Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

September 04, 2019

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

RE: Project: WET TEST
Pace Project No.: 60312256

Dear Brad Stewart:
Enclosed are the analytical results for sample(s) received by the laboratory on August 20, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: WET TEST
Pace Project No.: 60312256

Southeast Kansas Certification IDs

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

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Lenexa, KS 66219
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SAMPLE SUMMARY

Project: WET TEST
Pace Project No.: 60312256

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60312256001	**SWWTF EFFLUENT**	Water	08/19/19 08:00	08/20/19 08:00

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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: WET TEST
Pace Project No.: 60312256

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60312256001	**SWWTF EFFLUENT**	EPA 821/R-02/013	TDH	1	PASI-SE

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: WET TEST
Pace Project No.: 60312256

Sample: SWWTF EFFLUENT **Lab ID: 60312256001** Collected: 08/19/19 08:00 Received: 08/20/19 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Chronic Toxicity	Analytical Method: EPA 821/R-02/013							
Toxicity, Chronic	**Complete**		1.0	1		08/20/19 13:10		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: WET TEST
Pace Project No.: 60312256

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-SE Pace Analytical Services - SE Kansas

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WET TEST
Pace Project No.: 60312256

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60312256001	**SWWTF EFFLUENT**	EPA 821/R-02/013	606559		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60312256

60312256

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-193 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): As-read 3.5 Corr. Factor -1.1 Corrected 2.4

Date and initials of person examining contents: 8/20/19 EC 8:00

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☒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)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒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 Water Utilities
Address:	2910 Silent Grove Road
	Springdale, AR 72762
Email:	bstewart@springdalewater.com
Phone:	479-756-3657 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Brad Stewart
Copy To:	
Purchase Order #:	
Project Name:	WET Test
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	jeff.shopper@pacelabs.com
Pace Profile #:	9250, line 1

Regulatory Agency	
State / Location	AR

SAMPLE ID — One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Chronic Wet Test	Residual Chlorine (Y/N)	60312256
1	SWWTF EFFLUENT	WW	C	08/19/19	0800	08/19/19	0800	4°	1	✓									✓		Grab-001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Josh Weaver	08/19/19	0900	Ethan Stephens	8/20/19	8:00	2.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JOSH WEAVER

SIGNATURE of SAMPLER: Josh Weaver DATE Signed: 08/19/19

REFERENCE #60312256

August 29, 2019

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

Re: Lab Project Number: 60312256
Client Project ID: Wet Test

Dear:

Enclosed are the analytical results for sample(s) received by the laboratory. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,

Tim Harrell

Tim Harrell
Tim.Harrell@pacelabs.com
Technical Director

Enclosures

REFERENCE #60312256

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
Brad Stewart
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

August 29, 2019

TABLE OF CONTENTS

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 August 19, 2019 to August 23, 2019. 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-Karber method. Statistical analysis is accomplished by following steps in EPA 821-R-02-013, February 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 was 11.6. The COV is 10.21

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 was 17.0. The COV is 18.82

The chronic toxicity exhibited by the fathead minnows and the Ceriodaphnia treated by the effluent sampled from August 19 to August 23 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 8-20-19. Subsequent samples followed by delivery on 8-22-19 and on 8-24-19. All samples were stored at ≤ 6° 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 8-20-19 and carried out until 8-27-19. The Pimephales tests were conducted in 500 ml plastic jars with 250 ml of test solution. Eight larvae were placed in each of at least 5 replicates to make a total of 40 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

The organisms used in these tests were cultured at Pace under controlled temperature and photoperiod conditions and/or were purchased from an external supplier. Pace maintains records of all culture techniques used in producing organisms.

RESULTS

Ceriodaphnia dubia	Results
TLP3B	0
TGP3B	0
TOP3B	97
TPP3B	97
TQP3B	18.82
Pimephales promelas	Results
TLP6C	0
TGP6C	0
TOP6C	97
TPP6C	97
TQP6C	10.21

TABLE 1

Permittee: SPRINGDALE WATER UTILITIES Effluent discharge.

