



Springdale Water Utilities

526 Oak Avenue P.O. Box 769 Springdale, Arkansas 72765-0769 479-751-5751

Enforcement Branch
Arkansas Dept. of Environmental Quality
5301 Northshore Dr.
North Little Rock, AR 72118-5317

**RE: NPDES Permit No. AR0022063
AFIN #72-00003
Springdale, AR**

September 16, 2016

Dear Sir or Madame:

Enclosed please find the results of third quarter Ceriodaphnia dubia and Pimephales promelas analyses conducted on Springdale Water Utilities' wastewater treatment facility effluent for 2016. These analyses are required by our NPDES Permit.

Please feel free to call Ms. Jennifer Enos at (479)756-3657 if you have any questions concerning these analyses.

Sincerely yours,

Heath A. Ward
Executive Director

JEE/jee

Enclosures

Cc: Jennifer Enos, SWU
Mary Barnett, ADEQ
File



September 02, 2016

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

RE: Project: CHRONIC TOXICITY
Pace Project No.: 60226189

Dear Brad Stewart:

Enclosed are the analytical results for sample(s) received by the laboratory on August 23, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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,

Alice Spiller
alice.spiller@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: CHRONIC TOXICITY
Pace Project No.: 60226189

Southeast Kansas Certification IDs

808 West McKay, Frontenac, KS 66763
Arkansas Certification #: 13-012-0
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Oklahoma Certification #: 2012-051
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3

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SAMPLE SUMMARY

Project: CHRONIC TOXICITY
Pace Project No.: 60226189

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60226189001	SWU EFFLUENT	Water	08/22/16 08:00	08/23/16 08:00

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SAMPLE ANALYTE COUNT

Project: CHRONIC TOXICITY
Pace Project No.: 60226189

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60226189001	SWU EFFLUENT	EPA 821/R-02/013	TDH	1	PASI-SE

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ANALYTICAL RESULTS

Project: CHRONIC TOXICITY
Pace Project No.: 60226189

Sample: SWU EFFLUENT	Lab ID: 60226189001	Collected: 08/22/16 08:00	Received: 08/23/16 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		08/23/16 11:15			

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QUALIFIERS

Project: CHRONIC TOXICITY
Pace Project No.: 60226189

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.
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.
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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CHRONIC TOXICITY
Pace Project No.: 60226189

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60226189001	SWU EFFLUENT	EPA 821/R-02/013	445216		

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Sample Condition Upon Receipt

WO#: 60226189



60226189

Client Name: Springdale

Courier: FedEx UPS VIA Clay PEX ECT ^{EG} Balance Pace Other ^{Capital} Express Client

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-111 Type of Ice: Wet Blue None Samples received on ice, cooling process has begun.

Cooler Temperature: 2.0

Date and Initials of person examining contents: 8/23/16
EC 8:00

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	1.
Chain of Custody filled out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler name & signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct containers used:	<input 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	9.
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.
Sample labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Includes date/time/ID/analyses:	Matrix: <u>WT</u>	13.
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot # of added preservative
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17. List State:
Additional labels attached to 5035A vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	18.

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: alice

Date: 08/25/16



CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: _____ of _____
2004042

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: <u>SPRINGDALE WATER UTILITIES</u>		Report To: <u>BRAD STEWART</u>		Attention: <u>BRAD STEWART</u>	
Address: <u>2910 SILENT GROVE RD</u>		Copy To:		Company Name: <u>SPRINGDALE WATER UTILITIES</u>	
<u>SPRINGDALE, AR 72762</u>		Purchase Order No.:		Address: <u>PO BOX 769 SPRINGDALE, AR</u>	
Email To: <u>bstewart@springdalewater.com</u>		Project Name: <u>CHRONIC TOXICITY (WET TEST)</u>		Pace Quote Reference:	
Phone: <u>(479) 750-3659</u> Fax: <u>(479) 750-71959</u>		Project Number:		Pace Project Manager:	
Requested Due Date/TAT: <u>10 BUSINESS DAYS</u>				Pace Profile #:	
				REGULATORY AGENCY	
				<input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____	
				Site Location: <u>AR</u>	
				STATE: <u>AR</u>	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Chronic Wet Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other				
			DATE	TIME	DATE	TIME														
1	<u>SWU EFFLUENT</u>	<u>WW</u>	<u>C</u>	<u>08/21/16</u>	<u>0900</u>	<u>08/22/16</u>	<u>0800</u>	<u>5°</u>	<u>1</u>	<u>✓</u>								<u>W 1516-001</u>		
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
	<u>John W. Weaver</u>	<u>08/22/16</u>	<u>0830</u>	<u>Alan Castagna</u>	<u>8/22/16</u>	<u>8:00</u>	<u>20 Y Y Y</u>

