.0800	0.08	0.06	0.06	0.09	0.18				
Pentachlorophenol	0.00	9.07	9.07	5.17	5.7259	5.73	4.12	4.12	6.39	12.82				
Aldrin	0.00	3.00	3.00	1.71	1000000000000000.0000	1000000000000000.00	720000000000000.00	1.71	2.65	5.32				
Chlordane	0.00	2.40	2.40	1.37	0.0043	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02
4,4'-DDT	0.00	1.10	1.10	0.63	0.0010	0.00	0.00	0.00	0.00	0.00				
4,4'-DDE	0.00	1.10	1.10	0.63	0.0010	0.00	0.00	0.00	0.00	0.00				
4,4'-DDD	0.00	1.10	1.10	0.63	0.0010	0.00	0.00	0.00	0.00	0.00				
Dieldrin	0.00	2.50	2.50	1.43	0.0019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alpha-endosulfan	0.00	0.22	0.22	0.13	0.0560	0.06	0.04	0.04	0.06	0.13				
Beta-endosulfan	0.00	0.22	0.22	0.13	0.0560	0.06	0.04	0.04	0.06	0.13				
Endosulfan sulfate	0.00	0.22	0.22	0.13	0.0560	0.06	0.04	0.04	0.06	0.13				
Endrin	0.00	0.18	0.18	0.10	0.0023	0.00	0.00	0.00	0.00	0.01				
Endrin aldehyde	0.00	0.18	0.18	0.10	0.0023	0.00	0.00	0.00	0.00	0.01				
Heptachlor	0.00	0.52	0.52	0.30	0.0038	0.00	0.00	0.00	0.00	0.01				
Heptachlor epoxide	0.00	0.52	0.52	0.30	0.0038	0.00	0.00	0.00	0.00	0.01				
Toxaphene	0.00	0.73	0.73	0.42	0.0002	0.00	0.00	0.00	0.0002	0.00	0.0063	0.0063	0.0063	0.02
Chlorpyrifos	0.00	0.08	0.08	0.05	0.0410	0.04	0.03	0.03	0.05	0.09				
Cadmium Total	0.00	3.68	3.68	2.10	1.6500	1.65	1.19	1.19	1.84	3.69				
Chromium (hex)	0.00	15.71	15.71	8.96	10.5820	10.58	7.62	7.62	11.81	23.70				
Copper Total	0.00	10.99	10.99	6.26	8.2765	8.28	5.96	5.96	9.24	18.53				
Lead Total	0.00	62.30	62.30	35.51	2.4279	2.43	1.75	1.75	2.71	5.44				
Mercury Total	0.00	7.11	7.11	4.05	0.0120	0.01	0.01	0.01	0.01	0.03				
Nickel Total	0.00	782.33	782.33	445.93	86.8843	86.88	62.56	62.56	96.96	194.55				
Selenium Total	0.00	20.00	20.00	11.40	5.0000	5.00	3.60	3.60	5.58	11.20				
Silver Total	0.00	1.06	1.06	0.60	100000000.0000	100000000.00	72000000.00	0.60	0.93	1.87				
Zinc Total	0.00	96.81	96.81	55.18	88.4005	88.40	63.65	55.18	85.53	171.61				
Chromium (Tri)	0.00	816.07	816.07	465.16	264.7242	264.72	190.60	190.60	295.43	592.77				
Cyanide Total	0.00	22.36	22.36	12.75	5.2000	5.20	3.74	3.74	5.80	11.64				
Bervllium Total	0.00	130.00	130.00	74.10	5.3000	5.30	3.82	3.82	5.91	11.87	4.0000	4.0000	4.0000	
Arsenic	0.00	592.47	592.47	337.71	312.6924	312.69	225.14	225.14	348.96	700.18				

Effluent Flows provided by Randy Bradley 9-30-2010

Year	Average Flow MGD
2011	6.135
2012	5.284
2013	5.734
2014	5.955
2015	6.557
Average	5.93

Russellville **Maximum Allowable Headworks Loading**

Pollutant	% Rem	Water Quality mg/l	Water Quality* lbs/day	Sludge mg/kg	Sludge` lbs/day	Inhibition? mg/l	Inhibition++ lbs/day	MAHL lbs/day	MAHC mg/l	Domestic lbs/day	Allocation for %SF lbs/day^	MAIL lbs/day	Max Inf Exceeded MAHC	Max Effluent vs WQS(mg/l)
Cadmium Total[3]	67	0.0018	0.28	85	0.23	1.00	49.46	0.23	0.0047	0.01	0.21	0.20	No	No
Copper Total[1]	73	0.0092	1.69	4300	10.87	1.00	49.46	1.69	0.0342	1.33	1.52	0.20	0.550	0.022
Lead Total[1]	83	0.0027	0.79	840	1.87	1.00	49.46	0.79	0.0159	0.07	0.71	0.64	No	No
Mercury Total[1]	84	0.00001	0.00414	57	0.13	0.10	4.95	0.00414	0.0001	0.04	0.00	0.00000	0.000	0.000022
Nickel Total[1]	33	0.0970	7.16	420	2.35	1.00	49.46	2.35	0.0475	0.30	2.11	1.81	0.060	No
Selenium Total[3]	50	0.0056	0.55	100	0.37	0.20	9.89	0.37	0.0075	0.10	0.33	0.23	No	No
Silver Total[2]	82	0.0009	0.26		0.00	0.25	12.36	0.26	0.0052	0.00	0.23	0.23	No	No
Zinc Total[1]	56	0.0855	9.61	7500	24.71	0.80	39.56	9.61	0.1944	4.05	8.65	4.60	0.510	0.100
Chromium Total`	96	0.2954	365.27		0.00	1.00	49.46	49.46	1.0000	0.01	44.51	44.50	No	No
Cyanide Total[3]	69	0.0058	0.93		0.00	0.10	4.95	0.93	0.0187	0.21	0.83	0.63	No	No
Arsenic[2]	55	0.3490	38.35	75	0.25	0.10	4.95	0.25	0.0051	0.04	0.23	0.19	0.014	No
Molybdenum[3]	50	0.0000	0.00	75	0.28	0.20	9.89	0.28	0.0056	0.17	0.25	0.08	0.010	No
Beryllium[3]	50	0.0059	0.59		0.00	0.10	4.95	0.59	0.0118	0.01	0.53	0.52	No	No

Dry tons/day of sludge 0.92 Safety Factor~ 0.10

* lbs/day = mg/l * 8.34 * average flow / (1-%Rem)
[1]Average Daily Removal Efficiency Method, Page 5 - 3, EPA 833-R-04-002A July 2004, Local Limits Development Guidance
[2]Mean Removal Efficiency Method, Page 5-3, EPA 833-R-04-002A July 2004, Local Limits Development Guidance
[3]Median values of Table on Pg R-2 of EPA 833-R-04-002B, July 2004, EPA Local Limits Development Guidance Appendices
` lbs/day = (dry tons/day * 0.002 * critria(mg/kg))/ % Rem; Dry Tons/Day taken from Audit report dated 12-16-03, page 3
?Appendix G of EPA 833-R-04-002B, July 2004, EPA Local Limits Development Guidance Appendices
++ lbs/day = mg/l * Flow * 8.34
^ lbs/day = (1 - SF) * MAHL
~Pg 6 - 6, "Safety Factor", EPA 833-R-04-002A, July 2004, Local Limits Development Guidance
MAIL = Maximum allowable industrial loading = Allocation for % SF - Domestic

ADRE vs MRE vs EPA's Recommended Removal Efficiency

	Cadmium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Chromium	Cyanide	Arsenic	Molydenum	Beryllium
ADRE	NONE	73	83	84	33	NONE	NONE	56	96	NONE	NONE	NONE	NONE
MRE	100	81	84	88	44	100	82	64	98	NONE	55	100	NONE
EPA % REM	67	86	61	60	42	50	75	79	82	69	45	50	50
Method	EPA 200.8	EPA 200.8	EPA 200.8	EPA 1631E	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	SM 4500-CN C,E 1999	EPA 200.8	EPA 200.8	EPA 200.8

ADRE(Average Daily Removal Efficiency) Calculations

Cadmium

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0000	18-Jan-12	0.0000	NONE
2-May-12	0.0000	3-May-12	0.0000	
11-Jul-12	0.0000	12-Jul-12	0.0000	
10-Oct-12	0.0000	11-Oct-12	0.0000	
10-Jan-13	0.0000	11-Jan-13	0.0000	
8-May-13	0.0000	9-May-13	0.0000	
17-Jul-13	0.0000	18-Jul-13	0.0000	
15-Jan-14	0.0000	16-Jan-14	0.0000	
9-Apr-14	0.0000	10-Apr-14	0.0000	
28-Oct-14	0.0000	29-Oct-14	0.0000	
14-Jan-15	0.0000	15-Jan-15	0.0000	
15-Apr-15	0.0000	16-Apr-15	0.0000	
12-Aug-15	0.0009	13-Aug-15	0.0000	
14-Oct-15	0.0000	15-Oct-15	0.0000	
19-Jan-16	0.0000	20-Jan-16	0.0000	
9-Jun-16	0.0000	21-Jan-16	0.0000	
20-Oct-16	0.0000	21-Oct-16	0.0000	
Max. Inf	0.0009			