Date Sampled No. 1: 8-19-19 8:00

No. 2: 8-21-19 8:00

No. 3: 8-23-19 8:00

Test Initiated: 13:10 Date: 8-20-19

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 A	B	C	D	E	Mean Dry Weight (mg)	CV% *
Control 0%	0.329	0.427	0.398	0.419	0.372	0.389	10.21
Dilution 1 31%	0.417	0.389	0.413	0.397	0.336	0.390	8.32
Dilution 2 41%	0.427	0.418	0.396	0.408	0.421	0.414	2.94
Dilution 3 55%	0.418	0.378	0.417	0.403	0.419	0.407	4.29
Dilution 4 73%	0.399	0.480	0.367	0.421	0.359	0.405	12.01
Dilution 5 97%	0.412	0.423	0.420	0.411	0.403	0.414	1.91

* Coefficient of Variation = Standard Deviation X 100 / Mean

Permittee: SPRINGDALE WATER UTILITIES Effluent discharge.

FATHEAD MINNOW SURVIVAL

Conc. %	Percent Survival in Replicate Chambers					Mean Percent Survival			CV %
	A	B	C	D	E	24hr	48hr	7 day	
Control 0%	87.5	100	100	100	100	100	100	97.5	4.79
Dilution 1 31%	100	100	100	100	87.5	100	100	97.5	4.79
Dilution 2 41%	100	100	100	100	100	100	100	100	0.00
Dilution 3 55%	100	87.5	100	100	100	100	100	97.5	4.79
Dilution 4 73%	100	100	87.5	100	87.5	100	100	95	5.99
Dilution 5 97%	100	100	100	100	100	100	100	100	0.00

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	18	21	21	21	23	25
2	26	29	24	23	28	17
3	18	24	25	24	23	26
4	22	25	20	21	22	23
5	25	21	20	26	17	16
6	26	26	17	29	18	22
7	17	16	26	26	25	16
8	25	32	25	26	25	27
9	20	23	25	22	20	24
10	23	23	24	22	27	23
Mean	22.0	24.0	22.7	24.0	22.8	21.9
SD	3.528	4.447	2.983	2.667	3.645	4.122
CV %	16.03	18.53	13.14	11.11	15.99	18.82

Permittee: SPRINGDALE WATER UTILITIES Effluent discharge.

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	0.000	0.000	0.000	0.000	0.000	0.000
CV %	0.00	0.00	0.00	0.00	0.000	0.000

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	8
11. No. replicates/concentration	5
12. No. larvae/concentration	40
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

TABLE 2 (CONT.)

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

TABLE 2 (CONT.)

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

SAMPLE NO. 1 COLLECTED: DATE: 8-19-18

SAMPLE NO. 2 COLLECTED: DATE: 8-21-18

SAMPLE NO. 3 COLLECTED: DATE: 8-23-18

TABLE 2 (SECTION 2)
INITIAL WATER QUALITY
EFFLUENT CONCENTRATION

	Control	100%
PH	7.61	7.95
D.O.	8.20	8.70
Temp	25.0	25.0
Alk	62	98
Hard	90	126
Cond	329	775
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
Ammonia is reported as mg/L
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	7.78	7.10	25.1
31% Effluent	7.84	7.50	24.8
41% Effluent	7.90	7.70	24.8
55% Effluent	7.97	7.80	24.8
73% Effluent	8.04	7.90	24.8
97% Effluent	8.10	8.00	24.8

48-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.81	7.20	25.1
31% Effluent	7.86	7.20	24.9
41% Effluent	7.89	7.30	24.9
55% Effluent	7.95	7.30	24.9
73% Effluent	7.99	7.40	24.9
97% Effluent	8.02	7.40	24.9

FINAL WATER QUALITY

EFFLUENT CONCENTRATION

	Control	97%
pH	7.64	7.84
D.O.	7.20	6.80
Temp	25.2	24.8
Alk	62	102
Hard	88	122
Cond	448	906

* 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 97.5%. The mean dry weight (growth) of the Pimephales promelas was determined at 0.389 mg/organism in the controls. The percent coefficient of variation (%CV) values for the fathead minnow control for survival and growth were 4.79 and 10.21. The Ceriodaphnia dubia survival rates were 100 in the control. The Ceriodaphnia in the control produced an average of 22.0 young over the seven-day exposure period. Percent CV values for Ceriodaphnia dubia control survival and reproduction was 0.00 and 16.03. Control data met or exceeded all criteria set out by EPA 821-R-02-013 for test acceptance.