SAMPLER NAME AND SIGNATURE		Temp In °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>JOHN WEAVER</u>					
SIGNATURE of SAMPLER: <u>John W. Weaver</u>	DATE Signed (MM/DD/YY): <u>08/22/16</u>				

Page 9 of 47

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REFERENCE #60226189

Pace Analytical Services, Inc.
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Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

August 31, 2016

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

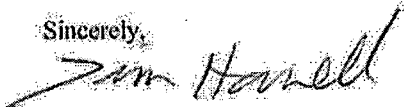
Re: Lab Project Number: 60226189
Client Project ID: Wet Test

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@pacelabs.com
Technical Director

Enclosures

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
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**CHRONIC TOXICITY TEST FOR
SPRINGDALE WATER UTILITIES**

PERMIT # AR 0021768
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 31, 2016

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Pace Analytical Services, Inc.
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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 August 22, 2016 to August 26, 2016. 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 (LC50) are calculated using effluent concentrations and their corresponding percent mortality data. The LC50's and 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. The LC50 was estimated to be >97% effluent. No significant reduction in growth was observed in the 97% effluent concentration. The Toxic Units is <1. The IC25 is >97. The NOEC for growth in effluent was determined to be 97%. The PMSD was 18.2.

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. The LC50 was estimated to be >97% effluent. No significant reduction in reproduction was observed in the 97% effluent concentrations. The Toxic Units is <1. The IC25 is >97. The NOEC for reproduction in effluent was determined to be 97%. The PMSD was 12.6.

The chronic toxicity exhibited by the fathead minnows and the *Ceriodaphnia* treated by the effluent sampled from August 22 to August 26 from the Springdale Water Utilities effluent discharge, is acceptable as described in EPA 821-R-02-013.

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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 8-23-16. Subsequent samples followed by delivery on 8-25-16 and on 8-27-16. 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 LC50, NOEC, and LOEC for survival, growth, and reproduction of these test species.

The Pimephales and Ceriodaphnia tests were initiated on 8-23-16 and carried out until 8-30-16. 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.

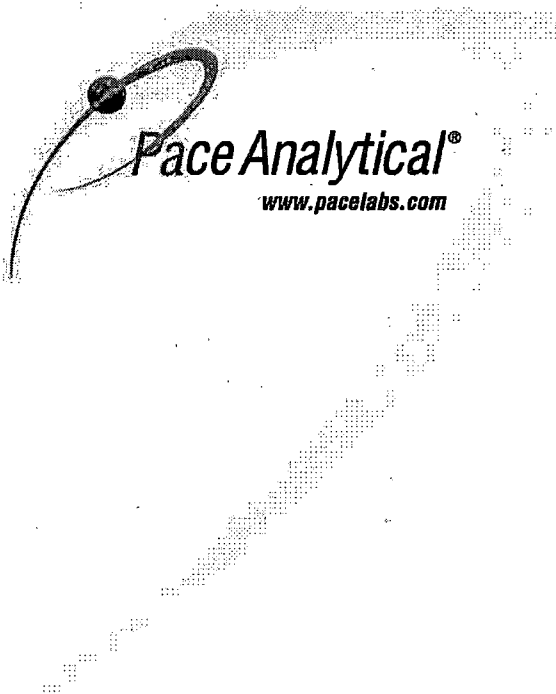
TEST ORGANISMS

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.

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RESULTS

REPORT OF LABORATORY ANALYSIS

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TABLE 1

Permittee: Springdale Water Utilities Effluent discharge.

