

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,

Jelley Shap

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

Enclosures





#### 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



#### SAMPLE SUMMARY

Project:	WET TEST			
Pace Project No	o.: 60312256			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
60312256001	SWWTF EFFLUENT	Water	08/19/19 08:00	08/20/19 08:00



# SAMPLE ANALYTE COUNT

		Analytes
Pace Project No .:	60312256	
Project:	WET TEST	

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



#### ANALYTICAL RESULTS

Project: Pace Project No.:	WET TEST 60312256									
Sample: SWWTF	EFFLUENT	Lab ID: 603	12256001	Collected:	08/19/1	9 08:00	Received: 0	8/20/19 08:00	Matrix: Water	
Param	neters	Results	Units	Repor	t 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 13:1	0	



#### 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



60312256001

SWWTF EFFLUENT

#### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Pace Project No.:	WET TEST 60312256				
Lab ID	Sample ID	QC Batch M	lethod QC Bate	ch Analytical Method	Analytical Batch

EPA 821/R-02/013

606559

Pace Analytical Sample Condition Up	oon Receipt	WO#:60312256
Client Name: Springdole		
		Pace 🗆 Xroads 🗆 Client 🗆 Other 🗆
	e Shipping Label Used	1? Yes 🗆 No 🔀
Custody Seal on Cooler/Box Present: Yes V No	Seals intact: Yes	Z
Packing Material:Bubble Bubble WrapBubble BagsThermometer Used: $7 - 193$ Type of	Ice: Wet Blue Nor	
Cooler Temperature (°C): As-read 3.5 Corr. Facto	or <u> </u>	ed 2.4 examining contents:
Temperature should be above freezing to 6°C		8/30/19
Chain of Custody present:	Yes No N/A	
Chain of Custody relinquished:	Yes DNO DN/A	
Samples arrived within holding time:		
Short Hold Time analyses (<72hr):	Yes No N/A	
Rush Turn Around Time requested:	Yes No N/A	
Sufficient volume:		
Correct containers used:	Yes No N/A	
Pace containers used:		
Containers intact:	Ves DNo DN/A	
	TYes No QN/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?		
Filtered volume received for dissolved tests?		Υ.
Sample labels match COC: Date / time / ID / analyses		
Samples contain multiple phases? Matrix: LT		List sample IDs, volumes, lot #'s of preservative and the
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	□Yes □No ISN/A	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:		
Headspace in VOA vials ( >6mm):	Yes No NA	
Samples from USDA Regulated Area: State:	Yes No Mi/A	
Additional labels attached to 5035A / TX1005 vials in the field	? 🗆 Yes 🗆 No 🎾 N/A	
Client Notification/ Resolution: Copy COC t		Field Data Required? Y / N
Person Contacted: Date/	Гіте:	

Project Manager Review:

Jeffrey Shopper

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Date:



Section A

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

	Report To: Brad Stewart Copy To:	Invoice Information: Attention: Commation:	Page: 1 Of 1
Springdale, AR 72762 Email bstewart@controdateurotecon		Company Name; Address	
479-756-3657 Fax	Project Name WIST Test		Regulatory Agency
Requested Due Date		Pace Profile # 0260 http://www.com	State / Location
		Line and	Reduested Analysis Ethomaticans
420 0 0	es to left) EV E	Preservatives	
A MAPLE ID Cone Character per box. (A-Z 0-9 / , -) Sample Ids must be unique Task	Wate wate wate wate wate wate wate wate w	100  503 4 3	al Chlorine (Y/N)
SWWTF FEITHERT	AATE TIME	Н	5
Щ. —	1/11/20 0800 1.1/2 0800 08/12/14	14 a See - 1 /	
ADDITIONAL COMMENTS	RELINQUISHED BY I AFFILIATION	DATE TIME ACCEPTED BY / AFFLIATION	
	Jule Wisaner	90	BOIR Sco July V V V
	PRINT Name of SAMPLER PRINT Name of SAMPLER SIGNATURE & SAMPLER	ash njeaver.	
		Con Darres DATE Signed:	

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, sim Honeld

Tim Harrell <u>Tim.Harrell@pacelabs.com</u> Technical Director

Enclosures

# 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

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#### SUMMARY

A Chronic Whole Effluent Toxicity Test using the 7-day chronic fathead minnows (<u>Pimephales promelas</u>), static renewal larval survival and growth test, and three brood 7-day chronic Cladoceran (<u>Ceriodaphnia dubia</u>), 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 <u>EPA 821-R-02-013</u>, "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 <u>Ceriodaphnia</u> 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.

