

November 08, 2021

Brad Stewart
Springdale Water Utilities
2910 Silent Grove Road
Springdale, AR 72762

RE: Project: WET TEST
Pace Project No.: 60384163

Dear Brad Stewart:

Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - SE Kansas

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jeffrey Shopper
jeff.shopper@pacelabs.com
1(913)563-1408
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: WET TEST
Pace Project No.: 60384163

Pace Analytical Services Southeast Kansas

808 West McKay, Frontenac, KS 66763
Arkansas Certification #: 18-016-0
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10426

Louisiana Certification #: 03055
Oklahoma Certification #: 9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: WET TEST
Pace Project No.: 60384163

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60384163001	SWWTF EFFLUENT	Water	10/25/21 08:00	10/26/21 08:00

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SAMPLE ANALYTE COUNT

Project: WET TEST
Pace Project No.: 60384163

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60384163001	SWWTF EFFLUENT	EPA 821/R-02/013	MEB	1	PASI-SE

PASI-SE = Pace Analytical Services - SE Kansas

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ANALYTICAL RESULTS

Project: WET TEST
Pace Project No.: 60384163

Sample: SWWTF EFFLUENT		Lab ID: 60384163001	Collected: 10/25/21 08:00	Received: 10/26/21 08:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Chronic Toxicity								
Analytical Method: EPA 821/R-02/013 Pace Analytical Services - SE Kansas								
Toxicity, Chronic	Complete		1.0	1		10/26/21 13:30		

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: WET TEST
Pace Project No.: 60384163

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WET TEST
Pace Project No.: 60384163

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60384163001	SWWTF EFFLUENT	EPA 821/R-02/013	753970		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 60384163



Client Name: Springdale

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-243 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3.0 Corr. Factor -1.1 Corrected 1.9

Date and initials of person examining contents:
TS 800 10/26/21

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jeffrey Shopper

Date: _____



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
 Required Client Information:
 Company: SPRINGDALE WASTE UTILITIES
 Address: 2910 SILENT BROOK RD
 Email To: bsbrown@springdalewater.com
 Phone: 479-782-3651 Fax:
 Requested Due Date (A/T):

Section B
 Required Project Information:
 Report To: BRAD SELWART
 Copy To:
 Purchase Order No.:
 Project Name: WET TEST
 Project Number:

Section C
 Invoice Information:
 Attention:
 Company Name:
 Address:
 Pace Quote Reference:
 Pace Project Manager:
 Pace Profile #:

Page: of
2269918

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location
 STATE:

ITEM #	Section D Required Client Information	Section E Matrix Codes MATRIX / CODE Drinking Water DW Water WW Waste Water P Product SL Soil/Solid OL Oil WP Air AR Tissue TS Other OT	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives HCl HNO ₃ H ₂ SO ₄ Unpreserved	Y/N	Requested Analysis Filtered (Y/N)
			COMPOSITE START DATE TIME	COMPOSITE END/GRAB DATE TIME							
1	SAMPLE ID (A-Z, 0-9 / . / -) Sample IDs MUST BE UNIQUE				WW C	10/24/21 0800	10/25/21 0840	4°	1	X	Chronic WET TEST
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

ADDITIONAL COMMENTS
 Cl₂ = 0.00 mg/L
 NH₃ = 0.10 mg/L
 pH = 7.51

RELINQUISHED BY / AFFILIATION
 DATE TIME
 10/25/21 1445
 Stephanie K

ACCEPTED BY / AFFILIATION
 DATE TIME
 10/26/21 800
 Yufeng Zeng

SAMPLE CONDITIONS
 Received on Ice (Y/N)
 Custody (Y/N)
 Sealed Cooler (Y/N)
 Samples Intact (Y/N)

Temp in °C
 1.9

Pace Project No./ Lab I.D.
 60384163
 Pace Project No. 10/25/21

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: STEPHANIE KISSACK
 SIGNATURE of SAMPLER: *Stephanie Kissack*
 DATE Signed (MM/DD/YY): 10/25/21

ORIGINAL

REFERENCE #60384163

**CHRONIC TOXICITY TEST FOR
SPRINGDALE WATER UTILITIES**

PERMIT # AR 0022063
AFIN # 72-00003

PERFORMED ON:

Pimephales promelas

and

Ceriodaphnia dubia

PREPARED FOR:

SPRINGDALE WATER UTILITIES
2910 Silent Grove Road
Springdale, AR 72762
479-756-3657

PREPARED BY:
Pace Analytical Services, Inc.
808 West McKay
Frontenac, KS 66763
1-620-235-0003

November 4, 2021

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SUMMARY

A Chronic Whole Effluent Toxicity Test using the 7-day chronic fathead minnows (*Pimephales promelas*), static renewal larval survival and growth test, and three brood 7-day chronic Cladoceran (*Ceriodaphnia dubia*), static renewal survival and reproduction test, was conducted on effluent discharge water collected at the SPRINGDALE WATER UTILITIES effluent discharge from October 25, 2021 to October 29, 2021. All the test methods followed are as listed in EPA 821-R-02-013, "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms."

