

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

February 14, 2020

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

RE: Project: SILOAM SPRINGS Pace Project No.: 60328037

Dear Tom Myers:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. 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,

This Word

Nolie Wood nolie.wood@pacelabs.com 1(913)563-1401 Project Manager

Enclosures





### CERTIFICATIONS

Project: SILOAM SPRINGS

Pace Project No.: 60328037

### 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



### SAMPLE SUMMARY

Project:SILOAM SPRINGSPace Project No.:60328037

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60328037001	CITY OF SILOAM SPRINGS	Water	02/03/20 09:00	02/04/20 08:00



### SAMPLE ANALYTE COUNT

Project:SILOAM SPRINGSPace Project No.:60328037

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60328037001	CITY OF SILOAM SPRINGS	EPA 821/R-02/013	TDH	1	PASI-SE



### ANALYTICAL RESULTS

Project: SILOAM SPRINGS

Pace Project No.: 60328037

Sample: CITY OF SILOAM SPRINGS	Lab ID: 6	0328037001	Collected: 02/03/2	20 09:00	Received: 02	/04/20 08:00 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Chronic Toxicity	Analytical M	lethod: EPA 82	21/R-02/013					
Toxicity, Chronic	Complete		1.0	1		02/04/20 15:00	)	



### QUALIFIERS

### Project: SILOAM SPRINGS

Pace Project No.: 60328037

### 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



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:SILOAM SPRINGSPace Project No.:60328037

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60328037001	CITY OF SILOAM SPRINGS	EPA 821/R-02/013	638274		

Pace Analytical Sample Condition Up	oon Receipt	WO#:60328037
Client Name: <u>Siloam Springs</u>		
Courier: FedEx UPS VIA Clay P		Pace 🗆 Xroads 🗇 Client 🗇 Other 🗆
	Shipping Label Used	d? Yes □ No X
Custody Seal on Cooler/Box Present: Yes X No	Seals intact: Yes X	
Packing Material: Bubble Wrap  Bubble Bags	Foam 🗆	None X Other 🗆
_	ce Wet Blue Nor	ne
Cooler Temperature (°C): As-read 3. 6 Corr. Facto	r -1.6 Correct	ted 2.0 Date and initials of person examining contents:
Temperature should be above freezing to 6°C		240
Chain of Custody present:	XYes □No □N/A	B 8:00
Chain of Custody relinquished:		
Samples arrived within holding time:		
Short Hold Time analyses (<72hr):	XYes INO IN/A	
Rush Turn Around Time requested:	□Yes XNo □N/A	
Sufficient volume:	XYes □No □N/A	
Correct containers used:	XYes No N/A	
Pace containers used:	XYes □No □N/A	
Containers intact:	XYes DNo DN/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes □No XN/A	
Filtered volume received for dissolved tests?	□Yes □No □x/A	
Sample labels match COC: Date / time / ID / analyses	XYes No N/A	-
Samples contain multiple phases? Matrix:	□Yes XNo □N/A	
Containers requiring pH preservation in compliance?	□Yes □No XN/A	List sample IDs, volumes, lot #'s of preservative and the date/time added
(HNO₃, H₂SO₄, 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 XN/A	
Headspace in VOA vials ( >6mm):	□Yes □No XN/A	
Samples from USDA Regulated Area: State:	□Yes □No XN/A	
Additional labels attached to 5035A / TX1005 vials in the field?	□Yes □No Xx/A	
Client Notification/ Resolution: Copy COC to	Client? Y / N	Field Data Required? Y / N
Person Contacted: Date/Tit	me:	
Comments/ Resolution:		
	· · · · · · · · · · · · · · · · · · ·	
Project Manager Review:	Date	e

Pace Analytical 0

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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### 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

February 13, 2020

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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 City of Siloam Springs effluent discharge from February 3, 2020 to February 7, 2020. 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 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 16.9.

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 15.0.

The chronic toxicity exhibited by the fathead minnows and the <u>Ceriodaphnia</u> treated by the effluent sampled from February 3 to February 7 from the City of Siloam Springs effluent discharge, is acceptable as described in <u>EPA 821-R-02-</u>013.

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### 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 2-4-20. Subsequent samples followed by delivery on 2-6-20 and on 2-8-20. 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, <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 2-4-20 and carried out until 2-11-20. 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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### TABLE 1

Permittee: City of Siloam Springs Effluent discharge.