Date Sampled	No. 1:	8-22-16	8:00
	No. 2:	8-24-16	8:00
	No. 3:	8-26-16	8:00
Test Initiated: 11:15	Date:	8-23-16	

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%	0.439	0.476	0.401	0.335	0.396	0.409	12.87
Dilution 1 31%	0.376	0.415	0.406	0.425	0.387	0.402	4.99
Dilution 2 41%	0.458	0.474	0.458	0.422	0.342	0.431	12.34
Dilution 3 55%	0.324	0.381	0.474	0.431	0.421	0.406	13.94
Dilution 4 73%	0.458	0.427	0.486	0.383	0.394	0.430	10.03
Dilution 5 97%	0.455	0.412	0.322	0.320	0.429	0.388	16.18

* Coefficient of Variation = Standard Deviation X 100 / Mean

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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%	100	100	100	87.5	100	100	100	97.5	4.79
Dilution 1 31%	100	100	100	100	100	100	100	100	0.00
Dilution 2 41%	100	100	100	100	87.5	100	100	97.5	4.79
Dilution 3 55%	87.5	100	100	100	100	100	100	97.5	4.79
Dilution 4 73%	100	100	100	100	100	100	100	100	0.00
Dilution 5 97%	100	100	87.5	87.5	100	100	100	95	5.99

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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	19	20	20	16	18	17
2	21	15	21	21	17	21
3	15	18	18	20	22	17
4	21	20	23	20	17	19
5	17	21	19	23	19	18
6	20	22	22	20	19	14
7	23	16	23	16	23	20
8	24	21	17	18	20	20
9	16	17	22	22	23	17
10	20	18	19	21	18	21
Mean	19.6	18.8	20.4	19.7	19.6	18.4
SD	2.914	2.348	2.119	2.359	2.319	2.221
CV %	14.87	12.49	10.39	11.98	11.83	12.07

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Permittee: Springdale Water Utilities Effluent discharge.

CERIODAPHNIA MEAN PERCENT SURVIVAL

Time Elapsed	Percent Effluent (%)					
	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

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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 0.1 ml newly hatched brine shrimp nauplii three times daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
16. Aeration	None

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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 three times daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
16. 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 16 young / adult. Coefficient of variation in the control must not exceed 40%.

REPORT OF LABORATORY ANALYSIS

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REFERENCE #60226189

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

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: 8-22-16

SAMPLE NO. 2 COLLECTED: DATE: 8-24-16

SAMPLE NO. 3 COLLECTED: DATE: 8-26-16

**TABLE 2 (SECTION 2)
INITIAL WATER QUALITY
EFFLUENT CONCENTRATION**

	Control	100%
PH	7.50	7.83
D.O.	8.10	8.20
Temp	25.0	25.0
Alk	62	116
Hard	90	104
Cond	326	736
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

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TEST WATER QUALITY

24-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.72	7.50	25.1
31% Effluent	7.90	7.50	25.0
41% Effluent	7.96	7.50	25.0
55% Effluent	8.02	7.60	25.0
73% Effluent	8.09	7.60	25.0
97% Effluent	8.14	7.70	25.0

48-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.68	7.40	25.0
31% Effluent	7.77	7.40	25.1
41% Effluent	7.83	7.50	25.1
55% Effluent	7.89	7.50	25.1
73% Effluent	7.98	7.50	25.1
97% Effluent	8.09	7.50	25.1

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Fax: 913.599.1759

FINAL WATER QUALITY

EFFLUENT CONCENTRATION

	Control	97%
pH	7.68	8.09
D.O.	6.90	7.00
Temp	25.1	25.1
Alk	60	98
Hard	90	190
Cond	472	1140

- * 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

REPORT OF LABORATORY ANALYSIS

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TEST VALIDITY

The Pimephales promelas control survival rate was 97.5%. The mean dry weight (growth) of the Pimephales promelas was determined at 0.409 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 12.87. The Ceriodaphnia dubia survival rates were 100 in the control. The Ceriodaphnia in the control produced an average of 19.6 young over the seven-day exposure period. Percent CV values for Ceriodaphnia dubia control survival and reproduction was 0.00 and 14.87. 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 8-22-16, 8-24-16, and 8-26-16 exhibited acceptable chronic toxicity in Pimephales promelas and in Ceriodaphnia dubia during the exposure period as described in EPA 821-R-02-013.

