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



November 18, 2019

Tom Myers City of Siloam Springs 975 Anderson Avenue Siloam Springs, AR 72761

RE: Project: WET TEST

Pace Project No.: 60320040

Dear Tom Myers:

Enclosed are the analytical results for sample(s) received by the laboratory on November 05, 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,

Nolie Wood nolie.wood@pacelabs.com

This Wood

1(913)563-1401 Project Manager

Enclosures







CERTIFICATIONS

Project: WET TEST Pace Project No.: 60320040

Pace Analytical Services Southeast Kansas

808 West McKay, Frontenac, KS 66763 Arkansas Certification #: 18-016-0

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10426

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

REPORT OF LABORATORY ANALYSIS



SAMPLE SUMMARY

Project: WET TEST Pace Project No.: 60320040

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60320040001	CITY OF SILOAM SPRINGS	Water	11/04/19 09:00	11/05/19 08:00

REPORT OF LABORATORY ANALYSIS



SAMPLE ANALYTE COUNT

Project: WET TEST Pace Project No.: 60320040

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60320040001	CITY OF SILOAM SPRINGS	EPA 821/R-02/013	MEB	1	PASI-SE



ANALYTICAL RESULTS

Project: WET TEST Pace Project No.: 60320040

Date: 11/18/2019 11:40 AM

Sample: CITY OF SILOAM SPRINGS	Lab ID: 6	60320040001	Collected:	11/04/1	9 09:00	Received:	11/05/19 08:00	Matrix: Water	
Parameters	Results	Units	Repor	t Limit	DF	Prepared	Analyzed	CAS No.	Qual
Chronic Toxicity	Analytical N	Method: EPA 82	1/R-02/013						
Toxicity, Chronic	Complete			1.0	1		11/05/19 11:0	00	



QUALIFIERS

Project: WET TEST Pace Project No.: 60320040

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

Date: 11/18/2019 11:40 AM

PASI-SE Pace Analytical Services - SE Kansas



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WET TEST Pace Project No.: 60320040

Date: 11/18/2019 11:40 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60320040001	CITY OF SILOAM SPRINGS	EPA 821/R-02/013	622268		



Sample Condition Upon Receipt



C V/2	ā.	
Olient Name: Stormsprings		
Clay I F	PEX 🗆 ECI 🗆	Pace Xroads Client Other Other
racking #: Pac	e Shipping Label Used	? Yes □ No □
Sustody Seal on Cooler/Box Present: Yes □ No □	Seals intact Yes □	No □
Packing Material: Bubble Wrap □ Bubble Bags □		None C Other □
	Ice: Wet Blue Nor	Date and initials of maroon
Corr. Fact	or 8 Correct	ed 2,3 examining contents:
emperature should be above freezing to 6°C		11/5/19
Chain of Custody present:	∭yes □No □N/A	No 0800
Chain of Custody relinquished	Ves □No □N/A	
Samples arrived within holding time:	es □No □N/A	
Short Hold Time analyses (<72hr):	Yes ONO ON/A	
Rush Turn Around Time requested:	□Yes □N/A	
Sufficient volume:	Yes No N/A	
Correct containers used	Yes DNO DNA	^
Pace containers used:	VZYes □No □N/A	
Containers intact:	Wes □No □N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes □No □M/A	
Filtered volume received for dissolved tests?	□Yes □No \\\A	244
Sample labels match COC: Date / time / ID / analyses	XIYes [Na AMA!	121/5/19
Samples contain multiple phases? Matrix:	Yes No ON/A	
Containers requiring pH preservation in compliance?	□YeS □No XN/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
(HNO ₃ , H ₂ SO ₄ , HCI<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)		
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	□Yes □No	
Trip Blank present:	□Yes □No N/A	
Headspace in VOA vials (>6mm):	Tyes DNo DN/A	
Samples from USDA Regulated Area: State:	□Yes □No N/A	
Additional labels attached to 5035A / TX1005 vials in the field]? □Yes □No N/A	
Client Notification/ Resolution: Copy COC		Field Data Required? Y / N
Person Contacted: Date/	Time:	
Comments/ Resolution:	(*.	
Project Manager Review	Dat	e.
1 Tojout Manager Neview		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical www.pacelabs.com
Section A Section B