Date Sampled	No. 1: 2-3-20	9:00
	No. 2: 2-5-20	9:00
	No. 3: 2-7-20	9:00
Test Initiated: 15:00	Date: 2-4-20	

RESULTS

Ceriodaphnia dubia	Results
TLP3B	0
TGP3B	0
ТОРЗВ	100
ТРРЗВ	100
ТQРЗВ	15.61
Pimephales promelas	Results
TLP6C	0
TGP6C	0
ТОР6С	100
TPP6C	100
TQP6C	12.59

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Dilution Water used: Moderately Hard Synthetic Water

### FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL (Pimephales promelas)

	DATA	ABLE	OK GROV		ATTICAD		
Effluent Concentration (%)	Averag A		eight in Mi te Chamb C	lligrams in ers D	E	Mean Dry Weight (mg)	CV% *
Control 0%	0.427	0.486	0.432	0.459	0.371	0.435	9.85
Dilution 1 32%	0.471	0.511	0.477	0.406	0.437	0.460	8.73
Dilution 2 42%	0.328	0.429	0.485	0.462	0.422	0.425	14.11
Dilution 3 56%	0.457	0.439	0.494	0.476	0.352	0.444	12.44
Dilution 4 75%	0.390	0.360	0.434	0.413	0.456	0.411	9.11
Dilution 5 100%	0.523	0.439	0.376	0.406	0.439	0.437	12.59

### DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

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

### FATHEAD MINNOW SURVIVAL

Conc. %	Pe		urvival in Chambe	n Replica rs	ate	Mean	Percent S	Survival	CV %
	A	В	С	D	E	24hr	48hr	7 day	
Control 0%	100	100	100	87.5	100	100	100	97.5	4.79
Dilution 1 32%	100	100	100	87.5	100	100	100	97.5	4.79
Dilution 2 42%	87.5	100	100	100	100	100	100	97.5	4.79
Dilution 3 56%	100	100	100	100	87.5	100	100	97.5	4.79
Dilution 4 75%	100	87.5	100	100	100	100	100	97.5	4.79
Dilution 5 100%	100	100	87.5	100	100	100	100	97.5	4.79

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Permittee: City of Siloam Springs Effluent discharge.

### CERIODAPHNIA SURVIVAL AND REPRODUCTION

Replicate	Control	Dilution 1	Dilution 2	Dilution 3	Dilution 4	Dilution 5
	0%	32%	42%	56%	75%	100%
1	21	22	27	24	18	18
2	19	20	18	16	23	17
3	21	19	24	27	19	23
4	18	25	21	23	25	26
5	22	27	23	18	20	24
6	19	25	20	22	22	23
7	22	20	24	23	27	22
8	24	18	24	20	25	16
9	22	27	22	18	22	24
10	25	26	18	25	24	21
Mean	21.3	22.9	22.1	21.6	22.5	21.4
SD	2.214	3.479	2.885	3.502	2.877	3.340
CV %	10.39	15.19	13.05	16.21	12.79	15.61

### DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

### CERIODAPHNIA MEAN PERCENT SURVIVAL

	Percent Effluent (%)							
Time Control Dilution 1 Dilution 2 Dilution 3 Dilution 4 Dilution								
Elapsed	0%	32%	42%	56%	75%	100%		
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 0.15 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

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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.)

# 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

BURNES - -

### 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%.

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### TABLE 2 (SECTION 2)

### BIOMONITORING CHRONIC TOXICITY REPORT FATHEAD MINNOW (<u>Pimephales promelas</u>) CHEMICAL PARAMETERS CHART

Permittee: City of Siloam Springs Effluent discharge.

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

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

Control	100%
7.53	7.45
8.40	8.30
25.0	25.0
58	114
92	116
344	291
<0.1	<0.1
	7.53 8.40 25.0 58 92 344

 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

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Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.83	7.10	25.1
32% Effluent	7.84	7.10	25.2
42% Effluent	7.84	7.10	25.2
56% Effluent	7.85	7.10	25.2
75% Effluent	7.88	6.90	25.2
100% Effluent	7.90	6.90	25.2

### 48-Hour Water Quality Measurements

Effluent	PH	D.O.	Temperature
Concentration (%)		(mg/l)	(C)
0% Control	7.74	7.20	25.3
32% Effluent	7.86	7.20	25.1
42% Effluent	7.94	7.10	25.1
56% Effluent	8.00	7.10	25.1
	8.03	7.10	25.1
75% Effluent	8.07	7.00	25.1
100% Effluent	0.07	1.00	

### FINAL WATER QUALITY

### EFFLUENT CONCENTRATION

	Control	100%		
рН	7.77	7.86		
D.O.	6.90	7.00		
Temp	25.2	25.3		
Alk	62	110		
Hard	94	114		
Cond	388	361		

\* 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 0.435 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 9.85. The <u>Ceriodaphnia dubia</u> survival rates were 100 in the control. The <u>Ceriodaphnia</u> in the control produced an average of 21.3 young over the seven-day exposure period. Percent CV values for <u>Ceriodaphnia dubia</u> control survival and reproduction was 0.00 and 10.39. Control data met or exceeded all criteria set out by <u>EPA 8100-R-02-013</u> for test acceptance.

