

Arkansas Analytical, Inc.

Toxicity Test Results

CITY of SHERIDAN
NPDES PERMIT NUMBER: AR0034347
June 2022
AFIN # 27-00022
Outfall 002

Fathead Minnow, *Pimephales promelas*, Larval Survival and Growth Test
Test 1000.0

Ceriodaphnia dubia, Survival and Reproduction Test
Test 1002.0

Prepared for: **Mr. David Fitzgerald**
City of Sheridan
P.O.Box 486
Sheridan, Arkansas 72150

Prepared by: Arkansas Analytical, Inc.
8100 National Drive
Little Rock, Arkansas 72209
Lab Number K2206004

Wednesday, June 29, 2022

Plant Location

Sheridan Wastewater Treatment Facility. The plant is located near the south end of Gatzke Drive, Sheridan, AR 72150 in Grant County. From US Hwy 270 in Sheridan, turn south of Gatzke Drive, go to the end of the cul-de-sac and the facility is located approximately 500 ft to the southeast.

Test Methods

EPA Method 1000.0 *Pimephales promelas*, Larval survival and growth test

- Test chambers: 500 mL plastic cups
- Test solution volume: 250 mL
- Number of test organisms per chamber: 10
- Number of replicates per concentration: 5
- Test temperature 25°C ± 1°C
- Test concentrations: 0%, 10%, 13%, 17%, 23%, 31%
- Dilution water: Soft synthetic
- No deviation from method

EPA Method 1002.0 *Ceriodaphnia dubia*, Survival and reproduction test

- Test chambers: 30 mL plastic cups
- Test solution volume: 15 mL
- Number of test organisms per chamber: 1
- Number of replicates per concentration: 10
- Test temperature 25°C ± 1°C
- Test concentrations: 0%, 10%, 13%, 17%, 23%, 31%
- Dilution water: Soft synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

<i>Ceriodaphnia dubia</i> 5/10/22-5/17/22		<i>Pimephales promelas</i> 5/10/22/-5/17/22	
NOEC Survival:	500 ppm KCl	NOEC Survival:	500 ppm KCl
LOEC Survival:	1000 ppm KCl	LOEC Survival:	1000 ppm KCl
NOEC Reproduction:	250 ppm KCl	NOEC Growth:	500 ppm KCl
LOEC Reproduction:	500 ppm KCl	LOEC Growth:	1000 ppm KCl

Summary of Results

Sheridan Waterworks Outfall 002

<i>Ceriodaphnia dubia</i>		<i>Pimephales promelas</i>	
NOEC Survival Parameter: TOP3B	31%	NOEC Survival Parameter: TOP6C	31%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	23%	NOEC Growth Parameter: TPP6C	31%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	21.4%	%CV Growth Parameter: TQP6C	12.0%
PMSD Reproduction	31.9%	PMSD Growth	15.9%

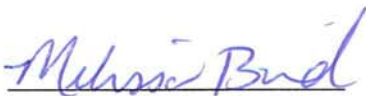
Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to Sheridan Waterworks, specifies that the **critical dilution is 23% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Ceriodaphnia dubia, (Method 1002.0): The permit issued to Sheridan Waterworks, specifies the **critical dilution is 23% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Biomonitoring Analysts: Melissa Bird, Jettie Parnell, Samantha Denton, James Hogue

Reviewed by:



Melissa Bird

Appendices

Appendix A.....	Chains of custody
Appendix B.....	Fathead minnow data & statistics
Appendix C.....	<i>Ceriodaphnia dubia</i> data & statistics
Appendix D.....	Water chemistry data
Appendix E.....	Reference toxicant control charts



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		BILLING INFORMATION		Project Description		Turnaround Time		Preservation Codes:			
Sheridan Waterworks 104 W High St. Sheridan, AR 72150		Sheridan Waterworks P. O. Box 486 Sheridan, AR 72150		Outfall 002 Chronic Toxicity AR0034347 -- June/Retest #3 Reporting Information Telephone: 870-942-2722 Fax: 870-942-1937 Email: sheridanwater@windstream.net		1 Day (100%) 2 Day (50%) 3 Day (25%) Routine		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H ₂ SO ₄), pH < 2 3. Nitric Acid (HNO ₃), pH < 2 4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12			
Attn: David Fitzgerald						Preservative Code: 1 Bottle Type: P		TEST PARAMETERS			
James Hogue (Arkansas Analytical)		James Hogue (Arkansas Analytical)		James Hogue (Arkansas Analytical)		Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas)		Arkansas Analytical Work Order Number: K2206-004A			
Sampler(s) Signature		Sampler(s) Printed		Sample Matrix		Sample Identification/Description		REMARKS / SAMPLE COMMENTS			
[Signature]		James Hogue		Water		Outfall 002 Grab		1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 4. RECEIVED ON ICE: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 5. TEMPERATURE ON RECEIPT: 4 °C 6. TEMPERATURE GUN ID: HHT# 5 FOR COMPLETION BY LAB ONLY			
1. Relinquished by: (Signature) [Signature]		Date/Time 6-7-22 1203		2. Received by: (Signature) [Signature]		Date/Time 6-7-22 1203		3. Relinquished by: (Signature) [Signature]			
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature) [Signature]		Date/Time					



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		BILLING INFORMATION		Project Description		Turnaround Time		Preservation Codes:					
Sheridan Waterworks 104 W High St. Sheridan, AR 72150		Sheridan Waterworks P.O. Box 486 Sheridan, AR 72150		Outfall 002 Chronic Toxicity AR0034347 -- June/Retest #3 Reporting Information Telephone: 870-942-2722 Fax: 870-942-1937 Email: sheridanwater@windstream.net		1 Day (100%) 2 Day (50%) 3 Day (25%) Routine		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H ₂ SO ₄), pH < 2 3. Nitric Acid (HNO ₃), pH < 2 4. Thiosulfate for Dechlorination 5. Hydrochloric Acid (HCl) 6. Sodium Hydroxide (NaOH), pH > 12					
Attn: David Fitzgerald						Preservative Code: Bottle Type:		TEST PARAMETERS 1 P					
 James Hogue (Arkansas Analytical)		Sampler(s) Printed Number of Sample Bottles: 3 Sample Matrix: Water		SAMPLE IDENTIFICATION/ DESCRIPTION Outfall 002 Grab		Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas) X		Bottle Type Code: G = Glass; P = Plastic V = Septum; A = Amber Arkansas Analytical Work Order Number: K2206-004B					
Sampler(s) Signature 		SAMPLE COLLECTION Date/s: 6-8-22 Time/s: 1110		Grab: X									
1. Relinquished by: (Signature) 		Date/Time 6-8-22 1200		2. Received by: (Signature) 		SAMPLE CONDITION UPON RECEIPT IN LAB 4. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 5. TEMPERATURE ON RECEIPT: 4°C 6. TEMPERATURE GUN ID: HHT# 5		REMARKS / SAMPLE COMMENTS					
3. Relinquished by: (Signature) 		Date/Time		4. Received by lab: (Signature) 		FOR COMPLETION BY LAB ONLY							



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		BILLING INFORMATION		Project Description		Turnaround Time		Preservation Codes:	
Sheridan Waterworks 104 W High St. Sheridan, AR 72150		Sheridan Waterworks P.O. Box 486 Sheridan, AR 72150		Outfall 002 Chronic Toxicity AR0034347 -- June/Retest #3 Reporting Information Telephone: 870-942-2722 Fax: 870-942-1937 Email: sheridanwater@windstream.net		1 Day (100%) 2 Day (50%) 3 Day (25%) Routine		1. Cool, 6 Degrees Centigrade 2. Sulfuric Acid (H ₂ SO ₄), pH < 2 3. Nitric Acid (HNO ₃), pH < 2 4. Thiosulfate for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12	
Attn: David Fitzgerald						Preservative Code: Bottle Type:		Bottle Type Code	
Attn: <i>Moore</i>		James Hogue (Arkansas Analytical)				1 P		G = Glass; P = Plastic V = Septum; A = Amber	
Sampler(s) Signature		Sampler(s) Printed		SAMPLE IDENTIFICATION/ DESCRIPTION		Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas)		Arkansas Analytical Work Order Number: <i>K2206-</i> <i>004C</i>	
Field Number	SAMPLE COLLECTION Date/s	Time/s	Grab	Number of Bottles	Sample Matrix	X			
	<i>6-10-22</i>	<i>1111</i>	X	3	Water	Outfall 002 Grab			
1. Relinquished by: (Signature) <i>[Signature]</i>		Date/Time <i>6-10-22</i> <i>1222</i>	2. Received by: (Signature)		SAMPLE CONDITION UPON RECEIPT IN LAB		REMARKS / SAMPLE COMMENTS		
3. Relinquished by: (Signature)		Date/Time	4. Received by lab: (Signature) <i>Sydney James</i>		1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 5. TEMPERATURE ON RECEIPT: <i>4</i> °C 6. TEMPERATURE GUN ID: HHT# <i>5</i>				
					FOR COMPLETION BY LAB ONLY				

CETIS Summary Report

Report Date: 29 Jun-22 14:10 (p 1 of 2)
 Test Code/ID: K2206004FH / 11-4518-9369

Fathead Minnow 7-d Larval Survival and Growth Test

Arkansas Analytical

Batch ID: 19-4615-2537 Test Type: Growth-Survival (7d) Analyst: Jettie Parnell
 Start Date: 07 Jun-22 13:39 Protocol: EPA/821/R-02-013 (2002) Diluent: Soft Synthetic Water
 Ending Date: 14 Jun-22 13:47 Species: Pimephales promelas Brine: Not Applicable
 Test Length: 7d 0h Taxon: Actinopterygii Source: Aquatox, AR Age: <24

Sample ID: 03-1227-1735 Code: K2206004FH Project: WET Monthly Compliance Test (JUN)
 Sample Date: 07 Jun-22 11:17 Material: Industrial Effluent Source: Sheridan (AR0034347)
 Receipt Date: 07 Jun-22 12:03 CAS (PC): Station: 002
 Sample Age: 2h (4 °C) Client: Sheridan

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2206004B	08 Jun-22 11:10	08 Jun-22 12:00	09 Jun-22 00:00	4
2	K2206004C	10 Jun-22 11:11	10 Jun-22 12:22	10 Jun-22 00:00	4

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
13-4382-5222	7d Survival Rate	Steel Many-One Rank Sum Test	31	>31	n/a	3.226	7.66%	1
05-6878-7758	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	31	>31	n/a	3.226	15.9%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
13-4382-5222	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		5	0.9400	0.8720	1.0000	0.9000	1.0000	0.0245	0.0548	5.83%	6.00%
13		5	0.9600	0.8489	1.0000	0.8000	1.0000	0.0400	0.0894	9.32%	4.00%
17		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
23		5	0.9400	0.8720	1.0000	0.9000	1.0000	0.0245	0.0548	5.83%	6.00%
31		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.3048	0.2788	0.3308	0.268	0.319	0.009357	0.02092	6.86%	0.00%
10		5	0.2634	0.2217	0.3051	0.218	0.3	0.01502	0.03358	12.75%	13.58%
13		5	0.249	0.2048	0.2932	0.205	0.289	0.01591	0.03557	14.29%	18.31%
17		5	0.2494	0.1919	0.3069	0.183	0.298	0.0207	0.04628	18.56%	18.18%
23		5	0.2754	0.2345	0.3163	0.254	0.332	0.01475	0.03297	11.97%	9.65%
31		5	0.277	0.2576	0.2964	0.255	0.293	0.006986	0.01562	5.64%	9.12%

CETIS Summary Report

Report Date: 29 Jun-22 14:10 (p 2 of 2)
Test Code/ID: K2206004FH / 11-4518-9369

Fathead Minnow 7-d Larval Survival and Growth Test

Arkansas Analytical

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	0.9000	0.9000	1.0000	0.9000
13		0.8000	1.0000	1.0000	1.0000	1.0000
17		1.0000	1.0000	1.0000	1.0000	1.0000
23		1.0000	0.9000	1.0000	0.9000	0.9000
31		1.0000	1.0000	0.9000	1.0000	1.0000

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.316	0.268	0.309	0.319	0.312
10		0.293	0.218	0.256	0.3	0.25
13		0.205	0.279	0.224	0.248	0.289
17		0.283	0.258	0.225	0.183	0.298
23		0.277	0.254	0.332	0.255	0.259
31		0.293	0.291	0.275	0.271	0.255

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	10/10	10/10	10/10	10/10	10/10
10		10/10	9/10	9/10	10/10	9/10
13		8/10	10/10	10/10	10/10	10/10
17		10/10	10/10	10/10	10/10	10/10
23		10/10	9/10	10/10	9/10	9/10
31		10/10	10/10	9/10	10/10	10/10

CETIS Summary Report

Report Date: 29 Jun-22 13:54 (p 1 of 2)
 Test Code/ID: K2206004CD / 08-6976-9750

Ceriodaphnia 7-d Survival and Reproduction Test

Arkansas Analytical

Batch ID: 20-7585-2415	Test Type: Reproduction-Survival (7d)	Analyst: Jettie Parnell
Start Date: 07 Jun-22 13:15	Protocol: EPA/821/R-02-013 (2002)	Diluent: Soft Synthetic Water
Ending Date: 14 Jun-22 12:05	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: In-House Culture Age: <24
Sample ID: 01-1311-1421	Code: K2206004CD	Project: WET Monthly Compliance Test (JUN)
Sample Date: 07 Jun-22 11:17	Material: Industrial Effluent	Source: Sheridan (AR0034347)
Receipt Date: 07 Jun-22 12:03	CAS (PC):	Station: 002
Sample Age: 118m (4 °C)	Client: Sheridan	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2206004B	08 Jun-22 11:10	08 Jun-22 12:00	09 Jun-22 00:00	4
2	K2206004C	10 Jun-22 11:11	10 Jun-22 12:22	10 Jun-22 00:00	4

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
15-6821-6490	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	31	>31	n/a	3.226	n/a	1
15-0062-7320	Reproduction	Steel Many-One Rank Sum Test	23	31	26.7	4.348	31.9%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
15-6821-6490	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
15-0062-7320	Reproduction	Control Resp	30.7	15	>>	Yes	Passes Criteria
15-0062-7320	Reproduction	PMSD	0.3193	0.13	0.47	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
13		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
17		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
23		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
31		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	30.7	26.65	34.75	23	42	1.789	5.658	18.43%	0.00%
10		10	24.3	16.57	32.03	4	37	3.419	10.81	44.49%	20.85%
13		10	25.4	18.33	32.47	3	37	3.124	9.879	38.89%	17.26%
17		10	25.9	17.57	34.23	2	39	3.68	11.64	44.93%	15.64%
23		10 ⁹	24.9	17.91	31.89	2	36	3.089	9.769	39.23%	18.89%
31		10	21.9	15.8	28	2	35	2.698	8.53	38.95%	28.66%

Average neonates per surviving female in 23% conc. → $\bar{x} = 27.4$
 CV = 21.4%

AP 6/29

CETIS Summary Report

Report Date: 29 Jun-22 13:54 (p 2 of 2)
 Test Code/ID: K2206004CD / 08-6976-9750

Ceriodaphnia 7-d Survival and Reproduction Test

Arkansas Analytical

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
13		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
17		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23		1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	26	23	26	27	31	32	31	32	37	42
10		18	18	35	26	22	35	37	4	15	33
13		31	34	21	22	28	31	29	3	37	18
17		2	21	30	36	25	33	33	29	11	39
23		21	24	20	24	2	29	26	35	36	32
31		24	35	25	29	24	19	2	21	19	21

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1
13		1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1
17		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
23		1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1
31		1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Fathead Minnow

Lab # / Sample ID 42206004

Test Start (Date/Time) 6/7/22-1339

Client: Sheridan 002

Test End (Date/Time) 6/14/22-1347

		Day of Test							
		1	2	3	4	5	6	7	notes
Control	SS 026	6/7	6/8	6/9	6/10	6/11	6/12	6/13	SS 027
D.O. (mg/L)	INITIAL	8.6	8.2	8.3	8.6	8.6	8.5	8.5	6/8
	FINAL	7.4	7.4	7.8	8.1	8.0	8.2	7.6	
pH (s.u.)	INITIAL	7.6	7.3	7.4	7.5	7.7	7.8	7.5	
	FINAL	7.4	7.5	7.7	7.8	7.8	7.5	7.4	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		32	36	34	24	36	34	34	
HARDNESS (mg/L)		48	48	40	40	48	50	50	
CONDUCTIVITY (umhd)		151	189	186	186	185	191	191	
CHLORINE (mg/L)		<0.05							
CONC:	10								
D.O. (mg/L)	INITIAL	8.7	8.3	8.6	8.6	8.6	8.5	8.7	
	FINAL	7.8	7.9	7.8	8.0	7.8	7.9	7.4	
pH (s.u.)	INITIAL	7.6	7.3	7.6	7.5	7.6	7.8	7.5	
	FINAL	7.4	7.4	7.7	7.5	7.5	7.5	7.4	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	13								
D.O. (mg/L)	INITIAL	8.9	8.4	8.5	8.7	8.6	8.5	8.8	
	FINAL	7.9	7.5	7.8	7.9	7.9	7.7	7.4	
pH (mg/L)	INITIAL	7.6	7.3	7.6	7.4	7.4	7.7	7.9	
	FINAL	7.4	7.4	7.6	7.5	7.5	7.4	7.4	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	17								
D.O. (mg/L)	INITIAL	8.7	8.4	8.5	8.6	8.5	8.5	8.8	
	FINAL	7.9	7.7	7.9	8.0	7.6	7.7	7.6	
pH (s.u.)	INITIAL	7.7	7.4	7.9	7.4	7.5	7.6	7.9	
	FINAL	7.4	7.4	7.6	7.4	7.5	7.4	7.4	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	23								
D.O. (mg/L)	INITIAL	8.7	8.4	8.5	8.6	8.5	8.6	8.8	
	FINAL	8.0	7.7	7.9	8.0	7.8	7.6	7.5	
pH (s.u.)	INITIAL	7.8	7.4	7.5	7.4	7.5	7.7	7.5	
	FINAL	7.4	7.4	7.5	7.4	7.5	7.4	7.4	
temp (C)	INITIAL	21	20	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	31								
D.O. (mg/L)	INITIAL	8.8	8.4	8.5	8.5	8.4	8.5	8.9	
	FINAL	8.1	7.8	7.9	7.9	7.6	7.6	7.5	
pH (s.u.)	INITIAL	8.1	7.4	7.9	7.4	7.5	7.7	7.9	
	FINAL	7.4	7.4	7.5	7.4	7.4	7.4	7.4	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	100	A	A	B	C	B	C	C	
ALKALINITY (mg/L)		20	28	28	30	28	30	30	
HARDNESS (mg/L)		14	30	20	30	30	20	30	
CONDUCTIVITY (umhd)		177	183	166	183	166	166	166	
CHLORINE (mg/L)		<0.05	0.06	<0.05	0.06	<0.05	<0.05	<0.05	