Section A Required C	Section A Required Client Information:	Section B Required Project Information:			Section C Invoice Information	nation:					Page:	\	ē M	
Company:	y: City of Siloam Springs	Report To: Tom Myers			Attention:									
Address:	975 Anderson Avenue	Copy To:			Company Name:	те:			REGULATORY AGENCY	RY AGENCY			B ()	
	Siloam Springs, AR				Address:				X NPDES	∏ GROUI	GROUND WATER	L DRI	DRINKING WATER	
Email To:	tanisas () cilomerine in	Purchase Order No.:			Pace Quote Reference:				_ ⊓ UST	RCRA		☐ OTHER	ER	
Phone:	479-228-0934 Fax	Project Name:			Pace Project Manager:	Richard Mannz	annz		Site Location					
Rednes	Requested Due Date/TAT:	Project Number:			Pace Profile #:	10809			STATE	¥				
	(4)	-						Requeste	Requested Analysis Filtered (Y/N)	red (Y/N)				
	Section D Valid Matrix Codes Required Client Information OOI	odes CODE	COLLECTED			Preservatives	N N ↑							
	DRINKING WATER WATER WASTE WATER PRODUCT PRODUCT PRODUCT	o valid codes t	COMPOSITE COMPOSITE ENDIGRAB				1121				(N/A)			
# W∃L	Sample IDs MUST BE UNIQUE TISSUE	es) BODE (se	II.	SAMPLE TEMP AT CC	# OF CONTAINERS	190H 1909 1900 1900	Va ₂ S ₂ O ₃ Methanol Other ACC Analysis Test	Chronic WET Tes			Residual Chlorine	Pace Pro	6222040	
1 -	City of Silam Swikes	I J MA	1	0060) ×					00-90	100	
2	10000													
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*sample	samples have a 24 hour hold time!	Town Brown	an Brie	11-4:19	15:50		1	au	51/5/1	DEW.	231		3	
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age		O:	SAMPLER NAME	AND SIGNATURE	₹E	=1			11			(1)	(M)	
9 0	0		PRINT Nan	PRINT Name of SAMPLER:	Cons	Sowy					ni qn	N/Y) (let (Y	/
r 43	4.40		SIGNATUR	RE of SAMPLER:	1 min	Bunn		DATE Signed (MM/DD/YY):	11-4-19				Coo	
						1								

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

F-ALL-Q-020rev.08, 12-Oct-2007

CHRONIC TOXICITY TEST FOR City of Siloam Springs

PERMIT # AR0020273 AFIN # 04-00106

PERFORMED ON:

Pimephales promelas

and

Ceriodaphnia dubia

PREPARED FOR:

City of Siloam Springs Attn: Tom Myers 975 Anderson Avenue Siloam Springs, AR 1-479-228-0934

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

November 14, 2019

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APPENDIX B - CHAIN OF CUSTODY FOR	MS	

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 City of Siloam Springs effluent discharge from November 4, 2019 to November 8, 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 <u>EPA 821-R-02-013</u>, 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 100% 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 100% for survival. No significant reduction in growth was observed in the 100% effluent concentration. The Toxic Units is <1. The IC25 is >100. The NOEC for growth in effluent was determined to be 100%. The PMSD was 23.9.

In Cladoceran section of testing, it was observed that the effluent had no significant effect on the survival of the organisms in the 100% 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 100% for survival. No significant reduction in reproduction was observed in the 100% effluent concentrations. The Toxic Units is <1. The IC25 is >100. The NOEC for reproduction in effluent was determined to be 100%. The PMSD was 14.4.

The chronic toxicity exhibited by the fathead minnows and the <u>Ceriodaphnia</u> treated by the effluent sampled from November 4 to November 8 from the City of Siloam Springs effluent discharge, is acceptable as described in <u>EPA 821-R-02-013</u>.

INTRODUCTION

Pace Analytical was contracted to perform this chronic toxicity test on effluent from the City of Siloam Springs 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

City of Siloam Springs personnel collected sampling of the effluent. A sample of the effluent was delivered to Pace by commercial carrier on 11-5-19. Subsequent samples followed by delivery on 11-7-19 and on 11-9-19. 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, Pimephales promelas, Larval Survival and Growth Test. EPA test method 1002.0 was used for conducting the Cladoceran, Ceriodaphnia dubia, Survival and Reproduction Test. The tests were conducted to estimate the NOEC, and LOEC for survival, growth, and reproduction of these test species.

The <u>Pimephales</u> and <u>Ceriodaphnia</u> tests were initiated on 11-5-19 and carried out until 11-12-19. 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.

TABLE 1

Permittee: City of Siloam Springs Effluent discharge.

Date Sampled No. 1: 11-4-19 9:00

No. 2: 11-6-19 9:00

No. 3: 11-8-19 9:00

Test Initiated: 11:00 Date: 11-5-19

RESULTS

Ceriodaphnia dubia	Results		
TLP3B	0		
TGP3B	0		
TOP3B	100		
TPP3B	100		
ТQРЗВ	11.53		
Pimephales promelas	Results		
TLP6C	0		
TGP6C	0		
TOP6C	100		
TPP6C	100		
TQP6C	15.26		

Dilution Water used: Moderately Hard Synthetic Water

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL (Pimephales promelas)

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concentration (%)	Averag A	•	eight in Mi te Chamb C	E	Mean Dry Weight (mg)	CV% *	
Control 0%	0.439	0.462	0.381	0.309	0.375	0.393	15.26
Dilution 1 32%	0.400	0.490	0.316	0.364	0.456	0.405	17.21
Dilution 2 42%	0.387	0.471	0.364	0.245	0.484	0.390	24.68
Dilution 3 56%	0.391	0.404	0.388	0.428	0.369	0.396	5.51
Dilution 4 75%	0.438	0.471	0.479	0.495	0.387	0.454	9.44
Dilution 5 100%	0.473	0.505	0.355	0.392	0.409	0.427	14.32

^{*} Coefficient of Variation = Standard Deviation X 100 / Mean

FATHEAD MINNOW SURVIVAL

Conc. %	Pe		urvival ii Chambe	n Replica	ate	Mean	Percent S	Survival	CV %
	Α	В	С	D	Е	24hr	48hr	7 day	
Control 0%	100	100	100	87.5	100	100	100	97.5	4.79
Dilution 1 32%	100	100	87.5	100	100	100	100	97.5	4.79
Dilution 2 42%	100	100	100	75	100	100	100	95	9.30
Dilution 3 56%	100	100	100	100	87.5	100	100	97.5	4.79
Dilution 4 75%	100	100	100	100	100	100	100	100	0.0
Dilution 5 100%	100	100	87.5	100	100	100	100	97.5	4.79

Permittee: City of Siloam Springs Effluent discharge.