### **REFERENCE TOXICANTS**

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

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

Start: 1/7/20 11:45 End: 1/14/20 11:00

<b>Reference</b> Toxicant	(NaCl)	NaCI) <u>Pimephales promelas</u>			
Concentration of Toxicant		Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days	
10 g/l	40	3	0	0	
8 g/l	40	35	24	2	
6 g/l	40	39	35	25	
4 g/l	40	40	40	40	
2 g/l	40	40	40	40	

IC25 (5.02 g/l Sodium Chloride)

### Survival NOEC: 4.0 g/l

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Reference Toxicar	nt (NaCl)	<u>Ceriodaphnia Dubia</u>		
Concentration of Toxicant		Avg. # of Live Organisms/replicate		
	0 hrs	24 hrs	48 hrs	7 days
2.5 g/l	10	6	2	0
2.0 g/l	10	10	9	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 (1.13 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

Submitted By:

Timothy Harrell, Technical Director

	60328037 Siloam Springs FATHEAD SURVIVAL File: 6328037A 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 >								
	EXPECTED OBSERVED	2.010	7.260 0	11.460 24	7.260 0	2.010 0		
	Calculated Table Chi-S	Chi-Square quare value	goodness of fit t e (alpha = 0.01) =	cest statistic = = 13.277	38.1722			
255	Data FAIL n	ormality to	est. Try another t	ransformation.				
	Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.							
	60328037 Si File: 63280	loam Sprin 37A	gs FATHEAD SURVIVA Transform: ARC SIN	AL NE(SQUARE ROOT(Y	))			
j.	Shapiro - Wilk's test for normality							
	D = 0.06	5						
	W = 0.49	0						
			(n = 30) = 0.927 (n = 30) = 0.900					
	Data FAIL n	ormality t	est. Try another t	transformation.				
			three homogeneity hould not be perfo		tive to non-non	rmal		

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### 60328037 Siloam Springs FATHEAD SURVIVAL File: 6328037A Transform: ARC SINE(SQUARE ROOT(Y))

### SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
	COMEDOI		0.991	1.107	1.084
1 2	CONTROL 32%	5 5	0.991	1.107	1.084
2	325 428	5	0.991	1.107	1.084
4	42° 56%	5	0.991	1.107	1.084
5	75%	5	0.991	1.107	1.084
6	1008	5	0.991	1.107	1.084

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### 60328037 Siloam Springs FATHEAD SURVIVAL File: 6328037A 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
1.50	2	328	0.003	0.052	0.023	4.79
	3	428	0.003	0.052	0.023	4.79
	4	56%	0.003	0.052	0.023	4.79
	5	75%	0.003	0.052	0.023	4.79
	6	100%	0.003	0.052	0.023	4.79

60328037 Siloam Springs FATHEAD SURVIVAL File: 6328037A Transform: ARC SINE(SQUARE ROOT(Y))

		ANOVA TABLE		
SOURCE	DF	SS	MS	F
Between	5	0.000	0.000	0.000
Within (Erro	r) 24	0.065	0.003	
Total	29	0.065		
Critical F Since F <	value = 2.62 Critical F FAJ	(0.05,5,24) IL TO REJECT Ho: All	equal	
┝━ 60328037 Sil	oam Springs FATH	HEAD SURVIVAL		

File: 6328037A Transform: ARC SINE(SQUARE ROOT(Y))

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALC ORIGINA	L UNITS	T STAT	SIC
1	CONTROL	1.084	Ο.			
2	32%	1.084	Ο.	780		
3		1.084		780	0.000	
4		1.084		780		
5		1.084		780		
6	100%	1.084	0.	780	0.000	
6032803	table value = 2.36 37 Siloam Springs FATH 5328037A Transf	IEAD SURVIVAL			, כ )	
6032803 File: 6	37 Siloam Springs FATH 5328037A Transf	EAD SURVIVAL	SQUARE ROOT(	Y))		5
6032803 File: 6	37 Siloam Springs FATH 5328037A Transf DUNNETT'S TEST - T	EAD SURVIVAL Form: ARC SINE(S CABLE 2 OF 2	GQUARE ROOT( Ho m Sig Diff	Y)) :Control< % of	Treatment 	JCE
6032803 File: 6 GROUP	37 Siloam Springs FATH 5328037A Transf DUNNETT'S TEST - T IDENTIFICATION	EAD SURVIVAL Form: ARC SINE(S CABLE 2 OF 2 NUM OF Minimu REPS (IN O	GQUARE ROOT( Ho m Sig Diff	Y)) :Control< % of	Treatment 	ICE
6032803 File: 6 GROUP 1	37 Siloam Springs FATH 5328037A Transf DUNNETT'S TEST - T IDENTIFICATION CONTROL	EAD SURVIVAL Form: ARC SINE(S CABLE 2 OF 2 NUM OF Minimu REPS (IN O	EQUARE ROOT( Ho um Sig Diff RIG. UNITS)	Y)) :Control< % of CONTROL	Treatment DIFFEREN FROM CON	ICE ITRO
6032803 File: 6 GROUP 1 2	37 Siloam Springs FATH 5328037A Transf DUNNETT'S TEST - T IDENTIFICATION CONTROL 32%	EAD SURVIVAL Form: ARC SINE(S CABLE 2 OF 2 NUM OF Minimu REPS (IN O	GQUARE ROOT( Ho um Sig Diff RIG. UNITS) 0.067 0.067	Y)) :Control< % of CONTROL  8.6 8.6	Treatment DIFFEREN FROM CON  0.0 0.0	1CE 1TRO 000
6032803 File: 6 GROUP 1 2 3	37 Siloam Springs FATH 5328037A Transf DUNNETT'S TEST - T IDENTIFICATION CONTROL 32% 42%	EAD SURVIVAL Form: ARC SINE(S TABLE 2 OF 2 NUM OF Minimu REPS (IN O)  5 5 5	GQUARE ROOT( Ho um Sig Diff RIG. UNITS) 0.067 0.067	Y)) :Control< % of CONTROL  8.6 8.6	Treatment DIFFEREN FROM CON  0.0 0.0	1CE 1TRO 000
6032803 File: 6 GROUP 1 2	37 Siloam Springs FATH 5328037A Transf DUNNETT'S TEST - T IDENTIFICATION CONTROL 32%	EAD SURVIVAL Form: ARC SINE(S CABLE 2 OF 2 NUM OF Minimu REPS (IN O	SQUARE ROOT( Ho um Sig Diff RIG. UNITS) 0.067	Y)) :Control< % of CONTROL 8.6 8.6 8.6 8.6	Treatment DIFFEREN FROM CON 0.0 0.0	ICE ITRO 000 000 000 000