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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 <u>Pimephales promelas</u> at larval for survival and growth test and the <u>Ceriodaphnia dubia</u> survival and reproduction test described in <u>EPA 821-R-02-013</u>, "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  $\leq$  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, <u>Pimephales promelas</u>, Larval Survival and Growth Test. EPA test method 1002.0 was used for conducting the Cladoceran, <u>Ceriodaphnia dubia</u>, Survival and Reproduction Test. The tests were conducted to estimate the NOEC, and LOEC for survival, growth, and reproduction of these test species.

The <u>Pimephales</u> and <u>Ceriodaphnia</u> 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 <u>Ceriodaphnia</u> 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

Ceriodaphnia dubia	Results		
TLP3B	0		
TGP3B	0		
ТОРЗВ	97		
ТРРЗВ	97		
ТДРЗВ	18.82		
Pimephales promelas	Results		
TLP6C	0		
TGP6C	0		
ТОР6С	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
Test Initiated: 13:10	No. 3: 8-23-19 Date: 8-20-19	8:00

Dilution Water used: Moderately Hard Synthetic Water

# FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL (Pimephales promelas)

	DATA I	ABLF FO	JR GRUV		AINEAD	IVITININO VVO	
Effluent Concentration (%)		e Dry We		lligrams in		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

# ATA TABLE FOR GROWTH OF FATHEAD MINNOWS

\* Coefficient of Variation = Standard Deviation X 100 / Mean

# Permittee: SPRINGDALE WATER UTILITIES Effluent discharge.

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Conc. %	Pe	rcent Si	urvival ir	n Replica	ate	Mean	CV %		
	II.	C	hambe	rs					
	А	B	С	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

# FATHEAD MINNOW SURVIVAL

Permittee: SPRINGDALE WATER UTILITIES Effluent discharge.

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# CERIODAPHNIA SURVIVAL AND REPRODUCTION

# DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

Replicate	Control	Dilution 1	Dilution 2	Dilution 3	Dilution 4 73%	Dilution 5 97%
	0%	31%	41%	55%		
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
	26	26	17	29	18	22
6	17	16	26	26	25	16
7		32	25	26	25	27
8	25	23	25	22	20	24
9	20			22	27	23
10	23	23	24			
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.

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	Percent Effluent (%)						
Time	Control	Dilution 1	Dilution 2	Dilution 3	Dilution 4	Dilution 5	
Elapsed	0%	31%	41%	55%	73%	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 %	0.000	0.00	0.00	0.00	0.000	0.000	

# CERIODAPHNIA MEAN PERCENT SURVIVAL

# 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

	(centi)
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.)

# 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%.

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#### TABLE 2 (SECTION 2)

# BIOMONITORING CHRONIC TOXICITY REPORT FATHEAD MINNOW (<u>Pimephales promelas</u>) 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	PH	D.O.	Temperature
Concentration (%)		(mg/l)	(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%
7.64	7.84
7.20	6.80
25.2	24.8
62	102
88	122
448	906
	7.64 7.20 25.2 62 88

\* 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 <u>Pimephales promelas</u> control survival rate was 97.5%. The mean dry weight (growth) of the <u>Pimephales promelas</u> 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 <u>Ceriodaphnia dubia</u> survival rates were 100 in the control. The <u>Ceriodaphnia in</u> the control produced an average of 22.0 young over the seven-day exposure period. Percent CV values for <u>Ceriodaphnia dubia</u> 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 <u>Pimephales promelas</u> was 97% for survival and 97% for growth. The No Observed Effect Concentration (NOEC) for <u>Ceriodaphnia dubia</u> 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 <u>Pimephales promelas</u> and in <u>Ceriodaphnia dubia</u> during the exposure period as described in <u>EPA 821-R-02-013</u>.