REPORT OF LABORATORY ANALYSIS

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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: 8/16/16 11:45 End: 8/23/16 11:15

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
10 g/l	40	9	2	0
8 g/l	40	36	25	4
6 g/l	40	39	33	27
4 g/l	40	40	40	40
2 g/l	40	40	40	39

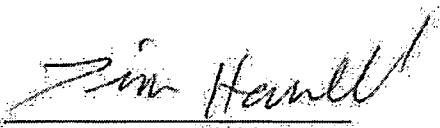
IC25 (5.23 g/l Sodium Chloride)

Survival NOEC: 4.0 g/l

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
2.5 g/l	10	5	0	0
2.0 g/l	10	10	7	1
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 (1.14 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

Submitted By: 
 Timothy Harrell, Technical Director

REPORT OF LABORATORY ANALYSIS

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60226189 Springdale FATHEAD SURVIVAL
File: 6226189A 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.

60226189 Springdale FATHEAD SURVIVAL
File: 6226189A 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.

60226189 Springdale FATHEAD SURVIVAL

File: 6226189A 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	1.107	1.107	1.107
3	41%	5	0.991	1.107	1.084
4	55%	5	0.991	1.107	1.084
5	73%	5	1.107	1.107	1.107
6	97%	5	0.991	1.107	1.061

60226189 Springdale FATHEAD SURVIVAL

File: 6226189A 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%	0.000	0.000	0.000	0.00
3	41%	0.003	0.052	0.023	4.79
4	55%	0.003	0.052	0.023	4.79
5	73%	0.000	0.000	0.000	0.00
6	97%	0.004	0.064	0.028	5.99

60226189 Springdale FATHEAD SURVIVAL

File: 6226189A 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 $F < \text{Critical } F$ FAIL TO REJECT H_0 : All equal

60226189 Springdale FATHEAD SURVIVAL

File: 6226189A Transform: ARC SINE(SQUARE ROOT(Y))

60226189 Springdale Fathead Growth
File: 6226189D Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.060

W = 0.944

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.

60226189 Springdale Fathead Growth
File: 6226189D Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B1 statistic = 4.36

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.

60226189 Springdale Fathead Growth
 File: 6226189D Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	0.335	0.476	0.409
2	31%	5	0.376	0.425	0.402
3	41%	5	0.342	0.474	0.431
4	55%	5	0.324	0.474	0.406
5	73%	5	0.383	0.486	0.430
6	97%	5	0.320	0.455	0.388

60226189 Springdale Fathead Growth
 File: 6226189D Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.003	0.053	0.024	12.87
2	31%	0.000	0.020	0.009	4.99
3	41%	0.003	0.053	0.024	12.34
4	55%	0.003	0.057	0.025	13.94
5	73%	0.002	0.043	0.019	10.03
6	97%	0.004	0.063	0.028	16.18

60226189 Springdale Fathead Growth
 File: 6226189D Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.007	0.001	0.560
Within (Error)	24	0.060	0.002	
Total	29	0.067		

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

60226189 Springdale Fathead Growth
 File: 6226189D 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	0.409	0.409		
2	31%	0.402	0.402	0.247	
3	41%	0.431	0.431	-0.677	
4	55%	0.406	0.406	0.101	
5	73%	0.430	0.430	-0.639	
6	97%	0.388	0.388	0.689	

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

60226189 Springdale Fathead Growth

File: 6226189D

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	0.075	18.2	0.008
3	41%	5	0.075	18.2	-0.021
4	55%	5	0.075	18.2	0.003
5	73%	5	0.075	18.2	-0.020
6	97%	5	0.075	18.2	0.022

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	

60226189 Springdale CERIODAPHNIA DUBIA SURVIVAL
File: 6226189B 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

60226189 Springdale CERIODAPHNIA DUBIA SURVIVAL
File: 6226189B 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

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6226189E 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	6	15	17	21	1

Calculated Chi-Square goodness of fit test statistic = 7.6808

Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6226189E Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B1 statistic = 1.12

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.