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60328037 Siloam Springs FATHEAD GROWTH File: 6328037B Transform: NO TRANSFORMATION Shapiro - Wilk's test for normality D = 0.058 W = 0.967Critical 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. 60328037 Siloam Springs FATHEAD GROWTH Transform: NO TRANSFORMATION File: 6328037B Bartlett's test for homogeneity of variance Calculated B1 statistic = 1.38 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.

### 60328037 Siloam Springs FATHEAD GROWTH File: 6328037B Transform: NO TRANSFORMATION

# SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
				0.486	0.435
1	CONTROL	5	0.371		
2	328	5	0.406	0.511	0.460
4		-	0.328	0.485	0.425
3	42%	5			0.444
Λ	56%	5	0.352	0.494	
4	758	5	0.360	0.456	0.411
5	15 0	5		0 5 2 2	0.437
6	100응	5	0.376	0.523	0.107

60328037 Siloam Springs FATHEAD GROWTH File: 6328037B Transform: NO TRANSFORMATION

# SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 Of 2

		-	-	-	-	-	-	-	-	-	i.

ann	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %	
GRP	IDENTIFICATION					
1 2 3 4 5 6	CONTROL 32% 42% 56% 75% 100%	0.002 0.002 0.004 0.003 0.001 0.003	0.043 0.040 0.060 0.055 0.037 0.055	0.019 0.018 0.027 0.025 0.017 0.025	9.85 8.73 14.11 12.44 9.11 12.59	
5 6 				0.025	12.59	

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60328037 Siloam Springs FATHEAD GROWTH File: 6328037B Transform: NO TRANSFORMATION

		ANOVA TABLE		
SOURCE	DF	SS	MS	F
Between	5	0.007	0.001	0.584
Within (Error)	24	0.058	0.002	
Total	29	0.065		
Critical F val Since F < Cri	ue = tical F	2.62 (0.05,5,24) F FAIL TO REJECT HO: All	equal	

60328037 Siloam Springs FATHEAD GROWTH File: 6328037B Transform: NO TRANSFORMATION

D	UNNETT'S TEST - 7	TABLE 1 OF 2	Но	:Control<	Treatment	
GROUP	IDENTIFICATION	TRANSFORMED MEAN			T STAT	SIG
1 2 3 4 5 6	32% 42% 56% 75%	0.435 0.460 0.425 0.444 0.411 0.437	0. 0.		0.315 -0.276 0.784	
6032803	table value = 2.36 7 Siloam Springs FATE 328037B Transt	HEAD GROWTH		5, df=24	,5)	
D	UNNETT'S TEST -	TABLE 2 OF 2	Но	:Control<	Treatment	
GROUP	IDENTIFICATION	NUM OF Minimu REPS (IN OI	um Sig Diff RIG. UNITS)	% of CONTROL	DIFFEREN FROM CON	CE TROL
1 2 3 4 5 6	CONTROL 32% 42% 56% 75% 100%	5 5 5 5 5 5	0.073 0.073 0.073 0.073 0.073	16.9 16.9 16.9	0.0 -0.0 0.0	10 09 24

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F F	ISHER'S EXACT	TEST	
			R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
32%	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 Arebetween CONTROL and TREATMENT at the 0.05 level.

	FI	SHER'S EXACT	TEST	
			======================================	======================================
pas-	IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
	CONTROL	10	0	10
	42%	10	0	10
1.5.	TOTAL	20	0	20
		(n=0,0)	5) IS 6.	b VALUE IS 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.