Copper

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
9-Jan-12	0.0390	10-Jan-12	0.0067	0.83
17-Jan-12	0.0270	18-Jan-12	0.0068	0.75
1-Feb-12	0.0220	2-Feb-12	0.0070	0.68
2-May-12	0.0360	3-May-12	0.0084	0.77
7-Jun-12	0.0590	8-Jun-12	0.0072	0.88
11-Jul-12	0.0470	12-Jul-12	0.0080	0.83
1-Aug-12	0.0530	2-Aug-12	0.0110	0.79
4-Sep-12	0.0790	5-Sep-12	0.0110	0.86
10-Oct-12	0.0430	11-Oct-12	0.0083	0.81
1-Nov-12	0.0490	2-Nov-12	0.0080	0.84
3-Dec-12	0.0370	3-Dec-12	0.0098	0.74
10-Jan-13	0.0310	11-Jan-13	0.0058	0.81
7-Feb-13	0.0310	8-Feb-13	0.0100	0.68
5-Mar-13	0.0250	6-Mar-13	0.0078	0.69
8-Apr-13	0.0250	9-Apr-13	0.0150	0.40
8-May-13	0.0280	9-May-13	0.0150	0.46
2-Dec-13	0.0270	3-Dec-13	0.0071	0.74
2-Jan-14	0.0240	3-Jan-14	0.0065	0.73
15-Jan-14	0.0190	16-Jan-14	0.0025	0.87
9-Apr-14	0.0210	10-Apr-14	0.0062	0.70
19-May-14	0.0110	20-May-14	0.0059	0.46
15-Jun-14	0.0220	16-Jun-14	0.0059	0.73
4-Aug-14	0.0280	10-Jul-14	0.0032	0.89
20-Aug-14	0.0350	21-Aug-14	0.0055	0.84
28-Oct-14	0.0280	29-Oct-14	0.0046	0.84
12-Nov-14	0.0300	13-Nov-14	0.0070	0.77
2-Dec-14	0.0310	3-Dec-14	0.0079	0.75
11-Feb-15	0.0270	11-Feb-15	0.0220	0.19
15-Apr-15	0.0300	16-Apr-15	0.0061	0.80
13-May-15	0.0150	14-May-15	0.0025	0.83
1-Jun-15	0.0099	2-Jun-15	0.0040	0.60
1-Jul-15	0.0330	2-Jul-15	0.0056	0.83
12-Aug-15	0.0350	13-Aug-15	0.0062	0.82
14-Oct-15	0.0350	15-Oct-15	0.0058	0.83
2-Nov-15	0.0320	3-Nov-15	0.0038	0.88
1-Dec-15	0.0100	2-Dec-15	0.0043	0.57
19-Jan-16	0.0260	20-Jan-16	0.0110	0.58
9-Jun-16	0.0230	10-Jun-16		1.00
3-Aug-16	0.0280	4-Aug-16	0.0110	0.61
Max	0.0350		Average	0.73

Lead

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0018	18-Jan-12	0.00059	0.67
2-May-12	0.0020	3-May-12	0.00000	1.00
11-Jul-12	0.0043	12-Jul-12	0.00000	1.00
10-Oct-12	0.0021	11-Oct-12	0.00000	1.00
10-Jan-13	0.0029	11-Jan-13	0.00000	1.00
8-May-13	0.0013	9-May-13	0.00050	0.62
17-Jul-13	0.0022	18-Jul-13	0.00130	0.41
16-Oct-13	0.0029	17-Oct-13	0.00053	0.82
15-Jan-14	0.0012	16-Jan-14	0.00069	0.43
9-Apr-14	0.0019	10-Apr-14	0.00074	0.61
20-Aug-14	0.0016	21-Aug-14	0.00000	1.00
28-Oct-14	0.0019	29-Oct-14	0.00000	1.00
14-Jan-15	0.0012	15-Jan-15	0.00085	0.29
15-Apr-15	0.0010	16-Apr-15	0.00000	1.00
12-Aug-15	0.0024	13-Aug-15	0.00000	1.00
14-Oct-15	0.0038	15-Oct-15	0.00006	0.98
19-Jan-16	0.0009	20-Jan-16	0.0000	1.00
9-Jun-16	0.0016	10-Jun-16	0.0000	1.00
3-Aug-16	0.0015	4-Aug-16	0.0000	1.00
20-Oct-16	2.9000	21-Oct-16	0.0000	1.00
Max	0.0038		Average	0.83

Mercury

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0000190	18-Jan-12	0.0000110	0.42
11-Jul-12	0.0000700	12-Jul-12	0.0000000	1.00
10-Oct-12	0.0000680	11-Oct-12	0.0000000	1.00
9-May-13	0.0001100	10-May-13	0.0000110	0.90
18-Jul-13	0.0001200	19-Jul-13	0.0000067	0.94
16-Oct-13	0.0000580	17-Oct-13	0.0000000	1.00
15-Jan-14	0.0000650	16-Jan-14	0.0000180	0.72
9-Apr-14	0.0000540	10-Apr-14	0.0000068	0.87
20-Aug-14	0.0000100	21-Aug-14	0.0000067	0.33
29-Oct-14	0.0000490	29-Oct-14	0.0000000	1.00
14-Jan-15	0.0000250	15-Jan-15	0.0000160	0.36
12-Aug-15	0.0000900	13-Aug-15	0.0000050	0.94
14-Oct-15	0.0000480	15-Oct-15	0.0000030	0.94
13-Jan-16	0.000044	14-Jan-16	0.0000000	1.00
8-Jun-16	0.000057	9-Jun-16	0.0000040	0.93
3-Aug-16	0.000034	4-Aug-16	0.0000014	0.96
20-Oct-16	0.000059	21-Oct-16	0.0000000	1.00
Max	0.000120		Average	0.84