CERIODAPHNIA SURVIVAL AND REPRODUCTION

DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

Replicate	Control	Dilution 1	Dilution 2	Dilution 3	Dilution 4	Dilution 5
, tophosis	0%	32%	42%	56%	75%	100%
1	19	19	20	20	24	22
2	22	24	23	25	24	27
3	22	15	18	22	20	25
4	19	27	23	27	23	28
5	23	18	29	22	24	26
6	26	19	19	15	28	22
7	25	27	22	19	21	26
8	20	24	24	25	25	19
9	24	23	21	23	23	27
10	22	23	26	24	25	26
Mean	22.2	21.9	22.5	22.2	23.7	24.8
SD	2.394	3.985	3.308	3.490	2.214	2.860
CV %	10.79	18.19	14.70	15.72	9.34	11.53

CERIODAPHNIA MEAN PERCENT SURVIVAL

		Perc	ent Effluent	(%)		
Time	Control 0%	Dilution 1 32%	Dilution 2 42%	Dilution 3 56%	Dilution 4 75%	Dilution 5 100%
Elapsed 24 hrs	100	100	100	100	100	100
48 hrs	100	100	100	100	100	100
7-day	100	100	100	100	100	100
SD	0.000	0.000	0.000	0.000	0.000	0.000
CV %	0.00	0.00	0.00	0.00	0.000	0.000

TABLE 2 SUMMARY OF TEST CONDITIONS FOR THE FATHEAD MINNOW (Pimephales promelas) LARVAL SURVIVAL AND GROWTH TEST

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
Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
10. No. larvae/chamber	8
11. No. replicates/concentration	5
12. No. larvae/concentration	40
13. Feeding regime	Feed 0.15 g newly hatched brine shrimp nauplii two times daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
15. Aeration	None

TABLE 2 (CONT.)

16. Dilution Water	Moderately Hard Synthetic Water prepared with MILLI-Q deionized water and reagent grade chemicals
17. Effluent concentrations	0%, 32%, 42%, 56%, 75%, 100%
18. Test duration	7 days
19. Endpoints	Survival and growth
20. Test acceptability	80% or greater survival in the controls, Average dry weight in controls >0.25 mg, Coefficient of variation in the control must not exceed 40%.

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

1. Test type	Static renewal
2. Temperature	25 degrees Celsius
3. Light quality	Ambient laboratory light
4. Light intensity	Ambient laboratory levels
5. Photoperiod	16 hr light, 8 hr dark
6. Test chamber size	30 ml
7. Test solution volume	25 ml

TABLE 2 (CONT.)

8. Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
10. No. larvae/chamber	1
11. No. replicates/concentration	10
12. No. larvae/concentration	10
13. Feeding regime	Feed 0.1 ml YCT and 0.1 ml of Algae daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
15. Aeration	None
16. Dilution Water	Moderately Hard Synthetic Water prepared with MILLI-Q deionized water and reagent grade chemicals
17. Effluent concentrations	0%, 32%, 42%, 56%, 75%, 100%
18. Test duration	Until 60% or more surviving control females have three broods or a maximum of 8 days.
19. Endpoints	Survival and Reproduction
20. Test acceptability	80% or greater survival in the controls, Average reproduction rate of 15 young / adult. Coefficient of variation in the control must not exceed 40%.

TABLE 2 (SECTION 2)

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

Permittee: City of Siloam Springs Effluent discharge.

ANALYSTS: Pace Analytical Services, Inc.

Timothy Harrell Mike Bollin Ethan Castagno

TABLE 2 (SECTION 2) INITIAL WATER QUALITY EFFLUENT CONCENTRATION

Control	100%
7.56	7.81
8.30	7.10
25.0	25.0
58	82
92	154
307	763
<0.1	<0.1
	7.56 8.30 25.0 58 92 307

* 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

Z-11001 VValci Qua	nty Medeatornerite		
Effluent	PH	D.O.	Temperature
Concentration (%)		(mg/l)	(C)
0% Control	7.69	6.90	25.4
32% Effluent	7.68	6.90	24.6
42% Effluent	7.68	6.90	24.6
56% Effluent	7.66	7.00	24.6
75% Effluent	7.64	7.00	24.6
100% Effluent	7.62	7.10	24.6

48-Hour Water Quality Measurements

40-110di VVatol Qua	ity moderations		
Effluent	PH	D.O.	Temperature
Concentration (%)		(mg/l)	(C)
0% Control	7.74	7.00	25.3
32% Effluent	7.78	7.00	24.7
42% Effluent	7.80	7.00	24.7
56% Effluent	7.82	7.00	24.7
75% Effluent	7.83	6.90	24.7
100% Effluent	7.84	6.90	24.7