6	FISHER'S EXACT	' TEST ===================================	
=======================================		NUMBE	R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTRO	L 10	0	10
56	3 10	0	10
			Page 30 of 43

TO	TAL =============	20	0	20
CRITICAL FISHER'S V Since b is greater between CONTROL and TR	than 6 there	e is no sign	ificant diffe	VALUE IS 10. erence
		IER'S EXACT	=======================================	
Carl Sec.			NUMBE]	K OF
IDENTIFICATION		ALIVE	DEAD	TOTAL ANIMALS
CONI	ROL	10	0	10
	75왕	10	0	10
, , TC	'TAL	20	0	20
MR TO THE OWNER	FIS	HER'S EXACT	TEST	
=======================================	=======================================		======================================	======================================
IDENTIFICATION		ALIVE	DEAD	TOTAL ANIMALS
CONT	ROL	10	0	10
	.00%	10	0	10
T	)TAL	20		20
CRITICAL FISHER'S S Since b is greater between CONTROL and T	than 6 ther	e is no sign	nificant diff	VALUE IS 10. erence
SI	MMARY OF FI	SHER'S EXAC	T TESTS	

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

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March 1999

Page 32 of 43

### 60328037 Siloam Springs CERIODAPHNIA DUBIA SURVIVA File: 6328037D 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	32%	10	1.000	1.000	1.000
3	428	10	1.000	1.000	1.000
4	56%	10	1.000	1.000	1.000
5	75%	10	1.000	1.000	1.000
6	100%	10	1.000	1.000	1.000

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### 60328037 Siloam Springs CERIODAPHNIA DUBIA SURVIVA File: 6328037D 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	32%	0.000	0.000	0.000	0.00
3	428	0.000	0.000	0.000	0.00
4	56%	0.000	0.000	0.000	0.00
5	75%	0.000	0.000	0.000	0.00
6	100%	0.000	0.000	0.000	0.00

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60328037 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6328037E 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 \_\_\_\_\_ 14.520 4.020 EXPECTED4.02014.520OBSERVED316 22.920 17 4 20 ...... Calculated Chi-Square goodness of fit test statistic = 1.2053 Table Chi-Square value (alpha = 0.01) = 13.277 Data PASS normality test. Continue analysis. 60328037 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6328037E Transform: NO TRANSFORMATION \_\_\_\_\_ Bartlett's test for homogeneity of variance Calculated B1 statistic = 2.38 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. Sec.

	SUMMAR	Y STATI:	STICS ON TRAN	SFORMED DAT	A TABLE 1 (	of 2
RP	IDENTIFICATI	ON N	MIN	MAX	MEAN	
1 2 3 4 5 6	CONTRO 3 4 5 7 10	OL 10 2% 10 2% 10 6% 10 5% 10	18.000 18.000 18.000 16.000 18.000 16.000	$25.000 \\ 27.000 \\ 27.000 \\ 27.000 \\ 27.000 \\ 26.000 \\ 26.000 $	21.300 22.900 22.100 21.600 22.500 21.400	
	8037 Siloam S	nrings	CERTODAPHNIA	DUBTA REPRO	טסנ	
ile	: 6328037E	prings Tr	ansform: NO I	RANSFORMATI	ION	
	SUMMAR	Y STATI	STICS ON TRAN	ISFORMED DAT	TA TABLE 2	of 2
GRP	IDENTIFICATI	ON	VARIANCE	SD	SEM	C.V. %
1 2 3 4 5 6	7	OL 2% 2% 6% 5% 0%	4.900 12.100 8.322 12.267 8.278	2.214 3.479 2.885 3.502	0.700 1.100 0.912 1.108	10.39 15.19 13.05 16.21 12.79 15.61
6032 File	28037 Siloam S 2: 6328037E	prings Tr	ansform: NO 1	DUBIA REPRO TRANSFORMAT A TABLE	DDU ION	
SOUF	CE	DF	SS	5	MS	F
Betw	veen		20	0.733	4.147	0.436
Witł	nin (Error)	54	513	3.200	9.504	
	 al	 59	53	3.933		

60328037 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6328037E Transform: NO TRANSFORMATION

Ho:Control<Treatment DUNNETT'S TEST - TABLE 1 OF 2 TRANSFORMED MEAN CALCULATED IN ORIGINAL UNITS T STAT SIG MEAN L GROUP IDENTIFICATION 222222 \_\_\_\_\_ ---\_\_\_\_\_ \_\_\_\_\_ ........................ 21.300 21.300 CONTROL 1 