Nickel					Selenium					Silver					Zinc				
Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM	Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM	Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM	Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0100	18-Jan-12	0.0077	0.23	17-Jan-12	0.0000	18-Jan-12	0.0000	#DIV/0!	17-Jan-12	0.0007	18-Jan-12	0.0006	0.16	9-Jan-12	0.0680	10-Jan-12	0.0300	0.56
2-May-12	0.0100	3-May-12	0.0083	0.17	2-May-12	0.0000	3-May-12	0.0000	#DIV/0!	2-May-12	0.0000	3-May-12	0.0000	#DIV/0!	17-Jan-12	0.0840	18-Jan-12	0.0300	0.64
11-Jul-12	0.0110	12-Jul-12	0.0064	0.42	11-Jul-12	0.0000	12-Jul-12	0.0000	#DIV/0!	11-Jul-12	0.0000	12-Jul-12	0.0000	#DIV/0!	1-Feb-12	0.0650	2-Feb-12	0.0280	0.57
10-Oct-12	0.0300	11-Oct-12	0.0095	0.68	10-Oct-12	0.0000	11-Oct-12	0.0000	#DIV/0!	10-Oct-12	0.0000	11-Oct-12	0.0000	#DIV/0!	2-Apr-12	0.0700	3-Apr-12	0.0310	0.56
10-Jan-13	0.0200	11-Jan-13	0.0055	0.73	10-Jan-13	0.0000	11-Jan-13	0.0000	#DIV/0!	10-Jan-13	0.0000	11-Jan-13	0.0000	#DIV/0!	2-May-12	0.1400	3-May-12	0.0300	0.79
8-May-13	0.0170	9-May-13	0.0110	0.35	8-May-13	0.0000	9-May-13	0.0000	#DIV/0!	8-May-13	0.0000	9-May-13	0.0000	#DIV/0!	7-Jun-12	0.1500	8-Jun-12	0.0280	0.81
17-Jul-13	0.0600	18-Jul-13	0.0140	0.77	17-Jul-13	0.0000	18-Jul-13	0.0000	#DIV/0!	17-Jul-13	0.0000	18-Jul-13	0.0000	#DIV/0!	2-Jul-12	0.2200	3-Jul-12	0.0500	0.77
16-Oct-13	0.0054	17-Oct-13	0.0051	0.06	16-Oct-13	0.0000	17-Oct-13	0.0000	#DIV/0!	16-Oct-13	0.0000	17-Oct-13	0.0000	#DIV/0!	1-Aug-12	0.2300	2-Aug-12	0.0490	0.79
15-Jan-14	0.0098	16-Jan-14	0.0088	0.10	15-Jan-14	0.0000	16-Jan-14	0.0000	#DIV/0!	15-Jan-14	0.0000	16-Jan-14	0.0000	#DIV/0!	4-Sep-12	0.5100	5-Sep-12	0.0610	0.88
9-Apr-14	0.0097	10-Apr-14	0.0075	0.23	9-Apr-14	0.0000	10-Apr-14	0.0000	#DIV/0!	9-Apr-14	0.0000	10-Apr-14	0.0000	#DIV/0!	1-Oct-12	0.1300	2-Oct-12	0.0360	0.72
20-Aug-14	0.0096	21-Aug-14	0.0090	0.06	20-Aug-14	0.0000	21-Aug-14	0.0000	#DIV/0!	20-Aug-14	0.0002	21-Aug-14	0.0000	1.00	1-Nov-12	0.1700	2-Nov-12	0.0400	0.76
28-Oct-14	0.0120	29-Oct-14	0.0060	0.50	28-Oct-14	0.0000	29-Oct-14	0.0000	#DIV/0!	28-Oct-14	0.0008	29-Oct-14	0.0000	1.00	3-Dec-12	0.1300	3-Dec-12	0.0430	0.67
14-Jan-15	0.0074	15-Jan-15	0.0068	0.08	14-Jan-15	0.0000	15-Jan-15	0.0000	#DIV/0!	14-Jan-15	0.0000	15-Jan-15	0.0000	#DIV/0!	2-Jan-13	0.0620	3-Jan-13	0.0340	0.45
15-Apr-15	0.0098	16-Apr-15	0.0061	0.38	15-Apr-15	0.0000	16-Apr-15	0.0000	#DIV/0!	15-Apr-15	0.0000	16-Apr-15	0.0000	#DIV/0!	10-Jan-13	0.0880	11-Jan-13	0.0210	0.76
12-Aug-15	0.0200	13-Aug-15	0.0140	0.30	12-Aug-15	0.0000	13-Aug-15	0.0000	#DIV/0!	12-Aug-15	0.0000	13-Aug-15	0.0000	#DIV/0!	7-Feb-13	0.0870	8-Feb-13	0.0260	0.70
14-Oct-15	0.0140	15-Oct-15	0.0073	0.48	14-Oct-15	0.0000	15-Oct-15	0.0000	#DIV/0!	14-Oct-15	0.0018	15-Oct-15	0.0000	1.00	5-Mar-13	0.0860	6-Mar-13	0.0260	0.70
19-Jan-16	0.0075	20-Jan-16	0.0048	0.36	19-Jan-16	0.0000	20-Jan-16	0.0000	#DIV/0!	19-Jan-16	0.0000	20-Jan-16	0.0000	#DIV/0!	8-Apr-13	0.0740	9-Apr-13	0.0390	0.47
9-Jun-16	0.0065	10-Jun-16	0.0065	0.00	9-Jun-16	0.0062	10-Jun-16	0.0028	0.55	9-Jun-16	0.0000	10-Jun-16	0.0000	#DIV/0!	9-May-13	0.0780	9-May-13	0.0290	0.63
3-Aug-16	0.0060	4-Aug-16	0.0054	0.10	3-Aug-16	0.0000	4-Aug-16	0.0000	#DIV/0!	3-Aug-16	0.0000	4-Aug-16	0.0000	#DIV/0!	12-Jun-13	0.1300	13-Jun-13	0.0420	0.68
20-Oct-16	0.0150	21-Oct-16	0.0060	0.60	20-Oct-16	0.0000	21-Oct-16	0.0000	#DIV/0!	20-Oct-16	0.0000	21-Oct-16	0.0000	#DIV/0!	1-Aug-13	0.1700	2-Aug-13	0.0610	0.64
Max	0.060000		Average	0.33	Max	0.006200			NONE	Max	0.001800		Average	NONE	2-Sep-13	0.2000	4-Sep-13	0.0650	0.68
															1-Oct-13	0.0620	2-Oct-13	0.0510	0.18
															16-Oct-13	0.0990	17-Oct-13	0.0410	0.59
															2-Dec-13	0.1100	3-Dec-13	0.0540	0.51
															2-Jan-14	0.0900	3-Jan-14	0.0360	0.60
															15-Jan-14	0.0740	16-Jan-14	0.0380	0.49
															9-Apr-14	0.0940	10-Apr-14	0.0370	0.61
															19-May-14	0.1200	20-May-14	0.0230	0.81
															15-Jun-14	0.1100	16-Jun-14	0.0310	0.72
															4-Aug-14	0.1300	5-Aug-14	0.0340	0.74
															20-Aug-14	0.0970	21-Aug-14	0.0170	0.82
															8-Sep-14	0.1400	10-Sep-14	0.0310	0.78
															6-Oct-14	0.1400	7-Oct-14	0.0420	0.70
															12-Nov-14	0.1100	13-Nov-14	0.0530	0.52
															2-Dec-14	0.1200	3-Dec-14	0.0520	0.57
															5-Jan-15	0.0520	6-Jan-15	0.0420	0.19
															11-Feb-15	0.1100	11-Feb-15	0.1000	0.09
															1-Apr-15	0.1000	2-Apr-15	0.0580	0.42
															13-May-15	0.0560	14-May-15	0.0310	0.45
															1-Jun-15	0.0440	2-Jun-15	0.0550	-0.25
															1-Jul-15	0.1400	2-Jul-15	0.0730	0.48
															12-Aug-15	0.1300	13-Aug-15	0.0780	0.40
															5-Oct-15	0.1500	6-Oct-15	0.0580	0.61
															2-Nov-15	0.1100	3-Nov-15	0.0570	0.48
															1-Dec-15	0.0340	2-Dec-15	0.0530	-0.56
															1/4/16	0.0610	1/5/16	0.0520	0.15
															1/19/16	0.0700	1/20/16	0.0390	0.44
															2/1/16	0.1100	2/2/16	0.0380	0.65
															3/2/16	0.1200	3/3/16	0.0520	0.57
															4/4/16	0.1000	4/5/16	0.0320	0.68
															5/2/16	0.0660	5/3/16	0.0370	0.44
															6/1/16	0.1200	6/2/16	0.0390	0.68
															7/5/216	0.1100	7/6/16	0.0480	0.56
															8/3/16	0.13	08/05/16	0.0540	0.58
															9/1/16	0.20	09/02/16	0.0450	0.78
															Max	0.200000		Average	0.56

Chromium

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
2-May-12	0.0190	3-May-12	0.0005	0.97
11-Jul-12	0.0120	12-Jul-12	0.0005	0.96
10-Oct-12	0.0420	11-Oct-12	0.0005	0.99
10-Jan-13	0.0570	11-Jan-13	0.0005	0.99
9-May-13	0.0310	10-May-13	0.0005	0.98
18-Jul-13	0.1200	19-Jul-13	0.0005	1.00
15-Jan-14	0.0100	16-Jan-14	0.0005	0.95
9-Apr-14	0.0320	10-Apr-14	0.0005	0.98
20-Aug-14	0.0220	21-Aug-14	0.0074	0.66
28-Oct-14	0.0300	29-Oct-14	0.0005	0.98
14-Jan-15	0.0140	15-Jan-15	0.0005	0.96
15-Apr-15	0.0270	16-Apr-15	0.0005	0.98
12-Aug-15	0.0450	13-Aug-15	0.0005	0.99
14-Oct-15	0.0250	15-Oct-15	0.0005	0.98
19-Jan-16	0.0190	20-Jan-16	0.0005	0.97
8-Jun-16	0.0079	9-Jun-16	0.0005	0.94
20-Oct-16	0.0300	21-Oct-16	0.0000	1.00
Max	0.120000		Average	0.96

17-Jan-12	0.0000	18-Jan-12	0.0000	#DIV/0!
16-Oct-13	0.0000	17-Oct-13	0.0000	#DIV/0!
3-Aug-16	0.0000	4-Aug-16	0.0000	#DIV/0!