FINAL WATER QUALITY

EFFLUENT CONCENTRATION

		1000/
	Control	100%
11	7.75	7.70
рН		
D.O.	6.90	6.80
Temp	24.7	24.7
Alk	58	80
Hard	94	156
Cond	383	912

* 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 0.393 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 15.26. The <u>Ceriodaphnia dubia</u> survival rates were 100 in the control. The <u>Ceriodaphnia in the control produced an average of 22.2 young over the seven-day exposure period. Percent CV values for <u>Ceriodaphnia dubia</u> control survival and reproduction was 0.00 and 10.79. Control data met or exceeded all criteria set out by <u>EPA 821-R-02-013</u> for test acceptance.</u>

REFERENCE TOXICANTS

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

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

Start: 10/15/19 13:00

End: 10/22/19 13:10

Reference Toxicant (NaCl) <u>Pimephales promelas</u>

Reference Loxic	ant (Naci)	rincphales		
Concentration		Avg. # of Live Orga	anisms/replicate	
of Toxicant	0 hrs	24 hrs	48 hrs	7 days
10 a/l	40	4	0	0
10 g/l	40	35	27	2
8 g/l	40	39	34	22
6 g/l		40	40	39
4 g/l	40	40	40	39
2 g/l	40	40		

IC25 (4.91 g/l Sodium Chloride)

Survival NOEC: 4.0 g/l

Reference Toxicant (NaCl) Ceriodaphnia Dubia

Reference Toxicar	it (NaCl)	Ceriodaprinia Bubia		
Concentration		Avg. # of Live Orga	anisms/replicate	
of Toxicant	0 hrs	7 days		
2.5 g/l	10	4	0	0
	10	10	10	11
2.0 g/l	10	10	10	10
1.5 g/l	10	10	10	10
1.0 g/l 0.5 g/l	10	10	10	10
0.5 g/l	10			

IC25 (1.22 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

14 of 14

Submitted By: Timothy Harrell, Technical Director

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60320040 Siloam Springs FATHEAD SURVIVAL

File: 6320040A 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 OBSERVED	2.010	7.260	11.460 25	7.260	2.010

Calculated Chi-Square goodness of fit test statistic = 36.9753
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.

60320040 Siloam Springs FATHEAD SURVIVAL

File: 6320040A Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's test for normality

D = 0.082

W = 0.666

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

60320040 Siloam Springs FATHEAD SURVIVAL

File: 6320040A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN	
1 2 3 4 5	CONTROL 32% 42% 56% 75% 100%	5 5 5 5 5 5 5	0.991 0.991 0.886 0.991 1.107 0.991	1.107 1.107 1.107 1.107 1.107	1.084 1.084 1.063 1.084 1.107	

60320040 Siloam Springs FATHEAD SURVIVAL

File: 6320040A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

SEM C.V. %	SD	VARIANCE	IDENTIFICATION	GRP
0.023 4.79	0.052	0.003	CONTROL	1
0.023 4.79	0.052	0.003	32%	2
9 0.044 9.30	0.099	0.010	42%	3
0.023 4.79	0.052	0.003	56%	4
0.000 0.00	0.000	0.000	75%	5
0.023 4.79	0.052	0.003	100%	6
0.000	0.000	0.003	56% 75%	5 5 6

60320040 Siloam Springs FATHEAD SURVIVAL

File: 6320040A Transform: ARC SINE(SQUARE ROOT(Y))

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.005	0.001	0.286
Within (Error)	24	0.082	0.003	
Total	29	0.087		

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

60320040 Siloam Springs FATHEAD SURVIVAL

File: 6320040A Transform: ARC SINE(SQUARE ROOT(Y))

	DUNNETT'S TEST -	TABLE 1 OF 2	Ho:Control <t< th=""><th>reatment</th></t<>	reatment
GROUP	IDENTIFICATION .	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT SIG
1 2 3 4 5	CONTROL 32% 42% 56% 75% 100%	1.084 1.084 1.063 1.084 1.107	0.780 0.780 0.760 0.780 0.800 0.780	0.000 0.568 0.000 -0.627 0.000
Dunne	ett table value = 2.3	6 (1 Tailed V	<i>T</i> alue, P=0.05, df=24,	.5)

60320040 Siloam Springs FATHEAD SURVIVAL File: 6320040A Transform: ARC SINE(SQUARE ROOT(Y))

I	DUNNETT'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	CONTROL 32% 42% 56% 75% 100%	5 5 5 5 5	0.076 0.076 0.076 0.076 0.076	9.8 9.8 9.8 9.8 9.8	0.000 0.020 0.000 -0.020 0.000

60320040 Siloams Springs FATHEAD GROWTH

Transform: NO TRANSFORMATION File: 6320040B

Shapiro - Wilk's test for normality

D = 0.095

W = 0.970

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.

60320040 Siloams Springs FATHEAD GROWTH

File: 6320040B Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance Calculated B1 statistic = 7.26

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.