Statistically significant ($p < 0.05$) mortality is determined by Dunnet's procedure using average percent survival of each test concentration versus the average survival of the controls. If significant mortality occurs, median lethal concentrations are calculated using effluent concentrations and their corresponding percent mortality data. The 95% confidence intervals are calculated where appropriate by the Spearman-Kärber method. Statistical analysis is accomplished by following steps in EPA 821-R-02-013, November 2002 and by use of Toxstat version 3.4.

In minnow section of testing, it was observed that the effluent had no significant effect on the survival of the larvae at the 97% concentration. No significant mortality was observed in the other effluent concentrations after the 7-day exposure period. The No Observed Effect Concentration (NOEC) was determined to be 97% for survival. No significant reduction in growth was observed in the 97% effluent concentration. The Toxic Units is < 1.03 . The IC₂₅ is > 97 . The NOEC for growth in effluent was determined to be 97%. The PMSD is 15.1.

In Cladoceran section of testing, it was observed that the effluent had no significant effect on the survival of the organisms in the 97% effluent concentration. No significant mortality was observed in the other effluent concentrations after the 7-day exposure period. The No Observed Effect Concentration (NOEC) was determined to be 97% for survival. No significant reduction in reproduction was observed in the 97% effluent concentrations. The Toxic Units is < 1.03 . The IC₂₅ is > 97 . The NOEC for reproduction in effluent was determined to be 97%. The PMSD is 15.2.

The chronic toxicity exhibited by the fathead minnows and the *Ceriodaphnia* treated by the effluent sampled from October 25 to October 29 from the SPRINGDALE WATER UTILITIES effluent discharge, is acceptable as described in EPA 821-R-02-013.

INTRODUCTION

Pace Analytical was contracted to perform this chronic toxicity test on effluent from the SPRINGDALE WATER UTILITIES effluent discharge. Chronic toxicity was measured using the Pimephales promelas at larval for survival and growth test and the Ceriodaphnia dubia survival and reproduction test described in EPA 821-R-02-013, "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms." The raw data of the study is stored at Pace Analytical Services, INC. 808 West McKay, Frontenac, KS 66763.

TEST MATERIAL

SPRINGDALE WATER UTILITIES personnel collected sampling of the effluent. A sample of the effluent was delivered to Pace by commercial carrier on 10-26-21. Subsequent samples followed by delivery on 10-28-21, and on 10-29-21. All samples were stored at $\leq 6^{\circ}$ Celsius. Moderately Hard Synthetic Water was used as a control and also to make the required dilutions in the test as described in EPA 821-R-02-013.

TEST METHODS

Pace used EPA test method 1000.0 for conducting the Fathead Minnow, Pimephales promelas, Larval Survival and Growth Test. EPA test method 1002.0 was used for conducting the Cladoceran, Ceriodaphnia dubia, Survival and Reproduction Test. The tests were conducted to estimate the NOEC, and LOEC for survival, growth, and reproduction of these test species.

The Pimephales and Ceriodaphnia tests were initiated on 10-26-21 and carried out until 11-2-21. The Pimephales tests were conducted in 500 ml plastic jars with 250 ml of test solution. Ten larvae were placed in each of at least 5 replicates to make a total of 50 larvae per sample concentration. The Ceriodaphnia tests were carried out in 35ml vials containing 25 ml of test solution. One Neonate was placed in each of 10 replicates to make a total of 10 neonates per sample concentration.

TEST ORGANISMS

Organisms used in these tests were cultured at Pace under controlled temperature and photo period conditions and/or were purchased from an external supplier. Pace maintains records of culture techniques for all organisms, whether produced in house or purchased.

Results

TABLE 1

Permittee: SPRINGDALE WATER UTILITIES. Effluent discharge.