Cyanide

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0000	18-Jan-12	0.0000	NONE
2-May-12	0.0000	3-May-12	0.0000	
11-Jul-12	0.0000	12-Jul-12	0.0000	
10-Oct-12	0.0000	11-Oct-12	0.0000	
10-Jan-13	0.0000	11-Jan-13	0.0000	
9-May-13	0.0000	10-May-13	0.0000	
18-Jul-13	0.0000	19-Jul-13	0.0000	
10-Oct-13	0.0000	17-Oct-13	0.0000	
15-Jan-14	0.0000	16-Jan-14	0.0000	
9-Apr-14	0.0000	10-Apr-14	0.0000	
20-Aug-14	0.0000	21-Aug-14	0.0000	
29-Oct-14	0.0000	29-Oct-14	0.0000	
14-Jan-15	0.0000	15-Jan-15	0.0000	
15-Apr-15	0.0000	16-Apr-15	0.0000	
12-Aug-15	0.0000	13-Aug-15	0.0000	
14-Oct-15	0.0000	15-Oct-15	0.0000	
19-Jan-16	0.0000	20-Jan-16	0.0000	
8-Jun-16	0.0000	9-Jun-16	0.0000	
3-Aug-16	0.0000	4-Aug-16	0.0000	
20-Oct-16	0.0000	21-Oct-16	0.0000	
Max	0.000000			

Arsenic

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.00000	18-Jan-12	0.00000	None
2-May-12	0.00000	3-May-12	0.00000	None
11-Jul-12	0.00000	12-Jul-12	0.00000	None
10-Oct-12	0.00000	11-Oct-12	0.00000	None
10-Jan-13	0.00000	11-Jan-13	0.00000	None
9-May-13	0.00000	10-May-13	0.00000	None
18-Jul-13	0.00000	19-Jul-13	0.00000	None
10-Oct-13	0.00000	17-Oct-13	0.00000	None
15-Jan-14	0.00000	16-Jan-14	0.00000	None
9-Apr-14	0.00000	10-Apr-14	0.00000	None
20-Aug-14	0.00000	21-Aug-14	0.00000	None
29-Oct-14	0.00000	29-Oct-14	0.00000	None
14-Jan-15	0.00000	14-Jan-15	0.00000	None
15-Apr-15	0.00000	16-Apr-15	0.00000	None
12-Aug-15	0.00000	13-Aug-15	0.00000	None
14-Oct-15	0.00000	15-Oct-15	0.00000	None
19-Jan-16	0.00000	20-Jan-16	0.00000	None
8-Jun-16	0.00000	9-Jun-16	0.00000	None
3-Aug-16	0.00000	4-Aug-16	0.00000	NONE
20-Oct-16	0.00320	21-Oct-16	0.00076	0.76
Max	0.00000			

Molybdenum

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0000	18-Jan-12	0.0000	NONE
2-May-12	0.0000	3-May-12	0.0000	
11-Jul-12	0.0095	12-Jul-12	0.0000	
10-Oct-12	0.0000	11-Oct-12	0.0000	
10-Jan-13	0.0000	11-Jan-13	0.0000	
9-May-13	0.0000	10-May-13	0.0000	
18-Jul-13	0.0000	19-Jul-13	0.0000	
16-Oct-13	0.0000	17-Oct-13	0.0000	
15-Jan-14	0.0000	16-Jan-14	0.0000	
9-Apr-14	0.0000	10-Apr-14	0.0000	
29-Oct-14	0.0000	29-Oct-14	0.0000	
14-Jan-15	0.0000	15-Jan-15	0.0000	
15-Apr-15	0.0000	16-Apr-15	0.0000	
12-Aug-15	0.0000	13-Aug-15	0.0000	
14-Oct-15	0.0000	15-Oct-15	0.0000	
1/19/16	0.0000	1/20/16	0.0000	
6/8/16	0.0000	06/09/16	0.0000	
4/3/16	0.0000	08/04/16	0.0000	
20-Oct-16	0.0000	21-Oct-16	0.0000	
Max	0.009500			

Beryllium

Date	Influent (mg/L)	Date	Effluent (mg/L)	%REM
17-Jan-12	0.0000	18-Jan-12	0.0000	NONE
2-May-12	0.0000	3-May-12	0.0000	
11-Jul-12	0.0000	12-Jul-12	0.0000	
10-Oct-12	0.0000	11-Oct-12	0.0000	
10-Jan-13	0.0000	11-Jan-13	0.0000	
9-May-13	0.0000	10-May-13	0.0000	
18-Jul-13	0.0000	19-Jul-13	0.0000	
16-Oct-13	0.0000	17-Oct-13	0.0000	
15-Jan-14	0.0000	16-Jan-14	0.0000	
9-Apr-14	0.0000	10-Apr-14	0.0000	
20-Aug-14	0.0000	21-Aug-14	0.0000	
29-Oct-14	0.0000	29-Oct-14	0.0000	
14-Jan-15	0.0000	15-Jan-15	0.0000	
15-Apr-15	0.0000	16-Apr-15	0.0000	
12-Aug-15	0.0000	13-Aug-15	0.0000	
14-Oct-15	0.0000	15-Oct-15	0.0000	
1/19/16	0.0000	1/20/16	0.0000	
6/8/16	0.0000	06/09/16	0.0000	
4/3/16	0.0000	08/04/16	0.0000	
20-Oct-16	0.0000	21-Oct-16	0.0000	
	0.000000			

MRE(Mean Removal Efficiency) Calculations

Date	Cadmium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Chromium	Cyanide	Arsenic	Molydenu	Beryllium
9-Jan-12		0.0390						0.0680					
17-Jan-12	0.0000	0.0270	0.0018	0.0000190	0.0100	0.0000	0.0007	0.0840	0.0000	0.0000	0.0140000	0.0000	0.0000
1-Feb-12		0.0220						0.0650					
13-Mar-12		0.0270						0.1100					
1-Apr-12		0.0200						0.0700					
2-May-12	0.0000	0.0360	0.0020	0.0000000	0.0100	0.0000	0.0000	0.1400	0.0190	0.0000	0.0000000	0.0000	0.0000
7-Jun-12		0.0590						0.1500					
2-Jul-12		0.5500						0.2300					
11-Jul-12	0.0000	0.0470	0.0043	0.0000700	0.0110	0.0000	0.0000	0.2300	0.0120	0.0000	0.0100000	0.0095	0.0000
1-Aug-12		0.0530						0.2300					
4-Sep-12		0.0790						0.5100					
10-Oct-12	0.0000	0.0430	0.0021	0.0000680	0.0300	0.0000	0.0000	0.1300	0.0420	0.0000	0.0110000	0.0000	0.0000
1-Nov-12		0.0490						0.1700					
3-Dec-12		0.0370						0.1300					
2-Jan-13		0.0270						0.0620					
10-Jan-13	0.0000	0.0310	0.0029		0.0200	0.0000	0.0000	0.0880	0.0570	0.0000	0.0091000	0.0000	0.0000
7-Feb-13		0.0310						0.0870					
5-Mar-13		0.0250						0.0860					
8-Apr-13		0.0250						0.0740					
8-May-13	0.0000	0.0280	0.0013	0.0001100	0.0170	0.0000	0.0000	0.0780	0.0310	0.0000	0.0006900	0.0000	0.0000
12-Jun-13		0.0400						0.1300					
17-Jul-13	0.0000	0.0460	0.0022	0.0001200	0.0600	0.0000	0.0000	0.1900	0.1200	0.0000	0.0009700	0.0000	0.0000
1-Aug-13		0.0400						0.1700					
2-Sep-13		0.0510						0.2000					
1-Oct-13		0.0140						0.0620					
16-Oct-13	0.0000	0.0270	0.0029	0.0000580	0.0054	0.0000	0.0000	0.0990	0.0100	0.0000	0.0016000	0.0000	0.0000
12-Nov-13		0.0420						0.1300					
2-Dec-13		0.0270						0.1100					
2-Jan-14		0.0240						0.0900					
15-Jan-14	0.0000	0.0190	0.0012	0.0000650	0.0098	0.0000	0.0000	0.0740	0.0100	0.0000	0.0006400	0.0000	0.0000
5-Feb-14		0.0180						0.1300					
13-Mar-14		0.0240						0.1500					
9-Apr-14	0.0000	0.0210	0.0019	0.0000540	0.0097	0.0000	0.0000	0.0940	0.0320	0.0000	0.0010000	0.0000	0.0000
19-May-14		0.0110						0.1200					
15-Jun-14		0.0220						0.1100					
7-Jul-14		0.0290						0.1500					
4-Aug-14		0.0280						0.1300					
20-Aug-14	0.0002	0.0350	0.0016	0.0000100	0.0096	0.0000	0.0002	0.0970	0.0220	0.0000	0.0012000	0.0000	0.0000
8-Sep-14		0.0330						0.1400					
28-Oct-14	0.0000	0.0280	0.0019	0.0000490	0.0120	0.0000	0.0008	0.1300	0.0300	0.0000	0.0000000	0.0000	0.0000
12-Nov-14		0.0300						0.1100					
2-Dec-14		0.0310						0.1200					
3-Jan-15		0.0120						0.0660					
4-Jan-15		0.0070						0.0420					