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
 File: 6226189E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	10	15.000	24.000	19.600
2	31%	10	15.000	22.000	18.800
3	41%	10	17.000	23.000	20.400
4	55%	10	16.000	23.000	19.700
5	73%	10	17.000	23.000	19.600
6	97%	10	14.000	21.000	18.400

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
 File: 6226189E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	8.489	2.914	0.921	14.87
2	31%	5.511	2.348	0.742	12.49
3	41%	4.489	2.119	0.670	10.39
4	55%	5.567	2.359	0.746	11.98
5	73%	5.378	2.319	0.733	11.83
6	97%	4.933	2.221	0.702	12.07

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
 File: 6226189E Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	25.283	5.057	0.883
Within (Error)	54	309.300	5.728	
Total	59	334.583		

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

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
 File: 6226189E 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	19.600	19.600		
2	31%	18.800	18.800	0.747	
3	41%	20.400	20.400	-0.747	
4	55%	19.700	19.700	-0.093	
5	73%	19.600	19.600	0.000	
6	97%	18.400	18.400	1.121	

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

60226189 Springdale CERIODAPHNIA DUBIA REPRODU
File: 6226189E 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	2.472	12.6	0.800
3	41%	10	2.472	12.6	-0.800
4	55%	10	2.472	12.6	-0.100
5	73%	10	2.472	12.6	0.000
6	97%	10	2.472	12.6	1.200

Conc. ID	1	2	3	4	5	6
Conc. Tested	0	31	41	55	73	97
Response 1	.439	.376	.458	.324	.458	.455
Response 2	.476	.415	.474	.381	.427	.412
Response 3	.401	.406	.458	.474	.486	.322
Response 4	.335	.425	.422	.431	.383	.320
Response 5	.396	.387	.342	.421	.394	.429

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Springdale

Test Start Date: 8/23/16 Test Ending Date: 8/30/16

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	0.409	0.053	0.416
2	5	31.000	0.402	0.020	0.416
3	5	41.000	0.431	0.053	0.416
4	5	55.000	0.406	0.057	0.416
5	5	73.000	0.430	0.043	0.416
6	5	97.000	0.388	0.063	0.388

*** 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: _____ of _____
2004042

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	REGULATORY AGENCY <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____	
Company: SPRINGDALE WATER UTILITIES	Report To: BRAD STEWART	Attention: BRAD STEWART		
Address: 2910 SILENT GROVE RD	Copy To:	Company Name: SPRINGDALE WATER UTILITIES		
SPRINGDALE, AR 72762		Address: PO Box 769 SPRINGDALE, AR		
Email To: bstewart@springdalewater.com	Purchase Order No.:	Pace Quote Reference:		
Phone: (479) 793-3459 (479) 793-7193	Project Name: CHRONIC TOXICITY (WET TEST)	Pace Project Manager:		
Requested Due Date/TAT: 10 BUSINESS DAYS	Project Number:	Pace Profile #:	Site Location	STATE: AR

ITEM #	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	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Chronic Wet Test	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					DATE	TIME	DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol				
1	SWU EFFLUENT			C	08/21/16	0900	08/22/16	0800	5°	1	✓								✓	08/22/16/89	N 0010-001
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			
	<i>John W. Weaver</i>	08/22/16	0830	<i>Ethan D. Hastings</i>	8/23/16	8:00	20	Y	Y	Y

ORIGINAL	SAMPLER NAME AND SIGNATURE				Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples intact (Y/N)
	PRINT Name of SAMPLER: <i>John W. Weaver</i>		SIGNATURE of SAMPLER: <i>John W. Weaver</i>					
			DATE Signed (MM/DD/YYYY): <i>08/22/16</i>					

Page 43 of 47



CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 01 of 01

2004044

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: SPRINGDALE WATER UTILITIES		Report To: BRAD STEWART		Attention: BRAD STEWART	
Address: 2710 SILENT GROVE RD		Copy To:		Company Name: SPRINGDALE WATER UTILITIES	
SPRINGDALE, AR 72762				Address: P.O. BOX 709 SPRINGDALE, AR 72764	
Email To: bradstewart@springdalewater.com		Purchase Order No.: 0019301 00		Pace Quote Reference:	
Phone: (479) 756-3659		Project Name: CHRONIC TOXICITY (WET TEST)		Pace Project Manager:	
Fax: (479) 750-7195		Project Number:		Pace Profile #:	
Requested Due Date/TAT: 10 BUSINESS DAYS				Site Location STATE:	