 32%
 22.900

 42%
 22.100

 56%
 21.600

 75%
 22.500

 100%
 21.400

 22.900 -1.161 2 -0.580 22.100 3 21,600 -0.218 4 22.500 -0.870 5 21.400 -0.073 6 \_\_\_\_\_ Dunnett table value = 2.31 (1 Tailed Value, P=0.05, df=40,5) 60328037 Siloam Springs CERIODAPHNIA DUBIA REPRODU File: 6328037E Transform: NO TRANSFORMATION Ho:Control<Treatment DUNNETT'S TEST - TABLE 2 OF 2 \_\_\_\_\_ GROUP IDENTIFICATION REPS (IN ORIG. UNITS) CONTROL FROM CONTROL CONTROL 10 1 3.18515.03.18515.03.18515.03.18515.03.18515.0 -1.600 32% 10 2 

 42%
 10

 56%
 10

 75%
 10

 100%
 10

 -0.800 3 -0.300 4 -1.200 5 -0.100 6 \_\_\_\_\_ \_\_\_\_\_\_ the later

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	Conc.	ID	1	2	3	4		5 6	5
	Conc.	Tested	0	32	42	56	7	/5 100	)
erene -	Toxica Test S Test S	se 2 se 3 se 4 se 5 hibition .nt/Efflue	ent: Siloa e: 2/4/20	.471 .511 .477 .406 .437 ation Percen am Spring Test Endi 7 Day			.43	i0 .439 4 .376 3 .406	ə 5 5
	DATA F  Conc. ID			ncentration	Respons Means		Std. Dev. R	Pooled Response Mea	ans
ι.Ε.	1 2 3 4 5 6	5 5 5 5 5 5 5 5		0.000 32.000 42.000 56.000 75.000 100.000	0.43 0.46 0.42 0.44 0.41 0.43	50 25 14 1	0.043 0.040 0.060 0.055 0.037 0.055	$\begin{array}{c} 0.448 \\ 0.448 \\ 0.434 \\ 0.434 \\ 0.424 \\ 0.424 \end{array}$	

\*\*\* 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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	Conc. ID		1	2	3	4		5	6
	Conc. Tes	sted	0	32	42	56		75	100
	Response	1	21	22	27	24		18	18
	Response	2	19	20	18	16		23	17
5.2	Response	3	21	19	24	27		19	23
	Response	4	18	25	21	23		25	26
	Response	5	22	27	23	18		20	24
	Response	6	19	25	20	22		22	23
	Response	7	22	20	24	23		27	22
	Response	8	24	18	24	20		25	16
	Response	9	22	27	22	18		22	24
	Response		25	26	18	25		24	21
	Test Sta	cies: Eathe ation:	4/20 ad Dubi	Test Ending	g Date: 2/	11/20			
	Conc. ID	Number Replicates	Conce	entration	Respons Means		Std. Dev.	Pool Response	
	1	10 .	·	0.000	21.30		2.214		
	2	10		32.000	22.90		3.479		
	3	10		42.000	22.10		2.885	22.10	
	4	10		56.000	21.60		3.502		
	5	10		75.000	22.50		2.877	22.05	
	6	10		100.000	21.40	0	3.340	21.40	0
								 +bo	

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\*\*\* 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.

Pace Analytical

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

Company City of Ciloom Contana		Invoice Information:	
	Report To: Tom Myers	Attention	-
Address: 975 Anderson Avenue	Capy To:		
Shorn Seriors AD	· · · · · · · · · · · · · · · · · · ·	Company Name	REGULATORY'AGENEY
Circain Opinigo, AN		Address	
Phone 470, 228, ho24 East		Pace Guote Reference	14
	Hroject Name:	Pace Project Richard Maninz	Minin VIIIIII
TENTIONO and noteoods	Freject Number	Press Profile # 10809	STATE: AR
		Request	Requested Analysis Fitteroid (VIN) V////////////////////////////////////
Required Client Information MATRIX	(fields)	Preservatives	
MAREN PALEN MAREN WARE PRODUCT BULSCL		νοιτεστιον	
SamPLE ID whe (A.2, D.9 /, ) AR Sample IDs MUST BE UNIQUE TSSUE	s) 300E (a	SABMIAT	() enhold
ITEM #	1	nusiyati het stand nos nos nos con con con con con con con con con con	idual Cho 33 8037
A City of Siloam Springs	C DATE TIME DATE	41 10 20 20 20 20 20 20 20 20 20 2	C Pace Project No./ Lab I.D.
2	noteto ano atalan	X X X I X	Oct and
01 <b>4</b>			
Q			
7			
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10			
12			
ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILLATION	DATE TIME ACCEPTED BY SECURITY	
samples have a 24 hour hold time!	2	Summer Ja X. Know July 1	DATE
return samples to the Frontenac Lab on Icot	my Bith	ZUSYZUZO 1530 ESMOULL OTOMIONY OR	000 24 Bo 8:00 20 × × ×
	-		
	SAMPLER NAME AND	JAME AND SIGNATURE	HOI -
	PRINT Name of S	PRINT Name of SAMPLER: TONY Brown	Э° лі (И)) (И/У)
	SIGNATURE of SAMPLER:	SAMPLER: The Baned	autody action ac