4-Jan-15		0.0070						0.0420					
5-Jan-15		0.0150						0.0520					
14-Jan-15	0.0000	0.0290	0.0012	0.0000250	0.0074	0.0000	0.0000	0.0750	0.0140	0.0000	0.0007200	0.0000	0.0000
11-Feb-15		0.0270						0.1100					
9-Mar-15		0.0110						0.0440					
15-Apr-15	0.0000	0.0300	0.0010	0.0000067	0.0098	0.0000	0.0000	0.1000	0.0270	0.0000	0.0015000	0.0000	0.0000
13-May-15		0.0150						0.0560					
1-Jun-15		0.0099						0.0440					
1-Jul-15		0.0330						0.1400					
12-Aug-15	0.0009	0.0350	0.0024	0.0000900	0.0200	0.0000	0.0000	0.1300	0.0450	0.0000	0.0022000	0.0000	0.0000
3-Sep-15		0.0340						0.1500					
14-Oct-15	0.0000	0.0350	0.0038	0.0000480	0.0140	0.0000	0.0018	0.1700	0.0250	0.0000	0.0015000	0.0000	0.0000
2-Nov-15		0.0320						0.1100					
1-Dec-15		0.0100						0.0340					
1/1/16	0.0000	0.0260	0.0001	0.000044	0.007500	0.0000	0.0000	0.0700	0.0190	0.0000	0.0017	0.0000	0.0000
2/1/16		0.0230						0.1100					
3/1/16		0.0280						0.1200					
4/1/16		0.0310						0.1000					
5/1/16		0.0160						0.0660					
6/20/16	0.0000	0.0290	0.0016	0.000057	0.006500	0.0062	0.0000	0.1200	0.0079	0.0000	0.0022	0.0000	0.0000
7/1/16		0.0260						0.1100					
8/11/16	0.0000	0.0330	0.0015	0.000059	0.006000	0.0000	0.0000	0.1300	0.0000	0.0000	0.0050	0.0000	0.0000
Average	0.00006	0.03757	0.00198	0.00005	0.01451	0.00033	0.00019	0.11811	0.02752	0.00000	0.00342	0.00050	0.00000
Maximum	0.0009	0.5500	0.0043	0.0001	0.0600	0.0062	0.0018	0.5100	0.1200	0.0000	0.0140	0.0095	0.0000
All Concs > DL (Yes/No)	Yes	No	Yes	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes

Effluent

Date	Cadmium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Chromium	Cyanide	Arsenic	Molydenur	Beryllium
10-Jan-12		0.0067						0.0300					
18-Jan-12	0.0000	0.0068	0.00059	0.0000110	0.0077	0.0000	0.0006	0.0300	0.0000	0.0000	0.0093	0.0000	0.0000
2-Feb-12		0.0070						0.0280					
2-Mar-12		0.0060						0.0270					
3-Apr-12		0.0068						0.0310					
3-May-12	0.0000	0.0084	0.00000	0.0000120	0.0083	0.0000	0.0000	0.0300	0.0000	0.0000	0.0000	0.0000	0.0000
8-Jun-12		0.0072						0.0280					
12-Jul-12	0.0000	0.0080	0.00000	0.0000000	0.0064	0.0000	0.0000	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000
2-Aug-12		0.0110						0.0490					
5-Sep-12		0.0110						0.0610					
11-Oct-12	0.0000	0.0083	0.00000	0.0000000	0.0095	0.0000	0.0000	0.0360	0.0000	0.0000	0.0005	0.0000	0.0000
2-Nov-12		0.0080						0.0400					
3-Dec-12		0.0098						0.0430					
11-Jan-13	0.0000	0.0058	0.00000	0.0000074	0.0055	0.0000	0.0000	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000
8-Feb-13		0.0100						0.0260					
6-Mar-13		0.0078						0.0260					
9-Apr-13		0.0150						0.0390					
9-May-13	0.0000	0.0150	0.00050	0.0000110	0.0110	0.0000	0.0000	0.0290	0.0000	0.0000	0.0007	0.0000	0.0000
13-Jun-13		0.0099						0.0420					
18-Jul-13	0.0000	0.0084	0.00130	0.0000067	0.0140	0.0000	0.0000	0.0660	0.0000	0.0000	0.0011	0.0000	0.0000
2-Aug-13		0.0160						0.0610					
4-Sep-13		0.0170						0.0650					
17-Oct-13	0.0000	0.0066	0.00053	0.0000000	0.0051	0.0000	0.0000	0.0410	0.0000	0.0000	0.0082	0.0000	0.0000
8-Nov-13		0.0049						0.0380					
3-Dec-13		0.0071						0.0540					
3-Jan-14		0.0065						0.0360					
16-Jan-14	0.0000	0.0025	0.00069	0.0000180	0.0088	0.0000	0.0000	0.0380	0.0000	0.0000	0.0006	0.0000	0.0000
19-Feb-14		0.0100						0.0500					
12-Mar-14		0.0015						0.0420					
10-Apr-14	0.0000	0.0062	0.00074	0.0000068	0.0075	0.0000	0.0000	0.0370	0.0000	0.0000	0.0007	0.0000	0.0000
20-May-14		0.0059						0.0230					
16-Jun-14		0.0059						0.0310					
10-Jul-14		0.0032						0.0220					
21-Aug-14	0.0000	0.0055	0.00000	0.0000067	0.0090	0.0000	0.0000	0.0170	0.0074	0.0000	0.0011	0.0000	0.0000
10-Sep-14		0.0059						0.0310					
29-Oct-14	0.0000	0.0046	0.00000	0.0000000	0.0060	0.0000	0.0000	0.0420	0.0000	0.0000	0.0009	0.0000	0.0000
13-Nov-14		0.0070						0.0530					
3-Dec-14		0.0079						0.0520					
15-Jan-15	0.0000	0.0055	0.00085	0.0000160	0.0068	0.0000	0.0000	0.0420	0.0000	0.0000	0.0006	0.0000	0.0000
11-Feb-15		0.0220						0.1000					
12-Mar-15		0.0050						0.0270					
16-Apr-15	0.0000	0.0061	0.00000	0.0000220	0.0061	0.0000	0.0000	0.0580	0.0000	0.0000	0.0008	0.0000	0.0000

14-May-15		0.0025						0.0310					
2-Jun-15		0.0040						0.0550					
2-Jul-15		0.0056						0.0730					
13-Aug-15	0.0000	0.0062	0.00000	0.0000050	0.0140	0.0000	0.0000	0.0780	0.0000	0.0000	0.0012	0.0000	0.0000
17-Sep-15		0.0041						0.0490					
15-Oct-15	0.0000	0.0058	0.00006	0.0000025	0.0073	0.0000	0.0000	0.0580	0.0000	0.0000	0.0001	0.0000	0.0000
3-Nov-15		0.0038						0.0570					
2-Dec-15		0.0043						0.0530					
1/5/16		0.0046						0.0520					
1/13/16				0.0000000									
1/19/16	0.0000	0.0110	0.0000		0.0048	0.0000	0.0000	0.0390	0.0000	0.0000	0.0006	0.0000	0.0000
2/2/16		0.0040						0.0380					
2/4/16				0.0000020									
3/3/16		0.0063						0.0520					
3/17/16				0.0000014									
4/6/16		0.0031						0.0320					
4/14/16				0.0000019									
05/03/16		0.0034						0.0370					
05/11/16				0.0000045									
06/02/16		0.0036						0.0390					
06/09/16				0.0000035									
07/06/16		0.0044						0.0480					
07/11/16				0.0000007									
08/11/16	0.0000	0.0031	0.0000	0.0000030	0.0054	0.0000	0.0000	0.0540	0.0000	0.0000	0.0010	0.0000	0.0000
Detection Level	0.0005	0.0005	0.0005	0.000005	0.0005	0.0050	0.0005	0.0200	0.0100	0.0100	0.0005	0.0100	0.0005
Average	0.00000	0.00723	0.00031	0.00001	0.00811	0.00000	0.00003	0.04272	0.00044	0.00000	0.00155	0.00000	0.00000
Maximum	0.0000	0.0220	0.0013	0.0000	0.0140	0.0000	0.0006	0.1000	0.0074	0.0000	0.0093	0.0000	0.0000
All Concs > DL (Yes/No)	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes
% Rem													
	Cadmium*	Copper	Lead	Mercury	Nickel	Selenium*	Silver	Zinc	Chromium	Cyanide*	Arsenic	Molydenur	Beryllium*
MRE	100	81	84	88	44	100	82	64	98	#DIV/0!	55	100	#DIV/0!
EPA % REM	67	86	61	60	42	50	75	79	82	69	45	50	50

*used EPA Removal eff

Sludge

	Ceiling Concentration (mg/kg) Dry Weight	2011 average mg/kg	2012 average mg/kg	2013 average mg/kg	2014 average mg/kg	2015 average mg/kg	Average mg/kg
Arsenic	75.00	0.00	4.05	0.00	0.00	1.18	1.05
Cadmium	85.00	0.98	0.98	1.40	0.93	0.38	0.93
Copper	4300.00	330.00	410.00	422.50	332.50	133.80	325.76
Lead	840.00	45.25	38.75	32.00	26.25	16.92	31.83
Mercury	57.00	1.24	1.31	1.38	0.97	0.63	1.11
Molybdenum	75.00	14.00	18.00	17.50	14.50	6.92	14.18
Nickel	420.00	43.75	50.00	52.75	47.00	18.00	42.30
Selenium	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Zinc	7500.00	750.25	1225.00	1075.00	1100.00	394.60	908.97
PCBs	50.00	0.00	0.00	0.00	0.00	0.00	0.00
Chromium		175.00	195.00	270.00			213.33
Beryllium							