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER

UST RCRA OTHER _____

ITEM #	Section D Required Client Information		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	CHRONIC WET TEST	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
	SAMPLE ID (A-Z, 0-9 / -)	Sample IDs MUST BE UNIQUE			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol					Other
					DATE	TIME	DATE	TIME														
1	SWU EFFLUENT		WW C		08/23/16	0800	08/24/16	0800	5 th	1									✓	N	6C06-091	
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				
	<i>Josh Weaver</i>	08/24/16	1043	<i>[Signature]</i>	8/25/16	0800	1.6	Y	Y	Y	Y

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ORIGINAL

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: JOSH WEAVER						
SIGNATURE of SAMPLER: <i>Josh Weaver</i>			DATE Signed (MM/DD/YY): 08/24/16			

*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.



Sample Condition Upon Receipt

Client Name: Springdale

Courier: FedEx UPS VIA Clay PEX ECI Pace Other Client

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-111 Type of Ice: Wet Blue None Samples received on ice, cooling process has begun. (circle one)

Cooler Temperature: 1/6
Temperature should be above freezing to 6°C

Optional
Proj Due Date:
Proj Name:

Date and initials of person examining contents: 8/25/16 MJS
0800

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody filled out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler name & signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Unpreserved 5035A soils frozen w/in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.	
Sample labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Includes date/time/ID/analyses	Matrix: <u>WT</u>	13.	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank lot # (if purchased):		15.	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17. List State:	
Additional labels attached to 5035A vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	18.	

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: 01 of 01
2004043

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: SPRINGDALE WATER UTILITIES		Report To: BRAD STEWART		Attention: BRAD STEWART	
Address: 2910 SILENT GROVE RD.		Copy To:		Company Name: SPRINGDALE WATER UTILITIES	
SPRINGDALE, AR 72762		Purchase Order No.:		Address: P.O. Box 769 SPRINGDALE, AR 72762	
Email To: bstewart@springdalewater.com		Project Name: CHRONIC TOXICITY (WET TEST)		<input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____	
Phone: (414) 736-3699 Fax: (414) 736-7195		Project Number:		Site Location: AR	
Requested Due Date/TAT: 10 BUSINESS DAYS		Project Number:		STATE: AR	

ITEM #	SAMPLE ID (A-Z, 0-9 / -)	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Chronic Wet Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol						Other
					DATE	TIME	DATE	TIME															
1	SINU EFFLUENT	DW	WW	C	08/25/16	0800	08/25/16	0800	5°	1	✓											N	G010-00
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
	<i>John Weaver</i>	08/24/16	0930	<i>Brandon Estep</i>	8/25/16	8:00	2.6 x y x

ORIGINAL	SAMPLER NAME AND SIGNATURE			Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: <i>John Weaver</i>						
	SIGNATURE of SAMPLER: <i>John Weaver</i>		DATE Signed (MM/DD/YY): <i>08/26/16</i>				

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Sample Condition Upon Receipt

Client Name: Springdale

Courier: FedEx UPS VIA Clay PEX ECI Pace Other Client
Tracking #: _____ Pace Shipping Label Used? Yes No

Optional
Proj Due Date:
Proj Name:

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

Packing Material: Bubble Wrap Bubble Bags Foam None Other

Thermometer Used: T-11 Type of Ice: Wet Blue None Samples received on ice, cooling process has begun.
Cooler Temperature: 2.6 (circle one)

Date and initials of person examining contents: 2/27/16
EC 8:00

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody filled out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler name & signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace containers used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.
Sample labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Includes date/time/ID/analyses Matrix:		13.
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Exceptions: VOA, Coliform, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot # of added preservative
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17. List State:
Additional labels attached to 5035A vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	18.

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

Person Contacted: _____ Date/Time: _____

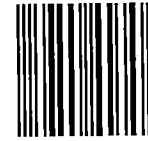
Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

**Springdale Water Utilities
P.O. Box 769
Springdale, AR 72765-0769**



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72118

U.S. POSTAGE
PAID
GREENLAND, AR
72737
SEP 19, 16
AMOUNT
\$2.62
R2305E126078-07

**Mary Barnett
Arkansas Dept. of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317**