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Ceriodaphnia Dubia

Lab # / Sample ID ~~Sherridan 172206004~~

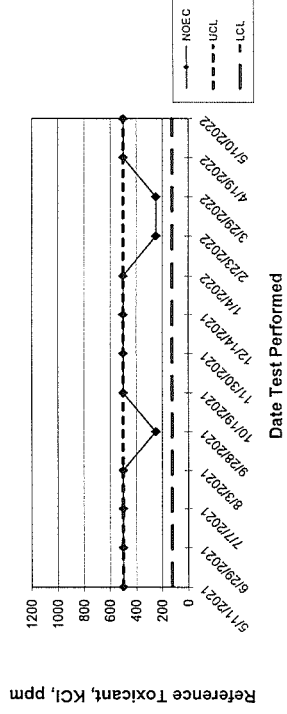
Test Start (Date/Time) 6/7/22-1315

Client: Sherridan 002

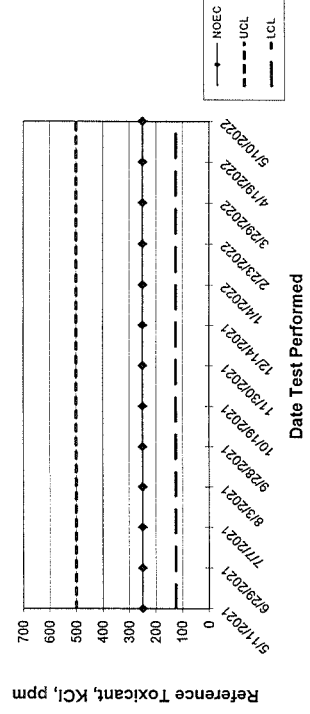
Test End (Date/Time) 6/14/22-1205

		Day of Test							
SS 026		1	2	3	4	5	6	7	notes/remarks
Control	MHS	6/7	6/8	6/9	6/10	6/11	6/12	6/13	SS 027 9/6/8
D.O. (mg/L)	INITIAL	8.6	8.2	8.3	8.6	8.6	8.8	8.5	
	FINAL	8.0	8.2	8.6	8.1	8.4	8.1	7.9	SS 028 6/10
pH (s.u.)	INITIAL	7.6	7.3	7.4	7.5	7.7	7.8	7.9	
	FINAL	7.4	7.5	7.4	7.5	7.7	7.3	7.1	SS 029 6/11
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	SS 030 6/13
ALKALINITY (mg/L)		32	36	→	24	36	→	31	
HARDNESS (mg/L)		48	48	→	40	48	→	50	
CONDUCTIVITY (umhos/cm)		151	189	→	186	185	→	191	
CHLORINE (mg/L)		0.05							
CONC:	10								
D.O. (mg/L)	INITIAL	8.7	8.3	8.6	8.6	8.6	8.5	8.7	
	FINAL	7.9	8.2	8.9	8.2	8.4	8.1	7.5	
pH (s.u.)	INITIAL	7.6	7.3	7.6	7.5	7.6	7.8	7.9	
	FINAL	7.4	7.5	7.5	7.5	7.7	7.3	7.1	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	13								
D.O. (mg/L)	INITIAL	8.9	8.4	8.5	8.7	8.6	8.5	8.8	
	FINAL	7.8	8.2	9.0	8.3	8.5	8.2	7.6	
pH (mg/L)	INITIAL	7.6	7.3	7.6	7.4	7.4	7.7	7.9	
	FINAL	7.4	7.5	7.6	7.5	7.6	7.3	7.1	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	17								
D.O. (mg/L)	INITIAL	8.7	8.4	8.5	8.6	8.5	8.5	8.8	
	FINAL	7.7	8.2	9.1	8.3	8.5	8.2	7.4	
pH (s.u.)	INITIAL	7.7	7.4	7.5	7.4	7.5	7.6	7.9	
	FINAL	7.4	7.5	7.7	7.5	7.6	7.3	7.1	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	23								
D.O. (mg/L)	INITIAL	8.7	8.4	8.5	8.6	8.5	8.6	8.8	
	FINAL	7.7	8.1	9.3	8.2	8.5	8.3	7.5	
pH (s.u.)	INITIAL	7.8	7.4	7.9	7.4	7.5	7.7	7.9	
	FINAL	7.4	7.5	7.8	7.4	7.6	7.3	7.1	
temp (C)	INITIAL	21	20	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	31								
D.O. (mg/L)	INITIAL	8.8	8.4	8.5	8.5	8.4	8.5	8.9	
	FINAL	7.7	8.1	9.4	8.2	8.4	8.1	7.5	
pH (s.u.)	INITIAL	8.1	7.4	7.5	7.4	7.5	7.7	7.9	
	FINAL	7.4	7.5	7.9	7.4	7.6	7.3	7.1	
temp (C)	INITIAL	21	21	21	21	21	22	21	
	FINAL	25	25	25	25	25	25	25	
CONC:	100								
ALKALINITY (mg/L)		20	→	28	30	28	30	→	
HARDNESS (mg/L)		14	→	30	20	30	20	→	
CONDUCTIVITY (umhos/cm)		177	→	183	166	183	166	→	
CHLORINE (mg/L)		0.05	→	0.06	0.05	0.06	0.05	→	

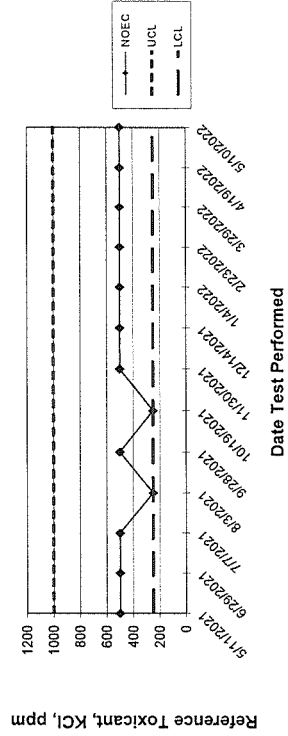
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