Date Sampled	No. 1: 10-25-21	8:00
	No. 2: 10-27-21	8:00
	No. 3: 10-29-21	8:00

Test Initiated: 13:30	Date: 10-26-21
Test End: 13:10	Date: 11-2-21

Critical Dilution:	97%
Ceriodaphnia dubia	Results
TLP3B	0
TGP3B	0
TOP3B	97
TPP3B	97
TQP3B	21.08
Pimephales promelas	Results
TLP6C	0
TGP6C	0
TOP6C	97
TPP6C	97
TQP6C	11.04

Dilution Water used: Moderately Hard Synthetic Water

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL
(Pimephales promelas)

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concentration (%)	Average Dry Weight in Milligrams in Replicate Chambers					Mean Dry Weight (mg)	CV% *
	A	B	C	D	E		
Control 0%	0.488	0.450	0.499	0.486	0.509	0.486	4.59
Dilution 1 31%	0.609	0.501	0.525	0.598	0.544	0.555	8.40
Dilution 2 41%	0.482	0.437	0.551	0.601	0.513	0.517	12.18
Dilution 3 55%	0.520	0.535	0.591	0.501	0.492	0.528	7.40
Dilution 4 73%	0.605	0.482	0.509	0.583	0.497	0.535	10.29
Dilution 5 97%	0.519	0.565	0.422	0.558	0.523	0.517	11.04

* Coefficient of Variation = Standard Deviation X 100 / Mean

FATHEAD MINNOW SURVIVAL

Conc. %	Percent Survival in Replicate Chambers					Mean Percent Survival			CV %
	A	B	C	D	E	24hr	48hr	7 day	
Control 0%	100	90	100	100	100	100	100	98	5.28
Dilution 1 31%	100	100	100	100	100	100	100	100	0.00
Dilution 2 41%	100	90	100	100	100	100	100	98	5.28
Dilution 3 55%	100	100	100	100	100	100	100	100	0.00
Dilution 4 73%	100	100	100	100	100	100	100	100	0.00
Dilution 5 97%	100	100	90	100	100	100	100	98	5.28

REFERENCE #60384163

Permittee: SPRINGDALE WATER UTILITIES. Effluent discharge.

CERIODAPHNIA SURVIVAL AND REPRODUCTION

DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

Replicate	Control 0%	Dilution 1 31%	Dilution 2 41%	Dilution 3 55%	Dilution 4 73%	Dilution 5 97%
1	25	25	23	25	24	18
2	23	27	26	27	27	29
3	26	22	18	22	30	17
4	24	23	23	24	21	21
5	26	24	26	27	29	25
6	26	25	22	19	22	26
7	18	22	22	23	24	19
8	23	26	18	30	29	28
9	20	28	30	21	28	30
10	27	22	26	24	24	30
Mean	23.8	24.4	23.4	24.2	25.8	24.3
SD	2.898	2.171	3.748	3.225	3.190	5.122
CV %	12.18	8.92	16.02	13.33	12.37	21.08

CERIODAPHNIA MEAN PERCENT SURVIVAL

Percent Effluent (%)						
Time Elapsed	Control 0%	Dilution 1 31%	Dilution 2 41%	Dilution 3 55%	Dilution 4 73%	Dilution 5 97%
24 hrs	100	100	100	100	100	100
48 hrs	100	100	100	100	100	100
7-day	100	100	100	100	100	100
SD	0.0	0.0	0.0	0.0	0.0	0.0
CV %	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 2

**SUMMARY OF TEST CONDITIONS FOR THE FATHEAD MINNOW
(*Pimephales promelas*) LARVAL SURVIVAL AND GROWTH TEST**

1. Test type	Static renewal
2. Temperature	25 degrees Celsius
3. Light quality	Ambient laboratory light
4. Light intensity	Ambient laboratory levels
5. Photoperiod	16 hr light, 8 hr dark
6. Test chamber size	500 ml
7. Test solution volume	250 ml
8. Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
10. No. larvae/chamber	10
11. No. replicates/concentration	5
12. No. larvae/concentration	50
13. Feeding regime	Feed 0.15 g newly hatched brine shrimp nauplii two times daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
15. Aeration	None
16. Dilution Water	Moderately Hard Synthetic Water prepared with MILLI-Q deionized water and reagent grade chemicals
17. Effluent concentrations	0%, 31%, 41%, 55%, 73%, 97%
18. Test duration	7 days
19. Endpoints	Survival and growth
20. Test acceptability	80% or greater survival in the controls, Average dry weight in controls >0.25 mg, Coefficient of variation in the control must not exceed 40%.