Domestic Calculations for Russellville

Pollutants	EPA, P3-59* mg/l	Avg Reported mg/l	Loading lbs/day	
Cadmium Total	0.0030	0.00025	0.01	See Note 1 below
Copper Total	0.0607	0.03186	1.33	
Lead Total	0.0490	0.00168	0.07	
Mercury Total	0.0003	0.00087	0.0362	
Nickel Total	0.0210	0.00719	0.30	
Selenium Total	-	0.00250	0.10	See Note 1 below
Silver Total	0.0050	0.00011	0.00	
Zinc Total	0.1750	0.09743	4.05	
Chromium Total	0.0500	0.00500	0.01	See Note 1 below.
Cyanide Total	0.0410	0.00500	0.21	See Note 1 below
Arsenic	0.0030	0.00096	0.04	
Molybdenum	999999.0000	0.00400	0.17	See Note 4 below
Beryllium	999999.00	0.00025	0.01	See Note 3 below

Date	Cadmium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Zinc	Chromium	Cyanide	Arsenic	Molydenum	Beryllium
30-Nov-11	0.00000	0.02100	0.00160	0.00025	0.00430	0.00000	0.00091	0.07000	0.00000		0.00000		0.00000
1-Dec-11	0.00000	0.02300	0.00150	0.00410	0.00380	0.00000	0.00067	0.07200	0.00000		0.00000		0.00000
19-Dec-11	0.00000	0.02300	0.00079	0.00000	0.00380	0.00000	0.00000	0.05000	0.00000		0.00110		0.00000
20-Dec-11	0.00000	0.01600	0.00057	0.00000	0.00390	0.00000	0.00000	0.04100	0.00000		0.00087		0.00000
21-Dec-11	0.00000	0.01700	0.00058	0.00000	0.00340	0.00000	0.00000	0.04000	0.00000		0.00150		0.00000
24-Apr-13	0.00000	0.03100	0.00200		0.00430	0.00000	0.00000	0.10000	0.00000		0.00080	0.00000	0.00000
2-May-13	0.00000	0.00000	0.00000		0.00000	0.00000	0.00000	0.00000	0.00000		0.00000	0.00000	0.00000
8-May-13	0.00000	0.12000	0.00130		0.00600	0.00000	0.00000	0.11000	0.00000		0.00120	0.00000	0.00000
21-May-13	0.00000	0.01500	0.00110		0.00610	0.00000	0.00000	0.02600	0.00000		0.00087	0.00000	0.00000
30-May-13	0.00000	0.01700	0.00560		0.01500	0.00000	0.00000	0.07500	0.00000		0.00200	0.00000	0.00000
7-Jun-13	0.00000	0.05500	0.00350		0.00930	0.00000	0.00000	0.20000	0.00000		0.00110	0.00000	0.00000
27-Jun-13	0.00000	0.03600	0.00120		0.02900	0.00000	0.00000	0.23000	0.00000		0.00078	0.00910	0.00000
23-Sep-15	0.00050	0.03600	0.00170		0.00500	0.00000	0.00000	0.18000	0.00000		0.00130	0.00000	0.00000
25-Sep-15	0.00062	0.03600	0.00210		0.00670	0.00000	0.00000	0.17000	0.00000		0.00190	0.00000	0.00000

Detection Level (DL)	0.0005	0.0005	0.0005	0.000005	0.0005	0.0050	0.0005	0.0200	0.0100	0.0100	0.0005	0.0100	0.0005
Average	0.00008	0.03186	0.00168	0.00087	0.00719	0.00000	0.00011	0.09743	0.00000	#DIV/0!	0.00096	0.00101	0.00000
Maximum	0.0006	0.1200	0.0056	0.0041	0.0290	0.0000	0.0009	0.2300	0.0000	0.0000	0.0020	0.0091	0.0000
All Concs > DL (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

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Note 1: Value used equals one/half the Method Detection Level reported on the EEG lab analyses
Note 2: Average value from lab analyses of Env Enterprises Group (EEG) Analysis
Note 3: For Berylium used one/half EPA MQL (0.0005/2 = 0.00025 mg/l)
Note 4: For Molydendum used one/half the MDL; the 0.0091 mg/l value showed on the July 27, 2013 EEG lab analysis is considered an "outlier".

Average Metal Loadings from Industries

	Cd Daily Loading lb/day	Cu Daily Loading lb/day	Pb Daily Loading lb/day	Hg Loading lbs/day	Ni Daily Loading lb/day	Ag Loading lbs/day	Zinc Loading lbs/day	Cr Daily Loading lb/day	Cn Daily Loading lb/day
Bridgestone							0.040		
Grace	0.000	0.111	0.068		0.662	0.002	0.015	2.121	0.003
Hackney Ladish		0.006		0.000		0.006	0.016	0.001	0.006
Mahle		0.008		0.001		0.000	0.007	0.029	0.000
POM		0.000			0.000			0.002	
Taber							0.026	0.001	0.002
Average	0.000	0.031	0.068	0.000	0.331	0.003	0.021	0.431	0.003
Total	0.000	0.125	0.068	0.001	0.662	0.008	0.103	2.154	0.011
MAIL	0.200	0.197	0.639	0.076	1.814	0.161	4.598	44.502	0.625
% of MAIL	0.0%	63.6%	10.7%	0.9%	36.5%	5.2%	2.2%	4.8%	1.7%

Industrial Loading

Bridgestone

Month	Monthly Flow Million Gallons	Zinc mg/L	Zinc Loading Monthly	Zinc Loading lbs/day	TSS mg/L	O&G mg/L	pH
Feb-11	0.321	1.100	2.94	0.10	33.000	9.400	6.20
Mar-11	0.277	0.510	1.18	0.04	100.000	6.200	6.55
Jul-11	0.388	0.260	0.84	0.03	42.000	0.000	7.70
Sep-11	0.329	0.870	2.39	0.08	260.000	5.300	6.85
Feb-12	0.328	0.150	0.41	0.01	93.000	15.500	6.85
Aug-12	0.374	0.210	0.66	0.02	130.000	7.100	6.38
Sep-12	0.410	0.680	2.33	0.08	220.000	13.000	7.30
Jan-13	0.280	0.330	0.77	0.03	48.000	5.000	6.39
Feb-13	0.284	0.300	0.71	0.02	30.000	5.600	6.40
Jul-13	0.427	0.200	0.71	0.02	28.000	11.000	7.90
Sep-13	0.401	0.130	0.43	0.01	54.000	5.000	8.37
Feb-14	0.313	0.270	0.70	0.02	77.000	6.500	7.13
Jul-14	0.280	0.100	0.23	0.01	51.000	11.000	6.20
Aug-14	0.303	0.320	0.81	0.03	68.000	23.000	6.69
Feb-15	0.277	0.810	1.87	0.06	330.000	6.600	7.50
Mar-15	0.246	0.250	0.51	0.02	10.000	72.000	6.24
Jul-15	0.336	1.200	3.36	0.11	67.000	13.000	7.50
Aug-15	0.306	0.190	0.48	0.02	31.000	12.000	6.76
Average	0.327	0.438	1.186	0.040	92.889	12.622	6.939
Maximum	0.427	1.200	3.363	0.112	330.000	72.000	8.370

ConAgra

Month	Monthly Flow Million Gallons	BOD mg/L	TSS mg/L	O&G mg/L	pH
Jan-11	18.966	2300.000	1100.000	320.000	9.81
Jul-11	18.530	1500.000	1200.000	470.000	4.25
Feb-12	16.060	2200.000	1400.000	84.000	4.50
Jan-13	15.310	1300.000	1200.000	41.000	4.12
Jan-16	17.950	1400.000	800.000	22.000	4.40
Aug-14	17.430	2600.000	1500.000	63.000	4.65
Apr-15	16.620	2700.000	1600.000	38.000	
Jul-15	18.28	1900.00	1000.00	51.00	4.21
Aug-15	1.50	14889.00	8400.00	378.30	
Jan-16	20.18	1600.00	850.00	51.00	