CONCLUSIONS

The No Observed Effect Concentration (NOEC) for Pimephales promelas was 97% for survival and 97% for growth. The No Observed Effect Concentration (NOEC) for Ceriodaphnia dubia was 97% for Survival and 97% for Reproduction. The tests were ran using a synthetic control against effluent concentrations of 31%, 41%, 55%, 73%, and 97%. The effluent sampled on 8-19-19, 8-21-19, and 8-23-19 exhibited acceptable chronic toxicity in Pimephales promelas and in Ceriodaphnia dubia during the exposure period as described in EPA 821-R-02-013.

APPENDIX C

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: 7/23/19 13:00 End: 7/30/19 12:00

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	34	29	6
6 g/l	40	37	33	25
4 g/l	40	40	40	40
2 g/l	40	40	40	40

IC25 (5.15 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	4	0	0
2.0 g/l	10	10	8	2
1.5 g/l	10	10	10	10
1.0 g/l	10	10	10	10
0.5 g/l	10	10	10	10

IC25 (1.18 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

Submitted By: Tim Harrell

Timothy Harrell, Technical Director

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A 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	2	22	3	0

Calculated Chi-Square goodness of fit test statistic = 18.5021
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.

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's test for normality

D = 0.048

W = 0.752

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.

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	0.991	1.107	1.084
2	31%	5	0.991	1.107	1.084
3	41%	5	1.107	1.107	1.107
4	55%	5	0.991	1.107	1.084
5	73%	5	0.991	1.107	1.061
6	97%	5	1.107	1.107	1.107

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.003	0.052	0.023	4.79
2	31%	0.003	0.052	0.023	4.79
3	41%	0.000	0.000	0.000	0.00
4	55%	0.003	0.052	0.023	4.79
5	73%	0.004	0.064	0.028	5.99
6	97%	0.000	0.000	0.000	0.00

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A Transform: ARC SINE(SQUARE ROOT(Y))

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.008	0.002	0.756
Within (Error)	24	0.048	0.002	
Total	29	0.056		

Critical F value = 2.62 (0.05,5,24)
Since F < Critical F FAIL TO REJECT Ho: All equal

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A 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	1.084	0.780		
2	31%	1.084	0.780	0.000	
3	41%	1.107	0.800	-0.816	
4	55%	1.084	0.780	0.000	
5	73%	1.061	0.760	0.816	
6	97%	1.107	0.800	-0.816	

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

60312256 Springdale FATHEAD SURVIVAL
File: 6312256A 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	0.058	7.4	-0.000
3	41%	5	0.058	7.4	-0.020
4	55%	5	0.058	7.4	0.000
5	73%	5	0.058	7.4	0.020
6	97%	5	0.058	7.4	-0.020

60312256 Springdale FATHEAD GROWTH
File: 6312256B Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.022

W = 0.950

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.

60312256 Springdale FATHEAD GROWTH
File: 6312256B Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 14.54

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.

60312256 Springdale FATHEAD GROWTH
File: 6312256B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	0.329	0.427	0.389
2	31%	5	0.336	0.417	0.390
3	42%	5	0.396	0.427	0.414
4	55%	5	0.378	0.419	0.407
5	73%	5	0.359	0.480	0.405
6	97%	5	0.403	0.423	0.414

60312256 Springdale FATHEAD GROWTH
File: 6312256B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.002	0.040	0.018	10.21
2	31%	0.001	0.032	0.015	8.32
3	42%	0.000	0.012	0.005	2.94
4	55%	0.000	0.017	0.008	4.29
5	73%	0.002	0.049	0.022	12.01
6	97%	0.000	0.008	0.004	1.91

60312256 Springdale FATHEAD GROWTH
File: 6312256B Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.003	0.001	0.666
Within (Error)	24	0.022	0.001	
Total	29	0.025		

Critical F value = 2.62 (0.05,5,24)
Since F < Critical F FAIL TO REJECT Ho: All equal

60312256 Springdale FATHEAD GROWTH
File: 6312256B 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	0.389	0.389		
2	31%	0.390	0.390	-0.073	
3	42%	0.414	0.414	-1.303	
4	55%	0.407	0.407	-0.938	
5	73%	0.405	0.405	-0.844	
6	97%	0.414	0.414	-1.293	