TABLE 2 (CONT.)
SUMMARY OF TEST CONDITIONS FOR THE CLADOCERAN
(*Ceriodaphnia dubia*) SURVIVAL AND REPRODUCTION TEST

1. Test type	Static renewal
2. Temperature	25 degrees Celsius
3. Light quality	Ambient laboratory light
4. Light intensity	Ambient laboratory levels
5. Photoperiod	16 hr light, 8 hr dark
6. Test chamber size	30 ml
7. Test solution volume	25 ml
8. Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
10. No. larvae/chamber	1
11. No. replicates/concentration	10
12. No. larvae/concentration	10
13. Feeding regime	Feed 0.1 ml YCT and 0.1 ml of Algae daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
15. Aeration	None
16. Dilution Water	Moderately Hard Synthetic Water prepared with MILLI-Q deionized water and reagent grade chemicals
17. Effluent concentrations	0%, 31%, 41%, 55%, 73%, 97%
18. Test duration	Until 60% or more surviving control females have three broods or a maximum of 8 days.
19. Endpoints	Survival and Reproduction
20. Test acceptability	80% or greater survival in the controls, Average reproduction rate of 15 young / adult. Coefficient of variation in the control must not exceed 40%.

TABLE 2 (SECTION 2)

BIOMONITORING CHRONIC TOXICITY REPORT
FATHEAD MINNOW (Pimephales promelas)
CHEMICAL PARAMETERS CHART

Permittee: SPRINGDALE WATER UTILITIES Effluent discharge.

ANALYSTS: Pace Analytical Services, Inc.
Timothy Harrell
Mike Bollin

TABLE 2 (SECTION 2)
INITIAL WATER QUALITY
EFFLUENT CONCENTRATION

	Control	100%
PH	7.6	7.7
D.O.	8.0	8.5
Temp	25.0	25.0
Alk	64	100
Hard	86	156
Cond	326	832
Chlorine	<0.1	<0.1

* D.O. is reported as mg/L
Alkalinity is reported as mg/L CaCO₃
Hardness is reported as mg/L CaCO₃
Conductance is reported as umhos
Chlorine is reported as mg/L

TEST WATER QUALITY

24-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.4	7.4	24.7
31% Effluent	7.4	7.4	24.7
41% Effluent	7.4	7.4	24.7
55% Effluent	7.4	7.4	24.7
73% Effluent	7.5	7.3	24.7
97% Effluent	7.6	7.2	24.7

48-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.6	7.4	24.7
31% Effluent	7.6	7.4	24.7
41% Effluent	7.6	7.4	24.7
55% Effluent	7.6	7.4	24.7
73% Effluent	7.6	7.4	24.7
97% Effluent	7.7	7.4	24.7

FINAL WATER QUALITY

EFFLUENT CONCENTRATION

	Control	97%
pH	7.7	7.5
D.O.	6.8	6.9
Temp	25.1	25.1
Alk	60	102
Hard	90	160
Cond	348	898

- * D.O. is reported as mg/L
- Alkalinity is reported as mg/L CaCO₃
- Hardness is reported as mg/L CaCO₃
- Conductance is reported as umhos

TEST VALIDITY

The Pimephales promelas control survival rate was 98.0. The mean dry weight (growth) of the Pimephales promelas was determined at 0.486 g/organism in the controls. The percent coefficient of variation (%CV) values for the fathead minnow control for survival and growth were 5.28 and 4.59. The Ceriodaphnia dubia survival rates were 100 in the control. The Ceriodaphnia in the control produced an average of 23.8 young over the seven-day exposure period. Percent CV values for Ceriodaphnia dubia control survival and reproduction was 0.00 and 12.18. Control data met or exceeded all criteria set out by EPA 821-R-02-013 for test acceptance.

REFERENCE TOXICANTS

The absence of significant control mortality during this test indicated the health of the organisms and indicated that any significant mortality in the test concentrations was not due to contaminants or variations in testing conditions.

Reference toxicity testing is routinely performed by staff members in our biomonitoring - bioassay laboratory.

Start: 10/19/21 11:00 End: 10/26/21 11:20

Reference Toxicant (NaCl) Pimephales promelas

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
10 g/l	40	7	2	0
8 g/l	40	36	23	5
6 g/l	40	40	38	25
4 g/l	40	40	40	38
2 g/l	40	40	40	40

IC25 (4.85 g/l Sodium Chloride)

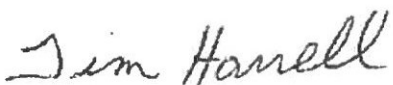
Survival NOEC: 4.0 g/l

Reference Toxicant (NaCl) Ceriodaphnia Dubia

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
2.5 g/l	10	7	3	0
2.0 g/l	10	10	8	2
1.5 g/l	10	10	10	9
1.0 g/l	10	10	10	10
0.5 g/l	10	10	10	10

IC25 (1.14 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

Submitted By: 
 Timothy Harrell
 Technical Director

60384163 Sprigdale FATHEAD SURVIVAL
File: 6384163A Transform: ARC SINE(SQUARE ROOT(Y))

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	2.010	7.260	11.460	7.260	2.010
OBSERVED	3	0	27	0	0

Calculated Chi-Square goodness of fit test statistic = 38.0902
Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