Grace

Month	Monthly Flow MG	Cd mg/L	Cd Monthly Loading	Cd Daily Loading	Cr mg/L	Cr Monthly Loading	Cr Daily Loading	Cu mg/L	Cu Monthly Loading	Cu Daily Loading	Cn mg/L	Cn Monthly Loading	Cn Daily Loading	Pb mg/L	Pb Monthly Loading	Pb Daily Loading	Ni mg/L	Ni Monthly Loading	Ni Daily Loading	Ag mg/L	Ag Monthly Loading	Ag Daily Loading	Zn mg/L	Zn Monthly Loading	Zn Daily Loading
May-11	1.340	0.000	0.000	0.000	0.240	1.962	0.065	0.024	0.268	0.009	0.000			0.000			0.460	5.141	0.171	0.000			0.000	0.000	0.000
Nov-11	0.980	0.000	0.000	0.000	15.000	107.711	3.590	0.540	4.414	0.147	0.000			0.000			8.700	71.107	2.370	0.000			0.081	0.662	0.022
Jun-12	0.861	0.000	0.000	0.000	0.330	3.410	0.114	0.032	0.230	0.008	0.000			0.000			0.280	2.011	0.067	0.000			0.120	0.862	0.029
Nov-12	1.239	0.004	0.041	0.001	3.200	26.261	0.875	0.110	1.137	0.038	0.010			0.040	0.413	0.050	0.940	9.713	0.324	0.007	0.072	0.002	0.039	0.403	0.013
May-13	0.984	0.004	0.033	0.001	26.000	223.996	7.467	1.000	8.207	0.274	0.010			0.040	0.328	0.039	12.000	98.479	3.283	0.007	0.057	0.002	0.096	0.788	0.026
Jun-13	1.033	0.000	0.000	0.000	0.600	6.155	0.205	0.041	0.353	0.012	0.000			0.000			0.510	4.394	0.146	0.000			0.010	0.086	0.003
Nov-13	1.230	0.000	0.000	0.000	0.260	2.346	0.078	0.026	0.267	0.009	0.000			0.000			0.160	1.641	0.055	0.000			0.016	0.164	0.005
May-14	1.082	0.000	0.000	0.000	1.000	9.791	0.326	0.100	0.902	0.030	0.000			0.000			0.510	4.602	0.153	0.000			0.044	0.397	0.013
Jun-14	1.174	0.000	0.000	0.000	3.400	49.878	1.663	0.130	1.273	0.042	0.000			0.000			1.200	11.749	0.392	0.000			0.030	0.294	0.010
May-15	1.759	0.000	0.000	0.000	31.000	268.365	8.945	1.300	19.071	0.636	0.000			0.000			0.540	7.922	0.264	0.000			0.077	1.130	0.038
Oct-15	1.038	0.004	0.035	0.001	0.490	0.000	0.000	0.041	0.355	0.012	0.010	0.087	0.003	0.400	3.463	0.115	0.210	1.818	0.061	0.007	0.061	0.002	0.007	0.060	0.002
Average	1.156	0.001	0.010	0.000	7.411	63.625	2.121	0.304	3.316	0.111	0.003	0.087	0.003	0.044	1.401	0.068	2.319	19.871	0.662	0.002	0.063	0.002	0.047	0.440	0.015
Maximum	1.759	0.004	0.041	0.001	31.000	268.365	8.945	1.300	19.071	0.636	0.010	0.087	0.003	0.400	3.463	0.115	12.000	98.479	3.283	0.007	0.072	0.002	0.120	1.130	0.038

Hackney Ladish

Month	Monthly Flow MG	Cr mg/L	Cr Monthly Loading	Cr Daily Loading	Cu mg/L	Cu Monthly Loading	Cu Daily Loading	Cn mg/L	Cn Monthly Loading	Cn Daily Loading	Hg mg/L	Hg Loading Monthly	Hg Loading lbs/day	Zn mg/L	Zinc mg/L	Zinc Loading Daily	Ag mg/L	Ag Loading Monthly	Ag Loading lbs/day	O&G mg/L	TSS mg/L	pH
March-11	0.198	0.002	0.003	0.000	0.046	0.076	0.003	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.235	0.388	0.013	0.311	0.514	0.017	34.500	146.000	7.06
Oct-11	0.166	0.038	0.053	0.002	0.210	0.291	0.010	0.000	0.000	0.000	0.0004	0.0006	0.0000	0.730	1.011	0.034	0.200	0.277	0.009	17.000	800.000	6.820
Dec-11	0.097													0.238	0.193	0.006	0.008	0.006	0.000	4.100	20.000	8.000
Mar-12	0.189													0.064	0.101	0.003	0.060	0.095	0.003	3.200	28.000	7.500
May-12	0.262	0.007	0.015	0.001	0.022	0.048	0.002	0.010	0.022	0.001	0.0002	0.0004	0.0000	0.088	0.192	0.006	0.012	0.026	0.001	29.000	58.000	7.55
Aug-12	0.224	0.012	0.022	0.001	0.043	0.080	0.003	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.170	0.318	0.011	0.033	0.062	0.002	32.000	100.000	7.14
Sep-12	0.17													0.94	1.333	0.044	0.06	0.081	0.003	27.40	1468.00	8.30
Feb-13	0.239	0.008	0.016	0.001	0.340	0.678	0.023	0.010	0.020	0.001	0.0000	0.0000	0.0000	0.360	0.718	0.024	0.580	1.156	0.039	31.000	260.000	6.91
Mar-13	0.216													0.291	0.524	0.017	0.010	0.018	0.001	28.900	222.000	7.50
Sep-16	0.172													0.437	0.627	0.021	0.290	0.416	0.014	25.900	696.000	7.30
Oct-13	0.141	0.007	0.008	0.000	0.020	0.024	0.001	0.010	0.012	0.000	0.0002	0.0002	0.0000	0.110	0.129	0.004	0.0070	0.008	0.000	10.000	280.000	7.48
Feb-14	0.320	0.000	0.000	0.000	0.025	0.067	0.002	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.160	0.427	0.014	0.045	0.120	0.004	64.000	170.000	6.96
Mar-14	0.069													0.210	0.121	0.004	0.030	0.017	0.001	16.700	20.000	8.60
Sep-14	0.079							0.000	0.000	0.000	0.0000	0.0000	0.0000	0.180	0.119	0.004	0.030	0.020	0.001	103.200	188.000	7.61
Mar-15	0.077							0.020	0.013	0.000	0.0540	0.0347	0.0012	0.310	0.199	0.007	0.170	0.109	0.004	100.000	450.000	6.23
Apr-15	0.072													2.490	1.495	0.050	0.150	0.090	0.003	87.000	340.000	8.20
Aug-15	0.187							0.000	0.000	0.000	0.0000	0.0000	0.0000	0.098	0.153	0.005	0.100	0.156	0.005	28.000	72.000	7.06
Average	0.169	0.011	0.017	0.001	0.101	0.180	0.006	0.005	0.007	0.000	0.005	0.004	0.000	0.418	0.473	0.016	0.123	0.187	0.006	37.759	312.824	7.425
Maximum	0.320	0.038	0.053	0.002	0.340	0.678	0.023	0.020	0.022	0.001	0.054	0.035	0.001	2.490	1.495	0.050	0.580	1.156	0.039	103.200	1468.000	8.600

Mahle

Month	Monthly Flow Million Gallons	Zinc mg/L	Zinc Loading Monthly	Zinc Loading lbs/day	Cyanide mg/L	Cn Loading Monthly	Cn Loading lbs/day	Ag mg/L	Ag Loading Monthly	Ag Loading lbs/day	Chromium mg/L	Cr Loading Monthly	Cr Loading lbs/day	Copper mg/L	Cu Loading Monthly	Cu Loading lbs/day	Mercury mg/L	Hg Loading Monthly	Hg Loading lbs/day	TSS mg/L	O&G mg/L	pH
Jan-11	0.172	0.390	0.559	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.440	0.631	0.021	0.120	0.172	0.006	0.000	0.000	0.000	20.000	0.000	6.47
May-11	0.144	0.120	0.144	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.940	1.129	0.038	0.070	0.084	0.003	0.000	0.000	0.000	7.200	0.000	6.70
Sep-11	0.142	0.210	0.249	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1.300	1.540	0.051	0.390	0.462	0.015	0.000	0.000	0.000	26.000	0.000	6.00
Dec-11	0.153	0.100	0.128	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1.800	2.297	0.077	0.520	0.664	0.022	0.000	0.000	0.000	26.000	0.000	7.00
Feb-12	0.154	0.062	0.080	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1.100	1.413	0.047	0.120	0.154	0.005	0.000	0.000	0.000	14.000	5.000	7.06
Jun-12	0.159	0.310	0.411	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.093	0.003	0.830	1.101	0.037	0.000	0.000	0.000	13.000	7.900	7.10
Jul-12	0.152	0.260	0.330	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.268	0.042	0.480	0.608	0.020	0.000	0.000	0.000	6.000	7.200	4.97
Nov-12	0.111	0.046	0.043	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.490	0.454	0.015	0.060	0.056	0.002	0.000	0.000	0.000	5.200	0.000	6.10
Jan-13	0.122	0.350	0.356	0.012	0.010	0.010	0.000	0.000	0.000	0.000	0.900	0.916	0.031	0.480	0.488	0.016	0.000	0.000	0.000	8.200	5.000	4.48
Jul-13	0.074	0.048	0.030	0.001	0.010	0.006	0.000	0.010	0.006	0.000	0.350	0.216	0.007	0.020	0.012	0.000	0.000	0.000	0.000	38.000	0.000	6.90
Aug-13	0.080	0.320	0.214	0.007	0.010	0.007	0.000	0.010	0.007	0.000	0.600	0.400	0.013	0.000	0.000	0.000	0.320	0.214	0.007	23.000	5.000	8.60
Jan-14	0.077	0.049	0.032	0.001	0.010	0.006	0.000	0.010	0.006	0.000	0.330	0.212	0.007	0.020	0.013	0.000	0.000	0.000	0.000	20.000	5.000	6.70
Feb-14	0.724	0.084	0.507	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.500	3.017	0.101	0.110	0.664	0.022	0.000	0.000	0.000	10.000	0.000	9.50
May-14	0.079	0.047	0.031	0.001	0.010	0.007	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		5.000	7.40
Oct-14	0.080	0.085	0.057	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.150	0.100	0.003	0.010	0.007	0.000	0.000	0.000	0.000	8.400	0.000	6.24
Jan-15	0.080	0.059	0.039	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.060	0.002	0.020	0.013	0.000	0.000	0.000	0.000	6.000	0.000	
May-15	0.090	0.037	0.028	0.001		0.000	0.000	0.000	0.000	0.000	3.200	2.402	0.080	0.000	0.000	0.000	0.000	0.000	0.000	80.000	0.000	8.90
Jul-15	0.086	0.240	0.172	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.590	0.423	0.014	0.350	0.251	0.008	0.240	0.172	0.006	20.000	0.000	5.74
Dec-15	0.072	0.770	0.462	0.015	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.090	0.054	0.002	0.020	0.012	0.000	0.000	6.000	0.00
Average	0.119	0.189	0.204	0.007	0.003	0.002	0.000	0.002	0.001	0.000	0.815	0.872	0.029	0.205	0.253	0.008	0.032	0.021	0.001	18.389	2.426	6.44
Maximum	0.724	0.770	0.559	0.019	0.010	0.010	0.000	0.010	0.007	0.000	3.200	3.017	0.101	0.830	1.101	0.037	0.320	0.214	0.007	80.000	7.900	9.50