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

60312256 Springdale FATHEAD GROWTH
File: 6312256B 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	0.045	11.6	-0.001
3	42%	5	0.045	11.6	-0.025
4	55%	5	0.045	11.6	-0.018
5	73%	5	0.045	11.6	-0.016
6	97%	5	0.045	11.6	-0.025

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
42%	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

	NUMBER OF		
IDENTIFICATION	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

	NUMBER OF		
IDENTIFICATION	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	42%	10	0	
3	55%	10	0	
4	73%	10	0	
5	97%	10	0	

60312256 Springdale CERIODAPHNIA DUBIA SURVIVA
File: 6312256D 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

60312256 Springdale CERIODAPHNIA DUBIA SURVIVA
File: 6312256D 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

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E 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	18	17	20	2

Calculated Chi-Square goodness of fit test statistic = 5.7052
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 3.07

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.

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	10	17.000	26.000	22.000
2	31%	10	16.000	32.000	24.000
3	41%	10	17.000	26.000	22.700
4	55%	10	21.000	29.000	24.000
5	73%	10	17.000	28.000	22.800
6	97%	10	16.000	27.000	21.900

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	12.444	3.528	1.116	16.03
2	31%	19.778	4.447	1.406	18.53
3	41%	8.900	2.983	0.943	13.14
4	55%	7.111	2.667	0.843	11.11
5	73%	13.289	3.645	1.153	15.99
6	97%	16.989	4.122	1.303	18.82

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	42.800	8.560	0.654
Within (Error)	54	706.600	13.085	
Total	59	749.400		

Critical F value = 2.45 (0.05,5,40)
Since F < Critical F FAIL TO REJECT Ho: All equal

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E 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	22.000	22.000		
2	31%	24.000	24.000	-1.236	
3	41%	22.700	22.700	-0.433	
4	55%	24.000	24.000	-1.236	
5	73%	22.800	22.800	-0.495	
6	97%	21.900	21.900	0.062	

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

60312256 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6312256E 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	3.737	17.0	-2.000
3	41%	10	3.737	17.0	-0.700
4	55%	10	3.737	17.0	-2.000
5	73%	10	3.737	17.0	-0.800
6	97%	10	3.737	17.0	0.100

Conc. ID	1	2	3	4	5	6
Conc. Tested	0	31	41	55	73	97
Response 1	18	21	21	21	23	25
Response 2	26	29	24	23	28	17
Response 3	18	24	25	24	23	26
Response 4	22	25	20	21	22	23
Response 5	25	21	20	26	17	16
Response 6	26	26	17	29	18	22
Response 7	17	16	26	26	25	16
Response 8	25	32	25	26	25	27
Response 9	20	23	25	22	20	24
Response 10	23	23	24	22	27	23

*** Inhibition Concentration Percentage Estimate ***
Toxicant/Effluent: Springdale
Test Start Date: 8/20/19 Test Ending Date: 8/27/19
Test Species: Dubia
Test Duration: 7 Day
DATA FILE:

Conc. ID	Number Replicates	Concentration	Response Means	Std. Dev.	Pooled Response Means
1	10	0.000	22.000	3.528	23.175
2	10	31.000	24.000	4.447	23.175
3	10	41.000	22.700	2.983	23.175
4	10	55.000	24.000	2.667	23.175
5	10	73.000	22.800	3.645	22.800
6	10	97.000	21.900	4.122	21.900

*** 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	.329	.417	.427	.418	.399	.412
Response	2	.427	.389	.418	.378	.480	.423
Response	3	.398	.413	.396	.417	.367	.420
Response	4	.419	.397	.408	.403	.421	.411
Response	5	.372	.336	.421	.419	.359	.403

*** Inhibition Concentration Percentage Estimate ***
Toxicant/Effluent: Springdale
Test Start Date: 8/20/19 Test Ending Date: 8/27/19
Test Species: Fathead
Test Duration: 7 Day
DATA FILE:

Conc. ID	Number Replicates	Concentration	Response Means	Std. Dev.	Pooled Response Means
1	5	0.000	0.389	0.040	0.403
2	5	31.000	0.390	0.032	0.403
3	5	41.000	0.414	0.012	0.403
4	5	55.000	0.407	0.017	0.403
5	5	73.000	0.405	0.049	0.403
6	5	97.000	0.414	0.008	0.403

*** 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.

Page : 1 Of 1

Section A
Required Client Information:

Company:	Springdale Water Utilities
Address:	2910 Silent Grove Road
	ngdale, AR 72762
Email:	bstewart@springdalewater.com
Phone:	479-756-3657 Fax
Requested Due Date:	

Section B
Required Project Information:

Report To:	Brad Stewart
Copy To:	
Purchase Order #:	
Project Name:	WET Test
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	jeff.shopper@pacelabs.com
Pace Profile #:	9250, line 1

Regulatory Agency

State / Location
AR

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Chronic Wet Test	Residual Chlorine (Y/N)	60312256
1	SWWTF EFFLUENT	WW	C	08/18/19	0800	08/19/19	0800	4°	1	✓									✓		Grab-001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Josh Weaver	08/19/19	0900	Ethan Colegrove	8/20/19	8:00	2.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JOSH WEAVER

SIGNATURE of SAMPLER: Josh Weaver

DATE Signed: 08/19/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical
www.pacelabs.com

Page: 1 of 1

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 Road	Copy To:	Company Name:
Springdale, AR 72762		Address:
Email To: bstewart@springdalewater	Purchase Order No.:	Pace Quote Reference:
Phone: 479-756-3657 Fax:	Project Name: WET Test	Pace Project Manager: jeff.shoppe@pacelabs.com
Requested Due Date/TAT:	Project Number:	Pace Profile #: 9250, line 1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE
Drinking Water DW
Water WT
Waste Water WW
Product P
Soil/Solid SL
Oil OL
Wipe WP
Air AR
Tissue TS
Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Analysis Test: Chronic Wet Test	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SWWTF EFFLUENT	WW	C	08/20	0800	08/21	0800	4°	1	X									X	N	[illegible]
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	08/21/19	1207	[signature]	8/22	8:00	2.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Travis Piatkowski

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 08/21/19

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical
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Sample Condition Upon Receipt

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-193 Type of Ice: (Wet) Blue None

Cooler Temperature (°C): As-read 3.5 Corr. Factor +1.1 Corrected 2.4

Date and initials of person examining contents: 8/20/19 @ 8:00

Temperature should be above freezing to 6°C

Chain of Custody present	☒Yes ☐No ☐N/A	
Chain of Custody relinquished	☒Yes ☐No ☐N/A	
Samples arrived within holding time	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume	☒Yes ☐No ☐N/A	
Correct containers used	☒Yes ☐No ☐N/A	
Pace containers used	☒Yes ☐No ☐N/A	
Containers intact	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2, NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☒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)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm)	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area State	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒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

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

Page : 1 Of 1

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 Road	Copy To:	Company Name:
Springdale, AR 72762		Address:
Email: bstewart@springdalewater.com	Purchase Order #:	Pace Quote:
Phone: 479-756-3657 Fax:	Project Name: WET Test	Pace Project Manager: jeff.shopper@pacelabs.com
Requested Due Date:	Project #:	Pace Profile #: 9250, line 1

Regulatory Agency	
State / Location	AR

SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX	CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analyses Test	Chronic Wet Test	Residual Chlorine (Y/N)	
	Drinking Water	DW																					
	Water	WT																					
	Waste Water	WW																					
	Product	P																					
	Soil/Solid	SL																					
	Oil	OL																					
	Wipe	WP																					
	Air	AR																					
	Other	OT																					
	Tissue	TS																					
1 SWWTF EFFLUENT			WW	C	08/23/19	0800	08/23/19	0800	4°C	1	✓										✓		EColi-col
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Josh Weaver	08/23/19	0900	Ethan Stapp Pace	8/24	8:00	0.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JOSH WEAVER

SIGNATURE of SAMPLER: Josh Weaver DATE Signed: 08/23/19

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

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-193 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 3.2 **Corr. Factor** -1.1 **Corrected** 2.1

Date and initials of person examining contents: 8/24/19 EC 8:00

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix:	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☒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)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒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: _____