60320040 Siloams Springs FATHEAD GROWTH

File: 6320040B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	XAM	MEAN
1	CONTROL	5	0.309	0.462	0.393
2	32%	5	0.316	0.490	0.405
3	42%	5	0.245	0.484	0.390
4	56%	5	0.369	0.428	0.396
5	75%	5	0.387	0.495	0.454
6	100%	5	0.355	0.505	0.427

60320040 Siloams Springs FATHEAD GROWTH

File: 6320040B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.004	0.060	0.027	15.26
2	32%	0.005	0.070	0.031	17.21
3	42%	0.009	0.096	0.043	24.68
4	56%	0.000	0.022	0.010	5.51
5	75%	0.002	0.043	0.019	9.44
6	100%	0.004	0.061	0.027	14.32

60320040 Siloams Springs FATHEAD GROWTH

File: 6320040B Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.016	0.003	0.784
Within (Error)	24	0.095	0.004	
Total	29	0.111		

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

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

60320040 Siloams Springs FATHEAD GROWTH

File: 6320040B Transform: NO TRANSFORMATION

Ho:	Con	trol	<tre< th=""><th>eatmen</th><th>ιt</th></tre<>	eatmen	ιt

DUNNETT'S	TEST	-24	TABLE	1	OF	2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
-					
1	CONTROL	0.393	0.393		
2	32%	0.405	0.405	-0.301	
3	42%	0.390	0.390	0.075	
4	56%	0.396	0.396	-0.070	
5	7.5%	0.454	0.454	-1.527	
6	100%	0.427	0.427	-0.844	

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

60320040 Siloams Springs FATHEAD GROWTH
File: 6320040B Transform: NO TRANSFORMATION

I	DUNNETT'S TEST -	TABLE 2 O	F 2 Ho	:Control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)		DIFFERENCE FROM CONTROL
1	CONTROL	5			
2	32%	5	0.094	23.9	-0.012
3	42%	5	0.094	23.9	0.003
4	56%	5	0.094	23.9	-0.003
5	75%	5	0.094	23.9	-0.061
6	100%	5	0.094	23.9	-0.034

FISHER'S EXACT TEST

	FISHER'S EXACT	CEST ====	=======================================
******		NUM	BER OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
32%	10	0	10
TOTAL	20	0	20
#####==========			h MALITE TS 10.

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

	FISHER'S EXACT T	EST =====	=======================================
=======================================		NUMB	ER OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
42%	10	0	10
		_	20
TOTAL	20	0=======	=======================================
=======================================	=========		

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

	LIPHER P FWICE		=======================================
=======================================		NUMBE	R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
56%	10	0	10
			Page 30 of 43

20 20 TOTAL

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

FI	SHER'S EXACT	======= TD01	=======================================
=======================================	========	NUMBE	R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
75%	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

FI	SHER'S EXACT	========	=======================================
=======================================		NUMBE	R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
100%	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

GROUP	IDENTIFICATION	EXPOSED	DEAD 	(P=.05)
	CONTROL	10	0	
	32%	10	U	
1	42%	10	0	
2		10	0	
3	56%	1.0	0	
1	75%	10	0	
4	100%	10	0	
5				

60320040 Siloam Springs CERIODAPHNIA DUBIA SURVIVA

File: 6320040D

Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN	
1 2 3 4 5	CONTROL 32% 42% 56% 75% 100%	10 10 10 10 10	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	1.000 1.000 1.000 1.000 1.000	
		= = =				

60320040 Siloam Springs CERIODAPHNIA DUBIA SURVIVA File: 6320040D Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

					a 11 %
GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
		0.000	0.000	0.000	0.00
1	CONTROL	0.000	0.000	0.000	0.00 0.00
2	32% 42%	0.000	0.000	0.000	0.00
3	56%	0.000	0.000	0.000 0.000	0.00
4	75%	0.000	0.000	0.000	0.00
5	100%	0.000	0.000		
6					

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU

Transform: NO TRANSFORMATION File: 6320040E

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 OBSERVED	4.020	14.520 14	22.920 23	14.520 16	4.020

Calculated Chi-Square goodness of fit test statistic = 0.4287

Table Chi-Square value (alpha = 0.01) = 13,277

Data PASS normality test. Continue analysis.

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU Transform: NO TRANSFORMATION

File: 6320040E

Bartlett's test for homogeneity of variance Calculated B1 statistic = 4.30

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.

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6320040E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1 2 3 4 5	CONTROL 32% 42% 56% 75%	10 10 10 10 10	19.000 15.000 18.000 15.000 20.000	26.000 27.000 29.000 27.000 28.000 28.000	22.200 21.900 22.500 22.200 23.700 24.800
6	=12				

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6320040E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
			2.394	0.757	10.79
1	CONTROL	5.733	3.985	1.260	18.19
2	32%	15.878	3.308	1.046	14.70
2	42%	10.944	3.490	1.104	15 72
4	56%	12.178	2.214	0.700	9.34
4	75%	4.900	2.860	0.904	11.53
5	100%	8.178	2.000		
6					

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6320040E Transform: NO TRANSFORMATION

ANOVA TABLE

		辛辛 表表 ボーー・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・		
	DF	SS	MS	F
SOURCE	 5	63.883	12.777	1.326
Between	54	520.300	9.635	
Within (Error) Total	59	584.183		

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

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU Transform: NO TRANSFORMATION File: 6320040E