# **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		1	
Concentration		Avg. # of Live Organisms/replicate			
of Toxicant	18	8			
	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 Toxican	(NaCl)						
Concentration		Avg. # of Live Organisms/replicate					
of Toxicant	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

m Hanel

Submitted By:

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 2 2 7.260 2.010 11.460 22 7.260 22 3 0 OBSERVED 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 = 0.048W = 0.752Critical 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))

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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	418	0.000	0.000	0.000	0.00
4	55%	0.003	0.052	0.023	4.79
5	738	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

	DUNNETT'S TEST = 1.	ADDE I OF Z			
GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1 2 3 4 5 6	CONTROL 31% 41% 55% 73% 97%	1.084 1.084 1.107 1.084 1.061 1.107	0.780 0.780 0.800 0.780 0.760 0.800	0.000 -0.816 0.000 0.816 -0.816	
Dunnet	t table value = 2.36	(1 Tailed V	alue, P=0.05, df=24,	5)	

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

D	UNNETT'S TEST -	TABLE 2 O	F 2 Ho	control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	5			0 000
2	31%	5	0.058	7.4	-0.000
2	418	5	0.058	7.4	-0.020
2	55%	5	0.058	7.4	0.000
4	738	5	0.058	7.4	0.020
5		5	0.058	7.4	-0.020
6	97%	5	0.058	/.±	5.020

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) = 0.927Critical W (P = 0.01) (n = 30) = 0.900\_\_\_\_\_ Data PASS normality test at P=0.01 level. Continue analysis. 60312256 Springdale FATHEAD GROWTH Transform: NO TRANSFORMATION File: 6312256B 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
	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	738	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

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SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION		ARIANCE	SD	SEM	C.V. %
	CONTROL				0 0 010	10.21
1	CONTROL		0.002 0.001	0.04		8.32
2	318 428		0.001	0.03	-	2.94
3	428	14 L	0.000	0.01		4.29
4	738		0.002	0.01		12.01
5	97%		0.000	0.00	-	1.91

60312256 Springdale FATHEAD GROWTH File: 6312256B Transform: NO TRANSFORMATION							
	AN	OVA 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	e = 2.62 (0.05	,5,24)					

Since F < Critical F FAIL TO REJECT Ho: All equal

Ho:Control<Treatment DUNNETT'S TEST - TABLE 1 OF 2 \_\_\_\_\_ TRANSFORMED MEAN CALCULATED IN ORIGINAL UNITS T STAT SIG MEAN GROUP IDENTIFICATION \_\_\_\_\_ \_\_\_\_\_ -----0.389 0.389 0.390 CONTROL -0.073 1 0.390 31% 2 0.414 -1.303 0.414 0.407 4.28 -0.938 3 0.407 55% -0.844 4 0.405 0.405 73% 0.405 97% 0.414 0.414 -1.293 5 \_\_\_\_\_\_ Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

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

ות	JNNETT'S TEST -	TABLE 2 O	F 2 Ho	:Control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1 2 3 4 5 6	CONTROL 31% 42% 55% 73% 97%	5 5 5 5 5 5	0.045 0.045 0.045 0.045 0.045 0.045	11.6 11.6 11.6 11.6 11.6 11.6	-0.001 -0.025 -0.018 -0.016 -0.025

E.T	SHER'S EAACI	1001	
=======================================		NUM	BER OF
e			
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
31%	10	0	10
TOTAL	20	0	20
	10, 10) (m-0, 0)	E) TS 6	b VALUE IS 10.

FISHER'S EXACT TEST

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

	I IDIIIII (		
		======================================	CR OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
42%	10	0	10
TOTAL	20	0	20
(40			

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	v ====================================
		NUMBE	R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
55%	10	0	<sup>10</sup> Page 34 of 47

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.							
·							
FI	SHER'S EXACT	TEST					
		NUMBE	R 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.

FI	SHER'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.

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SUMMARY OF FISHER'S EXACT TESTS Page 35 of 47

NUMBER SIG

GROUP	IDENTIFICATION	EXPOSED	DEAD	(P=.05)	
	CONTROL	10	0		
1	31%	10	0		
2	428	10	0		
3	55%	10	0		
4	73%	10	0		
5	97%	10	0		
					-

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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	418	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 2 3 4 5 6	CONTROL 31% 41% 55% 73% 97%	0.000 0.000 0.000 0.000 0.000 0.000 0.000	$\begin{array}{c} 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\end{array}$	$\begin{array}{c} 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\end{array}$	0.00 0.00 0.00 0.00 0.00 0.00 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 -----22.920 EXPECTED 4.020 14.520 14.520 4.020 20 2 17 3 18 OBSERVED 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. %
		10 444	3.528	1.116	16.03
⊥ 2	CONTROL 31%	12.444 19.778	3.528	1.406	18.53
2	518 418	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