POM

Month	Monthly Flow Million Gallons	Cd mg/L	Cd Monthly Loading	Cd Daily Loading	Chromiu mg/L	Cr Loading Monthly	Cr Loading lbs/day	Copper mg/L	Cu Loading Monthly	Cu Loading lbs/day	Cyanide mg/L	Cn Loadin Monthly	Cn Loading lbs/day	Pb mg/L	Pb Monthly Loading	Pb Daily Loading	Ni mg/L	Ni Monthly Loading	Ni Daily Loading	Ag mg/L	Ag Loading Monthly	Ag Loadi lbs/day	Zinc mg/L	Zinc Loading Monthly	Zinc Loading lbs/day	O&G mg/L	pH	TSS mg/L
Jun-11	0.033	0.000			0.380	0.105	0.003	0.050	0.014	0.000	0.000			0.000			0.013	0.004	0.000	0.000			0.885	0.244	0.008	0.000		
Oct-11	0.019	0.000			0.130	0.021	0.001	0.046	0.007	0.000	0.000			0.000			0.000			0.000			0.910	0.144	0.005	0.000		
Dec-11	0.015	0.000			0.000	0.000	0.000	0.320	0.040	0.001	0.025	0.003	0.000	0.000			0.000			0.000			0.570	0.071	0.002			
Mar-12	0.002	0.000			1.300	0.022	0.001	0.058	0.001	0.000	0.000			0.000			0.000			0.000			1.700	0.028	0.001			
Apr-12	0.018	0.000			0.570	0.086	0.003	0.015	0.002	0.000	0.000			0.000			0.000			0.000			0.340	0.051	0.002	7.400		
Aug-12	0.001	0.000			0.370	0.003	0.000	0.057	0.000	0.000	0.000			0.000			0.000			0.000			0.550	0.005	0.000	9.600		
Dec-12	0.020	0.000			0.038	0.006	0.000	0.008	0.001	0.000	0.000			0.000			0.000			0.000			0.480	0.080	0.003			
Mar-12	0.016	0.004	0.001		0.720	0.096	0.003	0.075	0.010	0.000	0.014	0.002	0.000	0.040			0.010	0.001	0.000	0.007	0.001	0.000	2.000	0.267	0.009	39.000		
May-12	0.022	0.000			0.200	0.037	0.001	0.007	0.001	0.000	0.000			0.000			0.000			0.000			0.200	0.037	0.001			
Sep-13	0.024	0.000			0.760	0.152	0.005	0.027	0.005	0.000	0.000			0.000			0.000			0.000			0.390	0.078	0.003			
Oct-13	0.016	0.000			0.390	0.052	0.002	0.022	0.003	0.000	0.000			0.000			0.000			0.000			0.690	0.092	0.003	0.000		
Jun-14	0.008	0.000			0.310	0.021	0.001	0.022	0.001	0.000	0.000			0.000			0.000			0.000			0.930	0.062	0.002	0.000		
Sep-14	0.004	0.000			2.100	0.070	0.002	0.089	0.003	0.000	0.000			0.000			0.007			0.000			1.865	0.062	0.002	0.000		
Oct-14	0.013	0.000			0.890	0.096	0.003	0.099	0.011	0.000	0.000			0.000			0.012	0.001	0.000	0.000			0.550	0.060	0.002			
Jun-15	0.002	0.000			1.015	0.017	0.001	0.019	0.000	0.000	0.000			0.000			0.042	0.001	0.000	0.000			0.195	0.003	0.000	0.000		
Average	0.014	0.000	0.001		0.612	0.052	0.002	0.061	0.007	0.000	0.003	0.002		0.003			0.006	0.002	0.000	0.000	0.001		0.817	0.086	0.003	6.222		
Maximum	0.033	0.004	0.001		2.100	0.152	0.005	0.320	0.040	0.001	0.025	0.003		0.040			0.042	0.004	0.000	0.007	0.001		2.000	0.267	0.009	39.000		

Taber

Month	Monthly Flow Million Gallons	Chromium mg/L	Cr Loading Monthly	Cr Loading lbs/day	Cyanide mg/L	Cn Loading Monthly	Cn Loading lbs/day	Zinc mg/L	Zinc Loadir Monthly	Zinc Loadin lbs/day	O&G mg/L
Apr-11	0.189	0.000			0.000			0.140	0.221	0.01	48.080
May-11	0.260	0.000			0.000			0.260	0.564	0.02	5.400
Sep-11	0.372	0.000			0.000			0.220	0.683	0.02	6.600
Oct-11	0.627	0.000			0.000			0.160	0.837	0.03	-
Mar-12	0.646	0.000			0.000			0.280	1.509	0.05	25.000
Apr-12	0.792	0.007	0.046	0.002	0.010	0.066	0.002	0.120	0.793	0.03	4.700
Sep-12	0.539	0.000			0.000			0.230	1.034	0.03	0.000
Oct-12	0.677	0.000			0.000			0.200	1.129	0.04	11.500
Mar-13	0.342	0.007	0.020		0.010			0.250	0.713	0.02	7.500
May-13	0.429	0.000			0.000			0.190	0.680	0.02	16.000
Sep-13	0.444	0.000			0.000			0.190	0.704	0.02	10.000
Nov-13	0.286	0.000			0.000			0.220	0.525	0.02	3.950
Apr-14	0.394	0.000			0.000			0.180	0.591	0.02	0.000
Sep-14	0.380	0.000			0.000			0.210	0.666	0.02	0.000
Oct-14	0.420	0.000			0.000			0.150	0.525	0.02	26.500
Apr-15	0.382	0.000			0.000			0.155	0.494	0.02	5.500
Sep-15	0.411	0.000			0.000			0.380	1.303	0.04	32.000
Oct-15	0.569	0.007	0.033	0.001	0.010	0.047	0.002	0.220	1.044	0.03	17.000
Average	0.453	0.002	0.033	0.001	0.002	0.057	0.002	0.209	0.778	0.026	12.207
Maximum	0.792	0.007	0.046	0.002	0.010	0.066	0.002	0.380	1.509	0.050	48.080

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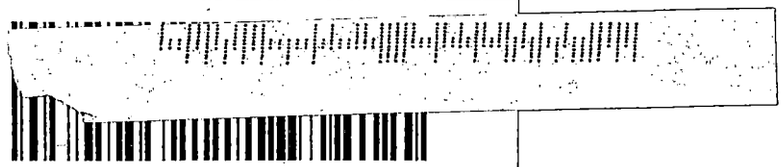

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City Corporation
RW&SS Russellville Water & Sewer System

From

CITY CORPORATION

Russellville Water & Sewer System
P.O. Box 3186 Russellville, AR 72811

To: ADEQ, Office of Water Quality
Attn: Caleb Osborn, Associate Director
5301 North Shore Dr.
North Little Rock, AR 72118-5317