	UNNETT'S TEST - TA	ABLE 1 OF 2	Ho:Control <t< th=""><th>reatment </th></t<>	reatment
GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT SIG
1 2 3 4 5	CONTROL 32% 42% 56% 75% 100%	22.200 21.900 22.500 22.200 23.700 24.800	22.200 21.900 22.500 22.200 23.700 24.800	0.216 -0.216 0.000 -1.081 -1.873
	t table value = 2.31	(1 Tailed	Value, P=0.05, df=40	, 5)

60320040 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6320040E Transform: NO TRANSFORMATION

60320040 Siloam Berrans	form: NO	TRANSFORMATION		
File: 6320040E		ЦО	·control<	Treatment
TOTAL OF THE T	TABLE 2 C	F 2		
DUNNETT'S TEST -		dia Diff	% of	DIFFERENCE
	NUM OF	Minimum Sig Diff	CONTROL	FROM CONTROL
GROUP IDENTIFICATION	REPS	(IN ORIG. UNITS)		
GROUP IDENTIFICATION				
CONTROL	10	3.207	14.4	0.300
1 32%	10	3.207	14.4	-0.300
2 42%	10	3.207	14.4	0.000
3 56%	10	3.207	14.4	-1.500
4 75%	10	3.207	14.4	-2.600
5 100%	10	3.207		
6				

Conc. TD	1	2	3	4	5 75	6 100
	0	32	42	56 	.438	.473
Response 1 Response 2 Response 3 Response 4 Response 5	.439 .462 .381 .309	.400 .490 .316 .364 .456	.387 .471 .364 .245 .484 	.391 .404 .388 .428 .369	.471 .479 .495 .387	.505 .355 .392 .409

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Siloam Springs Test Start Date: 11/5/19 Test Ending Date: 11/12/19

Test Species: Fathead

7 Day Test Duration:

Test Du	ration: LE: Number	7 Day Concentration	Response Means	Std. Dev.	Pooled Response Means
Conc.	Replicates		0.393	0.060	0.411
1	5	0.000	0.405	0.070 0.096	0.411 0.411
2 3	5	42.000 56.000	0.396	0.022	0.411
4	5 5	75.000 100.000	0.427	0.061	0.411
6	5	100.000	can be calcu	lated from	m the nse means

*** 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.

			2	3	4	5	6
Conc. ID		1	 32	42	56	75 	100
Response	1 2 3 4 5 6 7 8 9	19 22 22 19 23 26 25 20 24 22	19 24 15 27 18 19 27 24 23 23	20 23 18 23 29 19 22 24 21 26	20 25 22 27 22 15 19 25 23 24	24 24 20 23 24 28 21 25 23 25	22 27 25 28 26 22 26 19 27 26

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Siloam Springs
Test Start Date: 11/5/19 Test Ending Date: 11/12/19

Test Species: Dubia

7 Day Test Duration:

Test Duration: DATA FILE: Conc. Number	Concentration	Response Means	Std. Dev.	Pooled Response Means
ID Replicates 1 10 2 10 3 10 4 10 5 10 6 10	0.000 32.000 42.000 56.000 75.000	22.200 21.900 22.500 22.200 23.700 24.800	2.394 3.985 3.308 3.490 2.214 2.860	
		can be calcu	Lated IIO	il cire

*** 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.

ol lie ress pany tion A
uired Client Information: juested Due Date/TAT: ITEM# Pace Analytical + Myles @ Sileden Springs Com 7 6 5 W 4 9 8 1 0 Section D etum samples to the Fruntariac Lab on ice 12 Required Client Information amples have a 24 hour hold time! City of Siloam Springs 975 Anderson Avenue Siloam Springs, AR Sample IDs MUST BE UNIQUE SAMPLE ID ADDITIONAL COMMENTS Valid Matrix Codes

MATRIX
CODE

MATRIX
CODE

DIVIDING MATRIX
DIVIDING MATRIX
WASTE WATER
WATER
WASTE WATER
WATER Required Project Information Section B Copy To Report To: Tom Myers Project Name Project Number urchase Order No. MATRIX CODE (see valid codes to left) JOHN BLOWNS JOHN BLOW (G=GRAB C=COMP) RELINQUISHED BY / AFFILIATION SAMPLE TYPE 11-3-19 COMPOSITE START COLLECTED 1000 TIME SAMPLER NAME AND SIGNATURE COMPOSITE END/GRAB SIGNATURE of SAMPLER: PRINT Name of SAMPLER: 0900 11-4-19 DATE SAMPLE TEMP AT COLLECTION Section C 4./ Pace Quote Reference: Pace Project nvoice Information Company Name Address ace Profile# # OF CONTAINERS 8:50 Unpreserved TIME Our Broken H₂SO₄ Richard Mannz 10809 Preservatives HNO₃ HCI NaOH Na₂S₂O₃ Methanol ACCEPTED BY I AFFILIATION ICE Other YIN Analysis Test I Requested Analysis Filtered (Y/N) Chronic WET Test DATE Signed (MM/DD/YY): REGULATORY AGENCY Site Location NPDES TSU STATE: 11-4-19 DATE 5 GROUND WATER RCRA AR TIME Page: Residual Chlorine (Y/N) w F-ALL-Q-020rev.08, 12-Oct-2007 Temp in °C 00-00-00 01,00250010 Pace Project No./ Lab I.D. DRINKING WATER OTHER Received on Ice (Y/N) SAMPLE CONDITIONS 9 W Custody Sealed Cooler (Y/N) Samples Intact (Y/N) Page 39 of 43

late channes of 1.5% per month for any invoices not paid within 30 days.