603122	56	Springdale	CERIODAPHNIA	DUE	BIA	REPRODU
File:						ANSFORMATION

		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

DUNNETT'S TEST TABLE 1 OF 2 Ho:Control<Treatment TRANSFORMED MEAN CALCULATED IN MEAN ORIGINAL UNITS T STAT SIG GROUP IDENTIFICATION ----- ----------LILL CLUSSESSESSESSESSES 22.000 24.000 22.700 24.000 22.000 CONTROL 1 24.000 -1.236 2 31% -0.433 22.700 41% 3 24.000 -1.236 55% 4 22.800 -0.495 22.800 738 5 0.062 97% 21.900 21.900 6 \_\_\_\_\_\_

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 O	F 2 Hc	:Control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	10			
2	3.18	10	3.737	17.0	-2.000
2	418	10	3.737	17.0	-0.700
4	55%	10	3.737	17.0	-2.000
5	738	10	3.737	17.0	-0.800
5	978	10	3.737	17.0	0.100

Conc. II	D	1	2	3	4	5	6
Conc. Te	ested	0	31	41	55	73	97
Toxican	e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 ibition Conc t/Effluent:	Sprinqda	le	21 24 25 20 20 17 26 25 25 25 24 age Estimate		23 28 23 22 17 18 25 25 20 27	25 17 26 23 16 22 16 27 24 23
Test Sp Test Du DATA FI	ecies: Dubia ration:	L	Day				
Conc. ID	Number Replicates	Concen	tration	Response Means		td. ev. Re	Pooled sponse Means
1 2 3 4 5 6	10 10 10 10 10 10 10	3 4 5 7	0.000 1.000 1.000 5.000 3.000 7.000	$22.000 \\ 24.000 \\ 22.700 \\ 24.000 \\ 24.000 \\ 22.800 \\ 21.900$	4 2 2 3	.528 .447 .983 .667 .645 .122	23.175 23.175 23.175 23.175 23.175 22.800 21.900
	Tinear Inter	colation	Estimate	e can be cal	culated	from th	e

\*\*\* 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.

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l <sup>8</sup>	2	3	4		5	6
0	31	41	55		73	97
.329 .427 .398 .419 .372			.378 .417 .403		480 367 421	.411
t: Springda 8/20/19 thead	le Test End					
Concentes	tration			Std. Dev.		Pooled onse Means
3 4 5 7	1.000 1.000 5.000 3.000	0.390 0.414 0.40 0.405	) 1 7 5	0.032 0.012 0.017		0.403 0.403 0.403 0.403 0.403 0.403
	0 .329 .427 .398 .419 .372 oncentration t: Springda 8/20/19 thead 7 1 Concentes 3 4 5 7	0 31 .329 .417 .427 .389 .398 .413 .419 .397 .372 .336 oncentration Percen t: Springdale 8/20/19 Test End thead 7 Day Concentration	0 31 41 .329 .417 .427 .427 .389 .418 .398 .413 .396 .419 .397 .408 .372 .336 .421 oncentration Percentage Estimat t: Springdale 8/20/19 Test Ending Date: 8/ thead 7 Day Concentration Response es Means 0.000 0.389 31.000 0.390 41.000 0.414 55.000 0.405	0 31 41 55 .329 .417 .427 .418 .427 .389 .418 .378 .398 .413 .396 .417 .419 .397 .408 .403 .372 .336 .421 .419 oncentration Percentage Estimate *** t: Springdale 8/20/19 Test Ending Date: 8/27/19 thead 7 Day Concentration Response es Means 0.000 0.389 31.000 0.390 41.000 0.414 55.000 0.407 73.000 0.405	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1       1       1       1       1       1       1         0       31       41       55       73         .329       .417       .427       .418       .399         .427       .389       .418       .378       .480         .398       .413       .396       .417       .367         .419       .397       .408       .403       .421         .372       .336       .421       .419       .359         oncentration Percentage Estimate ***       t: Springdale       8/20/19       Test Ending Date: 8/27/19         thead       7 Day       Toay       0.000       0.389       0.040         31.000       0.390       0.032       .41.000       0.414       0.012         55.000       0.407       0.017       73.000       0.405       0.049

\*\*\* 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.

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Face Analytical www.parefabr.com Section A

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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www.pacelabs.com	

# Sample Condition Upon Receipt

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Client Name: SD'rodale			
- Fridologio	PEX 🗆 E		Pace 🗆 Xroads 🗆 Client 🗖 Other 🗆
< 2			
Custody Seal on Cooler/Box Present: Yes No	Seals inta		
Packing Material: Bubble Wrap  Bubble Bags [		Foam El	
	f Ice:(Wet)		
Cooler Temperature (°C): As-read 3.5 Corr. Fact	There	Correc	Date and initials of person
Temperature should be above freezing to 6°C		-	K 2 M
Chain of Custody present	Yes DN	0 🗍 N/A	£ 8:00
Chain of Custody relinguished	Vres DN		6.00
Samples arrived within holding time:	~~~~	0 🗍 N/A	
Short Hold Time analyses (<72hr):			
Rush Turn Around Time requested:			
Sufficient volume			
Correct containers used	Yes DN		
	1		
Pace containers used	KYPS DNG		
Containers intact	Yes DNG	D DNA	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes □No		
Filtered volume received for dissolved tests?	□Yes □No		
Sample labels match COC: Date / time / ID / analyses	Yes DNC		
Samples contain multiple phases? Matrix	UYes KNo		
Containers requiring pH preservation in compliance?	□Yes □Nd	NIA NIA	List sample IDs, volumes, lot #'s of preservative and the
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCI<2, NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)		~ 1	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	Dyes DNo	XIN/A	
Head <b>spa</b> ce in VOA vials ( >6mm)	🗆 Yes 🗇 No	XINIA	
Samples from USDA Regulated Area State	□Yes □No	XNIA	1
Additional labels attached to 5035A / TX1005 vials in the field?	□Yes □No	N/A	
Client Notification/ Resolution: Copy COC to		/ N	Field Data Required? Y / N
Person Contacted: Date/Ti	me		
Comments/ Resolution	11		
			<ul> <li>To the momentum method and a second se</li></ul>

mation;     Required Project       Idale Water Utilities     Report To: Brad       Bilent Grove Road     Copy To: Brad       Princhase Order #: Project Name:     Project Name:       66-3657     Fax:     Project Name:       MATRIX     Project Name:     Project Name:       06-3657     Fax:     Project Name:       07-00     DW     Nater       08-3657     Fax:     Project Name:       09     Nater     VM       01     Seater Nater     VM       02     Sater Nater     VM       01     Sater Nater     VM       01     Sater Nater     VM       02     Sater Nater     VM       01     Sater Nater     VM	LETTPE (G=GRAB C=COMP)		OH ativ	leff. shopper@pacelabs.com		Page : Regul	ge: 1 Reculatory Acency	Ğ
Springdale Water Utilities     Report To:     Brad       2910 Silent Grove Road     2910 Silent Grove Road     Copy To:       AR 72762     AR 72762     Purchase Order #:       AR 72762     Purchase Order #:     Project Name:       479-756-3657     Fax     Project Name:       Due Date:     Project Name:     Project I and the marking water with the mark of th	st collected start	Attention: Company Nam Address: Pace Project N Pace Project ##	OH ativ	per@pacelabs.com		Regu	latory Agend	
Silent Grove Road Copy To: Pringdalewater.com Purchase Order # 56-3657 Fax: Project Name: 56-3657 Fax: Project Name: MATRIX COPE MATRIX COPE MATRIX COPE MATRIX COPE Project Name: MATRIX COPE Project Name: MATRIX COPE Project Name: Project Project Project Project Name: Project Project Pr	COLLECTED	Сотралу Nam Аddress: Расе Project V Расе Project M Расе Project # Ф	OH ativ	per@pacelabs.com		Regu	Interv Agence	
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pringdalewater.com     Purchase Udder #:       56-3657     Fax:     Project Name:       56-3657     Fax:     Project Name:       56-3657     Fax:     Project Name:       66-3657     Fax:     Project Name:       76     MATRIX     CODE       MATRIX     MATRIX     CODE       MARRIX     MARRIX     CODE       Marring Water     WW     Witching Water       Voider I     Voider I     Voider I       Project Per box.     Voie     Project #:	COLLECTED	таба спорт 2 таб	OH ativ	per@pacelabs.com			2.1	A
DLE ID Northing Water MATRIX	COLLECTED	SPENIATING SPENIATINATING SPENIATING SPENIATING SPENIATING SPENIATING S	OH ativ			Sta	State / Location	1110
MATRIX MATRIX Dimiking Water Water Water Water M	COLLECTED	2REINATINC Devrea Devrea	sthanol DH CH SS2203 CH CH CH CH CH CH CH CH CH CH CH CH CH				AR	
MATRIX MATRIX Dinhing Water Water Water Poduct Product Product P Soll/Solid S N Wpe Wpe	COLLECTED	SREINER Devies	stranol 25203 GH OH OH	Requested /	Requested Analysis Filtered (Y/N)	()		
Drmking Water DW Waste Water WT Waste Water WT Product P Soldsold SL Soldsold SL SN Wipe WP	START	8язиіятис рөчэа ф	sthanol 25203 OH Si	N/A				
Wipe WP	IE LABE	DNIATNO bevred	stranol 28203 OH X			(N/X) 90	(N/L) 20	
AR OT TS	A ⇒ DATE TIME DATE TIME	# OE C	Me Na: Na	Other Chronic Wet Te		Residual Chlori		
SWWTF EFFLUENT	cosizzing 0800 colizing 0800	4ª4   /					CO	0-00
ADDITIONAL COMMENTS RELINQUISI	RELINQUISHED BY / AFFILIATION DATE	TIME	ACCENTED	ACCEPTED BY I AFFILIATION	DATE	TIME	SAMPLE	SAMPLE CONDITIONS
940-	2. i) wave 08/23/17	1 0900	Lo Jourt	steano loce	X 94 X	S CO 2.1	7	7
2							_	` _
Pag								
e 46	SAMPLER NAME AND SIGNATURE	<b>AATURE</b>			No Experience	0	uo	
of 4	PRINT Name of SAMPLER:	VI HSOV	EAVER			U dV	1) eiveq	ubjez 1) IJ
7	SIGNATURE of SAMPLER:	ER: July in	Duarer	DATE Signed:	08/23/19	15 <i>1</i>	(X/V lce Kec	(Y/V Coo (Y/V

on Receipt	U noitibno <b>D</b> elq	lwes
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CA.

e:	Date		Project Manager Review:
			Comments/ Resolution:
		יים	
Field Data Required? Y / N	N / Å		Client Notification/ Resolution: Copy COC to
	ANK OND	səY[]	Additional labels attached to 5035A / TX1005 vials in the field?
		s∋Y□	Samples from USDA Regulated Area: State:
		səy 🗌	:(mm∂< ) slsiv AOV ni ∋∋sqsbs∋H
	1	\$∂Y□	Trip Blank present:
	٥N	səY	Ootassium iodide test strip turns blue/purple? (Preserve)
	٥N 🗌	səY	Lead acetate strip turns dark? (Record only)
			Cyanide water sample checks:
			Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO) Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)
babbs amites		səY□	Containers requiring pH preservation in compliance?
List sample IDs, volumes, lot #'s of preservative and the		seY	Samples contain multiple phases? Matrix:
	~ \	59,5	Sample labels match COC: Date / time / ID / analyses
		səy 🗌	Filtered volume received for dissolved tests?
	$\langle \rangle$	səY 🗌	Sandsh ni nəzori elioe 8001/2001XT \ A8608 bəvrəsərqnL
		SOL	Containers intact:
	A\N O ON O	SPA	ace containers used:
	A\N O ON O	50, A	bertect containers used
	A\N O ON O	solve	sufficient volume:
		(sə\□	bstseuper emiT bruorA nruT dzu?
	A\N O ON O	Say	hort Hold Time analyses (<72hr):
	, A\N□ oN□	Sex (	:emit gniblor nirtin bevins selqms
	A\N ON ON	SOY	Shain of Custody relinquished:
N.8 02	A\N O ON O	So A	Shain of Custody present:
6!1 He 18			emperature should be above freezing to 0.0 cm
Date and initials of person			ooler Temperature (°C): As-read ج.ک Corr. Factor
	nov sula	e.We	hermometer Used: T-193 Type of lo
None Other	□ mso٦		acking Material: Bubble Wrap 🗌 Bubble Bags 🗆
□ °N	ntact: Yes 🕅	ii sleəS	stody Seal on Cooler/Box Present: Yes 🕅 № 🗆
j Yes 🗆 No			
Pace □ Xroads □ Client □ Other □			N
	tqiəc	эл Ke	oqU noifibno O elqms S 10/1/16/1/16/1/1/1/1/1/1/1/1/1/1/1/1/1/1