60384163 Sprigdale FATHEAD SURVIVAL
File: 6384163A Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's test for normality

D = 0.064

W = 0.597

Critical W (P = 0.05) (n = 30) = 0.927
Critical W (P = 0.01) (n = 30) = 0.900

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

60384163 Sprigdale FATHEAD SURVIVAL

File: 6384163A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	1.249	1.412	1.379
2	31%	5	1.412	1.412	1.412
3	41%	5	1.249	1.412	1.379
4	55%	5	1.412	1.412	1.412
5	73%	5	1.412	1.412	1.412
6	97%	5	1.249	1.412	1.379

60384163 Sprigdale FATHEAD SURVIVAL

File: 6384163A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.005	0.073	0.033	5.28
2	31%	0.000	0.000	0.000	0.00
3	41%	0.005	0.073	0.033	5.28
4	55%	0.000	0.000	0.000	0.00
5	73%	0.000	0.000	0.000	0.00
6	97%	0.005	0.073	0.033	5.28

60384163 Sprigdale FATHEAD SURVIVAL

File: 6384163A Transform: ARC SINE(SQUARE ROOT(Y))

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.008	0.002	0.600
Within (Error)	24	0.064	0.003	
Total	29	0.072		

Critical F value = 2.62 (0.05,5,24)

Since $F < \text{Critical } F$ FAIL TO REJECT H_0 : All equal

60384163 Sprigdale FATHEAD SURVIVAL

File: 6384163A Transform: ARC SINE(SQUARE ROOT(Y))

DUNNETT'S TEST - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	1.379	0.980		
2	31%	1.412	1.000	-1.000	
3	41%	1.379	0.980	0.000	
4	55%	1.412	1.000	-1.000	
5	73%	1.412	1.000	-1.000	
6	97%	1.379	0.980	0.000	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

60384163 Sprigdale FATHEAD SURVIVAL

File: 6384163A

Transform: ARC SINE(SQUARE ROOT(Y))

DUNNETT'S TEST - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	5			
2	31%	5	0.034	3.5	-0.020
3	41%	5	0.034	3.5	0.000
4	55%	5	0.034	3.5	-0.020
5	73%	5	0.034	3.5	-0.020
6	97%	5	0.034	3.5	0.000

60384163 Springdale FATHEAD GROWTH
File: 6384163B Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.058

W = 0.979

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data PASS normality test at P=0.01 level. Continue analysis.

60384163 Springdale FATHEAD GROWTH
File: 6384163B Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 4.02

Table Chi-square value = 15.09 (alpha = 0.01, df = 5)

Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

60384163 Springdale FATHEAD GROWTH
 File: 6384163B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	0.450	0.509	0.486
2	31%	5	0.501	0.609	0.555
3	41%	5	0.437	0.601	0.517
4	55%	5	0.492	0.591	0.528
5	73%	5	0.482	0.605	0.535
6	97%	5	0.422	0.565	0.517

60384163 Springdale FATHEAD GROWTH
 File: 6384163B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.000	0.022	0.010	4.59
2	31%	0.002	0.047	0.021	8.40
3	41%	0.004	0.063	0.028	12.18
4	55%	0.002	0.039	0.017	7.40
5	73%	0.003	0.055	0.025	10.29
6	97%	0.003	0.057	0.026	11.04

60384163 Springdale FATHEAD GROWTH
 File: 6384163B Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.013	0.003	1.092
Within (Error)	24	0.058	0.002	
Total	29	0.071		

Critical F value = 2.62 (0.05,5,24)
 Since $F < \text{Critical } F$ FAIL TO REJECT H_0 : All equal

60384163 Springdale FATHEAD GROWTH
 File: 6384163B Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	0.486	0.486		
2	31%	0.555	0.555	-2.222	
3	41%	0.517	0.517	-0.979	
4	55%	0.528	0.528	-1.333	
5	73%	0.535	0.535	-1.572	
6	97%	0.517	0.517	-0.998	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

60384163 Springdale FATHEAD GROWTH

File: 6384163B Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	5			
2	31%	5	0.073	15.1	-0.069
3	41%	5	0.073	15.1	-0.030
4	55%	5	0.073	15.1	-0.041
5	73%	5	0.073	15.1	-0.049
6	97%	5	0.073	15.1	-0.031

FISHER'S EXACT TEST

IDENTIFICATION	NUMBER OF		
	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
31%	10	0	10
TOTAL	20	0	20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10.
 Since b is greater than 6 there is no significant difference
 between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

IDENTIFICATION	NUMBER OF		
	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
41%	10	0	10
TOTAL	20	0	20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10.
 Since b is greater than 6 there is no significant difference
 between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

IDENTIFICATION	NUMBER OF		
	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
55%	10	0	10

TOTAL 20 0 20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10.
 Since b is greater than 6 there is no significant difference
 between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

IDENTIFICATION	NUMBER OF		
	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
73%	10	0	10
TOTAL	20	0	20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10.
 Since b is greater than 6 there is no significant difference
 between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

IDENTIFICATION	NUMBER OF		
	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
97%	10	0	10
TOTAL	20	0	20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10.
 Since b is greater than 6 there is no significant difference
 between CONTROL and TREATMENT at the 0.05 level.

SUMMARY OF FISHER'S EXACT TESTS

NUMBER NUMBER SIG

GROUP	IDENTIFICATION	EXPOSED	DEAD	(P= .05)
	CONTROL	10	0	
1	31%	10	0	
2	41%	10	0	
3	55%	10	0	
4	73%	10	0	
5	97%	10	0	

60384163 Springdale CERIODAPHNIA DUBIA SUR
File: 6384163D Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	10	1.000	1.000	1.000
2	31%	10	1.000	1.000	1.000
3	41%	10	1.000	1.000	1.000
4	55%	10	1.000	1.000	1.000
5	73%	10	1.000	1.000	1.000
6	97%	10	1.000	1.000	1.000

60384163 Springdale CERIODAPHNIA DUBIA SUR
File: 6384163D Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.000	0.000	0.000	0.00
2	31%	0.000	0.000	0.000	0.00
3	41%	0.000	0.000	0.000	0.00
4	55%	0.000	0.000	0.000	0.00
5	73%	0.000	0.000	0.000	0.00
6	97%	0.000	0.000	0.000	0.00

60384163 Springdale CERIODAPHNIA DUBIA REP
File: 6384163E Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	4.020	14.520	22.920	14.520	4.020
OBSERVED	3	17	18	19	3

Calculated Chi-Square goodness of fit test statistic = 3.3796
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

60384163 Springdale CERIODAPHNIA DUBIA REP
File: 6384163E Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 7.09

Table Chi-square value = 15.09 (alpha = 0.01, df = 5)
Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

60384163 Springdale CERIODAPHNIA DUBIA REP
 File: 6384163E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	10	18.000	27.000	23.800
2	31%	10	22.000	28.000	24.400
3	41%	10	18.000	30.000	23.400
4	55%	10	19.000	30.000	24.200
5	73%	10	21.000	30.000	25.800
6	97%	10	17.000	30.000	24.300

60384163 Springdale CERIODAPHNIA DUBIA REP
 File: 6384163E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	8.400	2.898	0.917	12.18
2	31%	4.711	2.171	0.686	8.90
3	41%	14.044	3.748	1.185	16.02
4	55%	10.400	3.225	1.020	13.33
5	73%	10.178	3.190	1.009	12.37
6	97%	26.233	5.122	1.620	21.08

60384163 Springdale CERIODAPHNIA DUBIA REP
 File: 6384163E Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	33.283	6.657	0.540
Within (Error)	54	665.700	12.328	
Total	59	698.983		

Critical F value = 2.45 (0.05,5,40)
 Since $F < \text{Critical } F$ FAIL TO REJECT H_0 : All equal

60384163 Springdale CERIODAPHNIA DUBIA REP
 File: 6384163E Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	23.800	23.800		
2	31%	24.400	24.400	-0.382	
3	41%	23.400	23.400	0.255	
4	55%	24.200	24.200	-0.255	
5	73%	25.800	25.800	-1.274	
6	97%	24.300	24.300	-0.318	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, df=40,5)

60384163 Springdale CERIODAPHNIA DUBIA REP
 File: 6384163E Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	10			
2	31%	10	3.627	15.2	-0.600
3	41%	10	3.627	15.2	0.400
4	55%	10	3.627	15.2	-0.400
5	73%	10	3.627	15.2	-2.000
6	97%	10	3.627	15.2	-0.500

Conc. ID	1	2	3	4	5	6
Conc. Tested	0	31	41	55	73	97
Response 1	.488	.609	.482	.520	.605	.519
Response 2	.450	.501	.437	.535	.482	.565
Response 3	.499	.525	.551	.591	.509	.422
Response 4	.486	.598	.601	.501	.583	.558
Response 5	.509	.544	.513	.492	.497	.523

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Springdale

Test Start Date: 10/26/21 Test Ending Date: 11/2/21

Test Species: Fatheads

Test Duration: 7 Days

DATA FILE:

Conc. ID	Number Replicates	Concentration %	Response Means	Std. Dev.	Pooled Response Means
1	5	0.000	0.486	0.022	0.524
2	5	31.000	0.555	0.047	0.524
3	5	41.000	0.517	0.063	0.524
4	5	55.000	0.528	0.039	0.524
5	5	73.000	0.535	0.055	0.524
6	5	97.000	0.517	0.057	0.517

*** No Linear Interpolation Estimate can be calculated from the input data since none of the (possibly pooled) group response means were less than 75% of the control response mean.

Conc. ID	1	2	3	4	5	6
Conc. Tested	0	31	41	55	73	97
Response 1	25	25	23	25	24	18
Response 2	23	27	26	27	27	29
Response 3	26	22	18	22	30	17
Response 4	24	23	23	24	21	21
Response 5	26	24	26	27	29	25
Response 6	26	25	22	19	22	26
Response 7	18	22	22	23	24	19
Response 8	23	26	18	30	29	28
Response 9	20	28	30	21	28	30
Response 10	27	22	26	24	24	30

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Springdale

Test Start Date: 10/26/21 Test Ending Date: 11/2/21

Test Species: C dubia

Test Duration: 7 Days

DATA FILE:

Conc. ID	Number Replicates	Concentration %	Response Means	Std. Dev.	Pooled Response Means
1	10	0.000	23.800	2.898	24.320
2	10	31.000	24.400	2.171	24.320
3	10	41.000	23.400	3.748	24.320
4	10	55.000	24.200	3.225	24.320
5	10	73.000	25.800	3.190	24.320
6	10	97.000	24.300	5.122	24.300

*** No Linear Interpolation Estimate can be calculated from the input data since none of the (possibly pooled) group response means were less than 75% of the control response mean.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: SPRINGDALE WATER UTILITIES	Report To: BRAD STEWART	Attention:
Address: 2910 SILENT GROVE RD	Copy To:	Company Name:
SPRINGDALE, AR 72762	Purchase Order No.:	Address:
Email To: bstewart@springdalewater.org	Project Name: WET TEST	Pace Order Reference:
Phone: 479-792-3657 Fax:	Project Number:	Pace Project Manager:
Requested Due Date/TAT:		Pace Profile #:

Page: **2269918** of

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER

UST RCRA OTHER

Site Location STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB								
1	Sewage Effluent	WW	10/24/21 0800	10/25/21 0800	4°	WW C	Unpreserved	X				60384163
2												GRUB001
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Cl ₂ : 0.00 mg/L NH ₃ : 0.10 mg/L pH: 7.51	Stephanie Kissack	10/25/21	1445	Tiffany Jones	10/26/21	800	Y Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **STEPHANIE KISSACK**

SIGNATURE of SAMPLER: *Stephanie Kissack*

DATE Signed (MM/DD/YYYY): **10/25/21**

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)



CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Billing Information:

Company: **Springdale Water Utilities**
 Address: **2910 Silent Grove Rd.**
 Report To: **Brad Stewart**
 Email: **bstewart@springdalewater.com**
 Site Collection Info/Address: **Springdale Water, AR, 72762**

Customer Project Name/Number: **Wet test**
 State: **AR** County/City: **Springdale** Time Zone Collected: **ET**
 Phone: **(479) 756-3657**
 Email: **Travis Platkowski**
 Site/Facility ID #: **[]**
 Purchased By (print): **Travis Platkowski**
 Quote #: **[]**
 Turnaround Date Required: **[]**
 Rush: **[]** Same Day **[]** Next Day **[]** 2 Day **[]** 3 Day **[]** 4 Day **[]** 5 Day
 (Expedite Charges Apply)
 Sample Disposal: **[]** Dispose as appropriate **[]** Return **[]** Hold
 Analysis: **[]** Yes **[]** No

* Matrix Codes (insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End	Res Cl	# of Ctns
			Date	Time			
SWWTF EFFLUENT	WW	C	10/26/21	0800	10/27/21 0800	NO	1

Customer Remarks / Special Conditions / Possible Hazards:
Alk - 66mg/L NH3 - 0.10mg/L PH - 7.31 s.u. Cl2 - 0.00mg/L

Relinquished by/Company: (Signature) **[Signature]** Date/Time: **10/27/21 1351**
 Relinquished by/Company: (Signature) **[Signature]** Date/Time: **10/27/21 1351**
 Relinquished by/Company: (Signature) **[Signature]** Date/Time: **10/27/21 1351**

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/Line:
 Lab Sample Receipt Checklist:
 Custody Seals Present/Intact Y N NA
 Custody Signatures Present Y N NA
 Collector Signature Present Y N NA
 Bottles Intact Y N NA
 Correct Bottles Y N NA
 Sufficient Volume Y N NA
 Samples Received on Ice Y N NA
 VOA - Headspace Acceptable Y N NA
 USDA Regulated Soils Y N NA
 Samples in Holding Time Y N NA
 Residual Chlorine Present Y N NA
 Cl Strips: Y N NA
 Sample pH Acceptable Y N NA
 pH Strips: Y N NA
 Sulfide Present Y N NA
 Lead Acetate Strips: Y N NA
 LAB USE ONLY:
 Lab Sample # / Comments:

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #: **2492081**
 Samples received via: FEDEX UPS Client Courier Pace Courier
 Date/Time: **10/27/21 800**
 Date/Time: **10/27/21 800**
 Date/Time: **10/27/21 800**
 Date/Time: **10/27/21 800**

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: **2492081**
 Cooler 1 Temp Upon Receipt: **0C**
 Cooler 1 Therm Corr. Factor: **0C**
 Cooler 1 Corrected Temp: **0C**
 Comments:
 Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): YES / NO
 Page: of: 42



Sample Condition Upon Receipt

Client Name: Springdale
 Courier: FedEx UPS WIA Clay PEX ECI Pace Xroads Client Other
 Tracking #: _____ Pace Shipping Label Used? Yes No
 Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No
 Packing Material: Bubble Wrap Bubble Bags Foam None Other
 Thermometer Used: T-243 Type of Ice: Wet Blue None
 Cooler Temperature (°C): As-read 2.9 Corr. Factor -1.1 Corrected 1.8
 Temperature should be above freezing to 6°C

Date and initials of person examining contents:
MB 10/28/21
800

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9, Sulfide, NaOH>10 Cyanide) Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Strip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Pace Analytical
 Company:
 5700 S. UNIVERSITY BLVD, SUITE 100
 DALLAS, TX 75243

Report To: **AD STEWART** 77262
 Address: **2314 STREET CROSS RD, SPRINGDALE AR**
 Billing Information:
 Email To: **AD STEWART**
 Site Collection Info/Address:

Customer Project Name/Number: **Chromic COLT TEST**
 Phone: 479 796 3657
 State: **AR** County/City:
 Site/Facility ID #: **77262**
 Compliance Monitoring?
 [] Yes [] No
 DW PWS ID #:
 DW Location Code:
 Immediately Packed on Ice:
 [] Yes [] No
 Field Filtered (if applicable):
 [] Yes [] No
 Analysis:
 [] Same Day [] Next Day
 [] 2 Day [] 3 Day [] 4 Day [] 5 Day
 (Expedite Charges Apply)

Sample Disposal:
 [] Dispose as appropriate [] Return
 [] Archive: _____
 [] Hold: _____
 * Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Collected for Composite Start		Composite End	Res Cl	# of Ctns
		Date	Time			
SUBSTR EFFLUENT	GLW	12/29/11	0800	12/29/11 0800	NA	1

Customer Remarks / Special Conditions / Possible Hazards:
PH-7.1350 AIR 54 mg/L
NH3 0.10 mg/L Cl2 0.00 mg/L

Relinquished by/Company: (Signature)
Paul Phillips
 Date/Time: 12/29/11 10:05
 Relinquished by/Company: (Signature)
 Date/Time:
 Relinquished by/Company: (Signature)
 Date/Time:

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or
 MTJL Log-in Number Here **693**

Container Preservative Type **
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate,
 (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate,
 (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

ALL SHADED AREAS are for LAB USE ONLY

Analyses	Lab Sample	Receipt	CheckList:
Chromic COLT TEST			Custody Seals Present/Intact Y N NA
			Custody Signatures Present Y N NA
			Collector Signatures Present Y N NA
			Bottles Intact Y N NA
			Correct Bottles Y N NA
			Sufficient Volume Y N NA
			Samples Received on Ice Y N NA
			VOA - Headspace Acceptable Y N NA
			USDA Regulated Soils Y N NA
			Samples in Holding Time Y N NA
			Residual Chlorine Present Y N NA
			CI Strips: Y N NA
			Sample pH Acceptable Y N NA
			pH Strips: Y N NA
		Sulfide Present Y N NA	
		Lead Acetate Strips: _____	
		LAB USE ONLY: Lab Sample # / Comments:	

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: ____oC
 Cooler 1 Therm Corr. Factor: ____oC
 Cooler 1 Corrected Temp: ____oC
 Comments:
 Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): YES / NO
 Page: _____ of: _____



Sample Condition Upon Receipt

Leg 3

Client Name:

TS 10/29/21
~~TS~~ Springdale

Courier: FedEx UPS VIA Clay PEX ECI Pace Xroads Client Other

Tracking #: _____ Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-243 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 3.0 Corr. Factor -1.1 Corrected 1.9

Date and initials of person examining contents: TS

10/29/21 1450

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____