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

	7 8 8 8 9 9 10 111 11 12 12 12 12 12 12 12 12 12 12 12	6 5 4 3 2 1 ITEM#	Required Clie Company: Address: Email To: Phone: 47
	8 8 9 9 10 11 12 ADDITIONAL COMMENTS *samples have a 24 hour hold time! *return samples to the Frontenac Lab on Ice!	Section D Required Client Information Required Client Information PROPRIET SAMPLE ID (A-Z, 0-91-) Sample IDs MUST BE UNIQUE TISSUE TIS	Section A Required Client Information: Company: City of Siloam Springs Address: 975 Anderson Avenue Siloam Springs, AR Email To: Phone: 479-228-0934 Fax: Requested Due Date/TAT:
		atrix Codes CODE WIT WATER WW T SL OI OI TS TS	Section B Required Project Information: Report To: Tom Myers Copy To: #Myers Purchase Order No.: Project Number:
	RELINQUISHED BY AFFILIATION RELINQUISHED BY AFFILIATION	SAMPLE TYPE (G=GRAB C=COMP) SAMPLE TYPE (G=GRAB C=COMP) START	om Myers Om Myers Om Myers Oner No.: The:
SAMPLER NAME PRINT N	AFFILIATION	COLLECTED COMPOSITE ENDIGRAB TIME DATE John 1/6/1	Section C Invoice Information: Attention: Company Name: Address: Pace Quote Reference: Reference: Manager: Pace Profile # 10809
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SIGNATURE of SAMPLER	DATE 111/6/19 3:	SAMPLE TEMP AT COLLECTION # OF CONTAINERS Unpreserved	Section C Invoice Information: Attention: Company Name: Address: Pace Quote Reference: Pace Profile #: 10
tom Mye	So m	H ₂ SO ₄ HNO ₃ HCI NaOH Na ₂ S ₂ O ₃	me: Richard Mannz
3	ACCEPTED BY / AFFILIATION	Methanol Other LCE Analysis Test Chronic WET Test	Reques
DATE Signed (MM/DD/YY):	LIATION DATE		REGULATORY AGENCY RACHARY REGULATORY AGENCY RACHARY REGULATORY AGENCY RACHARY REGULATORY AGENCY RACHARY RACHARY ARRA STATE: ARRA REQUESTED ANALYSIS Filtered (VIN)
119 1350	TIME TIME		AGENCY GROUND WATER RCRA AR AR
	SAMP	Residual Chlorine (Y/N)	
Temp in °C Received on Ice (Y/N) Custody Seale Cooler (Y/N) Samples Inte	DITIONS	Pace Project No./ Lab I.D.	of 2 DRINKING WATER OTHER

SIGNATURE of SAMPLER



Sample Condition Upon Receipt

Ĵ.		
:lient Name: Siloom Sings ourier: FedEx UPS VIAN Clay PE	X	
Pace	Seals intact: Yes	No 🗆
O-Flor/ROY Present		None Other 🗆
Bubble Wrap	Blue None	Date and initials of person
hermometer Used: 7-243 Type of	corrected	examining contents:
hermometer Used: 7-243 8 Corr. Factor Cooler Temperature (°C): As-read 9 Corr.	10 0000	11/ 1/1
emperature should be above freezing to 6°C	Mes DNo DN/A	1 D' 8:00
Chain of Custody present:		
Chain of Custody relinquished:	Yes No N/A	
Chain of Custody Formage	es ONO ON/A	
Samples arrived within holding time:	Yes No NA	
Short Hold Time analyses (<72hr):	Gyes No CIN/A	
Rush Turn Around Time requested:	Yes ONO ON/A	
Sufficient volume:	Vies DNO DN/A	
Correct containers used:	Yes DNO DN/A	
Pace containers used:		
	Tres Line	
Ontainers intact: Jnpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes □No NA/A	
Inpreserved 5035A / TX 1006/1999	□Yes □No □XN/A	
Filtered volume received for dissolved tests?	Yes ONO ON/A	
Sample labels match COC Date / time / ID / analyses	Tyes Wo DN/A	List sample IDs, volumes, lot #'s of preservative and the
Samples contain multiple phases? Matrix:	□Yes □No □WA	List sample IDs, volumes, lot # 0 37 pm date/time added
anuation in Compliance.	X.	agnorans
(HNO ₃ , H ₂ SO ₄ , HCI<2; NaOH>9 Stilled, MCICO, O&G, KS TPH, OK-DRO)		
	□Yes □No	
Lead acetate strip turns dark? (Record only) Potassium iodide test strip turns blue/purple? (Preserve)	□Yes □No	
Potassium lodide test strip turne stary	□Yes □No □N/A	
Trip Blank present:	□Yes □No □N/A	
Headspace in VOA vials (>6mm):	□Yes □No N//	
Samples from USDA Regulated Area: State:		A N
Additional labels attached to 5035A / TX1005 vials in the	COC to Client? Y N	Field Data Required? Y / N
A N. Aldication/ Resulting	Date/Time	
Person Contacted:	•	
Comments/ Resolution:		
		Date
Project Manager Review:		Button
F10]GOCIMON SS.		Page 41 of 439 2018

CHAIN-OF-CUSTODY / Analytical Request Document

SAL DOCUMENT. All relevant fields must be completed accurately.