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

Pace Analytical

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

Company. City of Siloarn Springs Report To: Torn Myers Attention Address: 975 Anderson Avenue Copy To: Company Name: Siloarn Springs, AR Address	Attention Company Name: REGULATORY AGENCY
975 Anderson Avenue Copy To: Siloam Springs, AR	
Email To: tmyers@siloamsprings.com Purchase Order No. Pate Dude	
Project Name: Paget Name: Paget Name: Name	Richard Mannz Stte Location
Requested Dus Date/TAT: Pace Project Number: 70809	

Section D Valid Matrix Codes Required Cient Information MATRIX CODE DRINKING WATER DW VATER W	Ē				ŀ				All I notabil i clofinite notability	Mill 1 olo fibri			15011111	111111111	I I I I I I I I I I I I I I I I I I I
MATRIX DRINKING WATER	រូប	1								E					
WATER	_		COLLECTED	B	٢	đ	Preservatives	5	1/λ						
WASTE WATER PRODUCT SOIL/SOLID OIL	aboa bilav aas		Ē	COMPOSITE ENDIGRAB								(N/A)			
Sample IDs MUST BE UNIQUE TISSUE		0) 2			PLE TEMP AT (			loner	isəT sisylsi onic WET Te			annoldO Isub			
National Collectors	MAR	DATE	Ψ	TE TIME	IMAS	ONH S <sup>2</sup> H Idun	N <sup>g</sup> O HCI	Meth	1			bisəA	Pace	Project No	Pace Project No./ Lab I.D.
ury or shoam springs	M	2/4/20	10:00 2/5/20	900 2.9			_	X	XAX		_		Soul	00-0	
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ADDITIONAL COMMENTS	RELINQL	JISHED BY /	RELINQUISHED BY / AFFILIATION	DATE		TIME	AC	CEPTED	ACCEPTED BY / AFFILIATION	DATE	TIME		SAMPI	SAMPLE CONDITIONS	SI
samples have a 24 hour hold time!	Tony Brown	1 and	Bann	ñ	2/5/2020	15:80	Ella	C	ton - 1000	0/10	0	<			
return samples to the Frontenac Lab on ice!					$\square$		- te wor		DYA BANKAR		9 9	0	X	X	×
					_	-									
			SAMPLER NA	AME AND SIGNATURE	TURE							0	U		101
			PRINT	PRINT Name of SAMPLER:		Tony Brown	w					o, uj d	(N/Y)		aini ze (VV)
			SIGN	SIGNATURE of SAMPLER:		and Ben			DATE Signed	2/5/2020		meT		alooD	Y)



### Sample Condition Upon Receipt

Client Name: Siloam Springs				
	PEX 🗆	ECI		Pace 🗆 Xroads 🗆 Client 🗆 Other 🗆
- \	ace Shipping			I? Yes □ No X
Custody Seal on Cooler/Box Present: Yes X No	Seals ir			
Packing Material: Bubble Wrap  Bubble Bags	; 🗆 🦳	Foa	m 🗆	None X Other 🗆
Thermometer Used: T-243 Type	of Ice: We	Blu	e Nor	
Cooler Temperature (°C): As-read <u>2.(o</u> _Corr. Fa	ctor -1.6	c	orrect	ed Date and initials of person examiningjcontents:
Temperature should be above freezing to 6°C				2/6/20
Chain of Custody present:	XYes [	□No	□n/a	Ø 8.00
Chain of Custody relinquished:	Yes [	□No	□n/a	
Samples arrived within holding time:	Tes l	□No	□n/A	
Short Hold Time analyses (<72hr):	XYes [	□No	□n/a	
Rush Turn Around Time requested:	□Yes 】	XNO	□n/a	
	XYes [			
Sufficient volume:	XYes [			
Correct containers used				
Pace containers used:	XYes		□n/a	
Containers intact:	XYes	□No	□n/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes	No	Xn/A	
Filtered volume received for dissolved tests?	□Yes	□No	□x/A	
Sample labels match COC: Date / time / ID / analyses	XYes	□No	□n/A	
Samples contain multiple phases? Matrix:	□Yes 2	XNo	□n/a	
Containers requiring pH preservation in compliance?	□Yes	ΠNο	Xn/A	List sample IDs, volumes, lot #'s of preservative and the
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)				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		
Trip Blank present:	□Yes	□No	Xn/A	
Headspace in VOA vials ( >6mm):	□Yes	□No	Xn/A	
Samples from USDA Regulated Area: State:	□Yes	□No	Xn/A	
Additional labels attached to 5035A / TX1005 vials in the fie	ld? □Yes	□No	Xx/A	
	C to Client?	Y /		Field Data Required? Y / N
Person Contacted: Date	e/Time:			
Comments/ Resolution:				

Project Manager Review:

UNITERALDS CONTRACT	alytical	
to see DV	PaceAn	5
	Pac	1

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

Section A Reguired Client Information:	Section B Required Project information	Section C Invoice Information:	Page: 3 of 3
Company City of Siloam Springs	Report To: Tom Myers	Attention	
Address: 975 Anderson Avenue	Copy To:	Company Name:	REGULATORY AGENCY
Siloarn Springs, AR		Address:	X NPDES F GROUND WATER F DRINKING WATER
Email To: tmyers@siloamsprings.com	Purchase Order No.:	Pace Quote Réference	L UST L'RCRA L'OTHER
Phone: 479-228-0934 Fax	Project Name:	Pace Project Richard Mannz	Site Location
Requested Due Date/TAT:	Project Number.	Pace Profile # 10809	STATE: AK

Varied Matrix Codes MATRIX CODE COMPONI CODE COMPONI CODE CODE CODE CODE CODE CODE CODE CODE	COLLECTED	-	-		ŀ	(and some second secondary	(arrive	VIIIIIII		111111111111
PRIMATER DW WATER DW WATER WT WASTEWATER WT WASTEWATER WT WASTEWATER WT WASTEWATER WT MAREN TO MIR MIR MIR MIR MIR MIR MIR MIR MIR MIR				Preservatives	<b>1</b> N /A					
WPE WP MR AR OTHER OTHER OTHER TISSUE TS OUE TISSUE TS	E COMPOSITE END/GRAB		s					(N/A)		
О ХІЯТАМ Т ЭЛ9МА2 Н	TIME	TA 9MPLE TEMP AT 0	H <sub>2</sub> SO <sub>4</sub> Unpreserved # OF CONTAINER:	Diher Methanol 4952 <sub>2</sub> O3 HCI HCI	teeT sizylsnA FT T3W pinon(			eninoln') Isubise?		
C 2/6/20 1	52							U	OW -ON	/ Lao I.U.
			-							
ADDITIONAL COMMENTS RELINCUISHED BY / AFFILIATION	FILIATION	DATE	TIME	ACCEPTA	ACCEPTED BY / AFFILIATION	DATE	TIME	SAN	SAMPLE CONDITIONS	NS
'samples have a 24 hour hold time! Tony Brown 7000000	Man	2/7/2020	15:30	HOW Sto	Starta VIDAE	2/8/20	N SO X	>	>	
relum samples to the Frontenac Lab on Icel					11					
								_		
SA	SAMPLER NAME AP	AME AND SIGNATURE					T	LK		jos
<u>.</u>	PRINT Name	PRINT Name of SAMPLER:	Tony Brown	LIMO.				, ni q	ې 566 ۲۲)	(N/) )u) se
	SIGNATURE	NATURE of SAMPLER:	1000	Bur	DATE Signed (MM/DD/YY):	2/7/2020		9288	poleu) Iloo)	lqme2 ()

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1	Pace Analytical
[	www.pacelabs.com

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	Client Name: Silcom Spins				
		EX 🗆	EC		Pace 🗆 Xroads 🗆 Client 🗔 Other 🗆
					$\frac{1}{2} \text{ Yes } \square \text{ No } X$
	Custody Seal on Cooler/Box Present: Yes X No		-	Yes X	
	Packing Material: Bubble Wrap □ Bubble Bags □			am 🗆	None X Other 🗆
	Thermometer Used: T-243 Type of I		BI	ue No	
	Cooler Temperature (°C): As-read 3-6 Corr. Facto	or -1.6	_	Correct	ted 2.0 Date and initials of person examining/contents:
	Temperature should be above freezing to 6°C				2/8/20
	Chain of Custody present:	XYes	□No	□n/A	6 8:00
	Chain of Custody relinquished:	Yes	□No	□n/A	
	Samples arrived within holding time:	Yes		□n/A	
		XYes			
	Short Hold Time analyses (<72hr):				
	Rush Turn Around Time requested:	□Yes		□n/A	
	Sufficient volume:	XYes	No	□n/A	
	Correct containers used:	XYes	□No	□n/A	
350	Pace containers used:	XYes	□No	□n/A	
	Containers intact:	XYes	□No	□n/a	
	Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	□Yes	□No	Xn/A	
	Filtered volume received for dissolved tests?	□Yes	□No	□x/A	
	Sample labels match COC: Date / time / ID / analyses	XYes	□No	□n/A	
	Samples contain multiple phases? Matrix:	□Yes	XNo	□n/A	
	Containers requiring pH preservation in compliance?	□Yes	_	XN/A	List sample IDs, volumes, lot #'s of preservative and the
	(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide)				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		
	Trip Blank present:	□Yes	□No	XN/A	
	Headspace in VOA vials ( >6mm):	□Yes	□No	Xn/A	
	Samples from USDA Regulated Area: State:	□Yes		X <sub>N/A</sub>	
	×				
	Additional labels attached to 5035A / TX1005 vials in the field? Client Notification/ Resolution: Copy COC to			/ N	Field Data Required? Y / N
	Person Contacted: Date/Ti				
	Comments/ Resolution:				
¥=2.					

Project Manager Review:

15-2

Date: \_\_\_\_\_

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