Section B	Receive Ice (\) ustody Cooler			Muers	# F	R NAME AND SIGNATUR	SAMPLER NAME AND SIGNATURE					
Section C ON of Shown Springs. Are Springs from the springs of the	ed on (/N)					-						
Section C Required Project (Principle) Section B Required Project (Principle) Section B Required Project (Principle) Section C Required Project (Principle) Section B Required Project (Principle) Required Principle) Required Project (Principle) Required Principle) Required Project (Principle) Required Principle Required Princi	ed										andias of the caldina	*retum sa
Section C Oran of Stromps Section B Oran of Transport Information Regardor Is Total Mayers Stromps			-		111			- 1	- Con	0	have a 24 hour now time.	*samples
Section B orange Committee The Anderson Avanuar The Anderson Ava		-	CANO	AL MAIN	-	18/	}		t		ADDITIONAL CO	
Section B The sectio			0000	7	+	53.0	AFFILIATION	ELINQUISHED BY	70	NTS	ASSITIONAL COMME	12
Section C Required Project Information: Required Project Informat	1	-	BY I AFFILIATION	АСФЕРТЕР В	TIME	DATE						=
Section C Required Project Montaneon: Required Required Project Montaneon: Required Required Project Montaneon: Required Required Project Montaneon: Required Requ	SAMPLE CONDITIONS	+										: =
Section 8 Page: 3 Section 8 Page: 3 Section 8 Page: 3 Page:												à
Section B sectio												٥
Section C section C receive Materialization Regulated Project Information: Regulated Proje												00
Section B Index Histyrical Registration Bytings Registration Reg												7
Section B Water Information Water Information Water Information Springs Springs												6
Section B Section B Section B Section B Section C Required Project Information: City of Siloam Springs												On
Section B Invoice Information: All Allerton: Al												4
Section B Invariables Required Polject Information Required Polject Inform												1
Section D Required Project Information: Retained Springs Silipan Springs ARR ARR Silipan Springs ARR ARR Silipan Springs ARR Silipan Springs ARR ARR ARR Silipan Springs ARR ARR Silipan Springs ARR ARR ARR ARR Silipan Springs ARR ARR ARR ARR ARR Silipan Springs ARR ARR ARR ARR ARR ARR ARR A												W
Section C Section B Invoice Information: Required Project I												2
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Section B Required Policy of Silosam Springs City of Silosam Springs Report To, Tom Myers City of Silosam Springs, AR Silosam Springs, AR Silosam Springs, AR Durchase Order No.: Report To, Tom Myers Copy To, Triv, Let V. J. S.; Let at Jurn 45 Copy and					2	Ų	15	C/11/7/19	ww.	,		+
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Sample Condition Upon Receipt

Client Name: 5 Com Dings		
	PEX D ECI D	Pace ☐ Xroads ☐ Client ☐ Other ☐
	e Shipping Label Used	? Yes 🗆 No
Custody Seal on Cooler/Box Present: Yes No 🗆	Seals intact Yes	No □
Packing Material: Bubble Wrap ☐ Bubble Bags ☐	Foam 🗆	None Other 🗆
Thermometer Used: T-243 Type of	Ice Web Blue Non	Date and initials of person
Cooler Temperature (°C): As-read 💆 Corr. Fact	or <u> </u>	ed examining contents:
Temperature should be above freezing to 6°C		The state of the s
Chain of Custody present:	Yes □No □N/A	
Chain of Custody relinquished:	Yes □No □N/A	
Samples arrived within holding time:	Tes DNo DN/A	
	Yes Ono On/A	
Short Hold Time analyses (<72hr):	□Yes No □N/A	
Rush Turn Around Time requested:		
Sufficient volume:	Yes □No □N/A	×
Correct containers used:	Yes DNo DN/A	
Pace containers used	Yes ONO ON/A	
Containers intact:	Yes □No □N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes □No N/A	
Filtered volume received for dissolved tests?	□Yes □No N/A	
	Yes No N/A	1
Sample labels match COC: Date / time / ID / analyses	□Yes No □N/A	
Samples contain multiple phases? Matrix:	□Yes □No NN/A	List sample IDs, volumes, lot #'s of preservative and the
Containers requiring pH preservation in compliance? (HNO ₅ , H₂SO ₄ , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)	Lifes Lino Pinin	date/time added
(Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)		-
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	□Yes □No	
Potassium iodide test strip turns blue/purple? (Preserve)	□Yes □No	
	□Yes □No N/A	
Trip Blank present:	□Yes □No N/A	
Headspace in VOA vials (>6mm):		
Samples from USDA Regulated Area: State:	□Yes □No N/A	
Additional labels attached to 5035A / TX1005 vials in the fiel	d? □Yes □No XN/A to Client? Y / N	Field Data Required? Y / N
Client Notification/ Resolution: Copy COC		Field Data Requires:
1 Gradit Goritadioa.	:/Time:	
Comments/ Resolution:		
Project Manager Review:	Da	ate: