

Arkansas Analytical, Inc.

Toxicity Test Results

**NORTH LITTLE ROCK WASTEWATER UTILITY
FAULKNER LAKE
NPDES PERMIT NUMBER: AR0020303
First Quarter Test 2023**

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

Ceriodaphnia dubia, Survival and Reproduction Test
Test 1002.0

Prepared for: **Chris Lumpkin**
North Little Rock Wastewater
7400 Baucom Pike
North Little Rock, Arkansas 72117

Prepared by: **Arkansas Analytical**
8100 National Drive
Little Rock, Arkansas 72209
Lab Number K2302001

Thursday, February 23, 2023

Plant Location

North Little Rock Wastewater Faulkner Lake Plant is located as follows: 7400 Baucum Pike, North Little Rock, AR 72117, from I-40 E take exit 159 towards I-440, continue onto J-440 W towards Little Rock National Airport, take exit 7 for US-165 N/Baucum Pike, destination is on the left in Pulaski County, Arkansas.

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%, 3%, 5%, 6%, 8%, 11%
- Dilution water: Moderately hard 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%, 3%, 5%, 6%, 8%, 11%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

<i>Ceriodaphnia dubia</i> 1/4/2023-1/10/2023		<i>Pimephales promelas</i> 1/4/2023-1/11/2023	
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

Faulkner Lake

<i>Ceriodaphnia dubia</i>		<i>Pimephales promelas</i>	
NOEC Survival Parameter: TOP3B	11%	NOEC Survival Parameter: TOP6C	11%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	11%	NOEC Growth Parameter: TPP6C	11%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	27.8%	%CV Growth Parameter: TQP6C	11.9%
PMSD Reproduction	24.0%	PMSD Growth	22.7%

Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to NLRWW – Faulkner Lake, specifies that the **critical dilution is 8% 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 NLRWW – Faulkner Lake, specifies that the **critical dilution is 8% 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, Jason Bird, Johnny Molene

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



8100 National Dr.
 Little Rock, AR 72209
 PHONE: 501-455-3233
 FAX: 501-455-6118

CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		Project Description		Turnaround Time	Preservation Codes:													
NLRWWU	7400 Baucom Pike North Little Rock, AR 72117	Faulkner Lake -- AR0020303	Chronic Toxicity -- 1st Quarter 2023	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	Arkansas Analytical Work Order Number: K2302-001A							
Attn: Chris Lumpkin		Email: Clumpkin@nlrwu.com; Meggleston@nlrwu.com		Telephone: 501-945-7186	Preservative Code: P	TEST PARAMETERS					Bole Type Code							
Sampler(s) Signature: <i>[Signature]</i>		Sampler(s) Printed: Kelly Jones																
Field Number	SAMPLE COLLECTION Date/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	Water	Outfall Composite	SAMPLE IDENTIFICATION/ DESCRIPTION	Chronic Toxicity (Ceriodaphnia Dubia, PimephalesPromelas)								
	02/5/23	0740		X	4					X								
	02/14/23	0715																
1. Relinquished by: (Signature) <i>[Signature]</i>		Date/Time	2. Received by: (Signature) <i>[Signature]</i>															
3. Relinquished by: (Signature) <i>[Signature]</i>		Date/Time	4. Received by lab: (Signature) SYDNEY JAMES															
SAMPLE CONDITION UPON RECEIPT IN LAB										REMARKS / SAMPLE COMMENTS								
1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										PS# 230225								
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: 5 °C																		
6. TEMPERATURE GUN ID: HHT# 5																		
FOR COMPLETION BY LAB ONLY																		



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		Project Description		Turnaround Time		Preservation Codes:			
NLRWU	Faulkner Lake -- AR0020303	1 Day (100%)	1. Cool, 6 Degrees Centigrade	4. Thiosulfate for Dechlorination					
7400 Baucom Pike	Chronic Toxicity -- 1st Quarter 2023	2 Day (50%)	2. Sulfuric Acid (H ₂ SO ₄), pH < 2	5. Hydrochloric Acid(HCl)					
North Little Rock, AR 72117	Reporting Information	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	6. Sodium Hydroxide (NaOH), pH > 12					
Attn: Chris Lumpkin		Telephone: 501-945-7186	Routine		TEST PARAMETERS				
Email: Clumpkin@nlrwu.com; MEgleston@nlrwu.com		Preservative Code: P	1		Arkansas Analytical Work Order Number: K2302-				
Bottle Type:		Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas)		001B					
Sampler(s) Signature	Sampler(s) Printed	kayla Jones							
Field Number	SAMPLE COLLECTION Dates/	Times/	Grab	Number of Bottles	Sample Matrix	IDENTIFICATION/ DESCRIPTION	SAMPLE CONDITION UPON RECEIPT IN LAB	REMARKS / SAMPLE COMMENTS	
Comp Start Date/Time	2-7-23	0740		X	4	Water			
Comp End Date/Time	2-8-23	0710							
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		SAMPLE CONDITION UPON RECEIPT IN LAB		REMARKS / SAMPLE COMMENTS	
<i>[Signature]</i>		2-8-23		<i>[Signature]</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: 4 °C 6. TEMPERATURE GUN ID: HHT# 5		P.O.#: 230225	
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature)		FOR COMPLETION BY LAB ONLY			
<i>[Signature]</i>		2/8/23		<i>[Signature]</i>					
Pamela		1314		Supriya James					



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		Project Description		Turnaround Time		Preservation Codes:							
NLRWWU		Faulkner Lake -- AR0020303		1 Day (100%)		1. Cool, 6 Degrees Centigrade							
7400 Baucom Pike		Chronic Toxicity -- 1st Quarter 2023		2 Day (50%)		2. Sulfuric Acid (H ₂ SO ₄), pH < 2							
North Little Rock, AR 72117		Reporting Information		3 Day (25%)		3. Nitric Acid (HNO ₃), pH < 2							
Attn: Chris Lumpkin		Telephone: 501-945-7186		Routine		4. Thiosulfate for Dechlorination							
Email: Clumpkin@nlrwu.com; Megleston@nlrwu.com		Preservative Code: P		TEST PARAMETERS		5. Hydrochloric Acid(HCl)							
Bottle Type:		1		6. Sodium Hydroxide (NaOH), pH > 12		Bottle Type Code							
Sampler(s) Signature: <i>[Signature]</i>		Sampler(s) Printed: <i>Karla Jones</i>		Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas)		Arkansas Analytical Work Order Number: <i>K2302-001C</i>							
Field Number	SAMPLE COLLECTION Dates/s	Times/s	Grab	Comp	Number of Bottles	Sample Matrix	IDENTIFICATION/ DESCRIPTION	SAMPLE CONDITION UPON RECEIPT IN LAB					
Comp Start Date/Time	01/19/23	0715		X	4	Water	Outfall Composite	1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Comp End Date/Time	01/19/23	0705						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: 5 °C					
								6. TEMPERATURE GUN ID: HHT# 5					
1. Relinquished by: (Signature) <i>[Signature]</i>		Date/Time 01/19/23 1048		2. Received by: (Signature) <i>[Signature]</i>		Date/Time 01/19/23 1045		REMARKS / SAMPLE COMMENTS					
3. Relinquished by: (Signature) <i>[Signature]</i>		Date/Time 2/10/23 1305		4. Received by lab: (Signature) <i>[Signature]</i>		Date/Time		P.O.#: 230205					

CETIS Summary Report

Report Date: 23 Feb-23 10:57 (p 1 of 2)
 Test Code/ID: K2302001FH / 00-8563-1492

Fathead Minnow 7-d Larval Survival and Growth Test

Arkansas Analytical

Batch ID: 00-3713-9632	Test Type: Growth-Survival (7d)	Analyst: Melissa Bird
Start Date: 07 Feb-23 12:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 14 Feb-23 11:10	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 22h	Taxon: Actinopterygii	Source: Aquatox, AR
		Age: <24
Sample ID: 06-0548-1842	Code: K2302001FH	Project: WET Quarterly Compliance Test (1Q)
Sample Date: 06 Feb-23 07:15	Material: POTW Effluent	Source: Faulkner Lake (AR0020303)
Receipt Date: 06 Feb-23 13:17	CAS (PC):	Station:
Sample Age: 30h (5 °C)	Client: Faulkner	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2302001B	08 Feb-23 07:10	08 Feb-23 13:14	09 Feb-23 00:00	4
2	K2302001C	10 Feb-23 07:05	10 Feb-23 13:05	11 Feb-23 00:00	5

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
08-7929-4800	7d Survival Rate	Dunnett Multiple Comparison Test	11	>11	n/a	9.091	8.15%	1
05-5825-4490	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	11	>11	n/a	9.091	22.7%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
08-7929-4800	7d Survival Rate	Control Resp	0.94	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	0.9400	0.8289	1.0000	0.8000	1.0000	0.0400	0.0894	9.52%	0.00%
3		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-6.38%
5		5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	-2.13%
6		5	0.9400	0.8720	1.0000	0.9000	1.0000	0.0245	0.0548	5.83%	0.00%
8		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-6.38%
11		5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	-2.13%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.6398	0.5558	0.7238	0.563	0.733	0.03025	0.06765	10.57%	0.00%
3		5	0.6772	0.5947	0.7596	0.607	0.75	0.0297	0.0664	9.81%	-5.85%
5		5	0.5636	0.3793	0.7479	0.43	0.728	0.06637	0.1484	26.33%	11.91%
6		5	0.5838	0.5107	0.6569	0.524	0.654	0.02633	0.05888	10.08%	8.75%
8		5	0.6508	0.5548	0.7468	0.559	0.763	0.03457	0.0773	11.88%	-1.72%
11		5	0.6112	0.4535	0.7689	0.469	0.809	0.0568	0.127	20.78%	4.47%

CETIS Summary Report

Report Date: 23 Feb-23 10:57 (p 2 of 2)
 Test Code/ID: K2302001FH / 00-8563-1492

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	0.8000	1.0000	0.9000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	0.9000	0.9000
6		0.9000	1.0000	0.9000	0.9000	1.0000
8		1.0000	1.0000	1.0000	1.0000	1.0000
11		1.0000	1.0000	1.0000	0.9000	0.9000

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.59	0.733	0.563	0.675	0.638
3		0.612	0.733	0.684	0.607	0.75
5		0.72	0.728	0.43	0.495	0.445
6		0.524	0.639	0.542	0.56	0.654
8		0.763	0.646	0.559	0.68	0.606
11		0.64	0.549	0.809	0.469	0.589

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	8/10	10/10	9/10	10/10	10/10
3		10/10	10/10	10/10	10/10	10/10
5		10/10	10/10	10/10	9/10	9/10
6		9/10	10/10	9/10	9/10	10/10
8		10/10	10/10	10/10	10/10	10/10
11		10/10	10/10	10/10	9/10	9/10

CETIS Summary Report

Report Date: 23 Feb-23 11:01 (p 1 of 2)
 Test Code/ID: K2302001CD / 06-7707-9189

Ceriodaphnia 7-d Survival and Reproduction Test

Arkansas Analytical

Batch ID: 18-0387-0351	Test Type: Reproduction-Survival (7d)	Analyst: Melissa Bird
Start Date: 07 Feb-23 09:52	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 13 Feb-23 10:21	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 0h	Taxon: Branchiopoda	Source: Aquatox, AR Age: <24
Sample ID: 15-3879-2956	Code: K2302001CD	Project: WET Quarterly Compliance Test (1Q)
Sample Date: 06 Feb-23 07:15	Material: POTW Effluent	Source: Faulkner Lake (AR0020303)
Receipt Date: 06 Feb-23 13:17	CAS (PC):	Station:
Sample Age: 27h (5 °C)	Client: Faulkner	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2301002B	08 Feb-23 07:10	08 Feb-23 13:14	09 Feb-23 00:00	4
2	K2302001C	10 Feb-23 07:05	10 Feb-23 13:05	11 Feb-23 00:00	5

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
09-4314-2620	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	11	>11	n/a	9.091	n/a	1
08-8504-8492	Reproduction	Dunnett Multiple Comparison Test	11	>11	n/a	9.091	24.0%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
09-4314-2620	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
08-8504-8492	Reproduction	Control Resp	20.4	15	>>	Yes	Passes Criteria
08-8504-8492	Reproduction	PMSD	0.2397	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%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
6		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
8		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
11		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	20.4	16.35	24.45	15	31	1.79	5.661	27.75%	0.00%
3		10	21.9	19.3	24.5	16	28	1.149	3.635	16.60%	-7.35%
5		10	21.3	17.54	25.06	12	28	1.66	5.25	24.65%	-4.41%
6		10	22.2	18.95	25.45	16	31	1.436	4.541	20.46%	-8.82%
8		10	22.6	19.34	25.86	16	31	1.439	4.551	20.14%	-10.78%
11		10	22.7	19.29	26.11	17	33	1.506	4.762	20.98%	-11.27%

CETIS Summary Report

Report Date: 23 Feb-23 11:01 (p 2 of 2)
 Test Code/ID: K2302001CD / 06-7707-9189

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
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
8		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	16	18	20	15	19	25	17	28	31	15
3		16	22	22	21	21	26	20	28	25	18
5		20	19	22	23	20	27	12	28	27	15
6		19	19	22	21	22	26	16	31	27	19
8		21	19	24	24	23	24	16	27	31	17
11		19	17	24	24	21	26	18	25	33	20

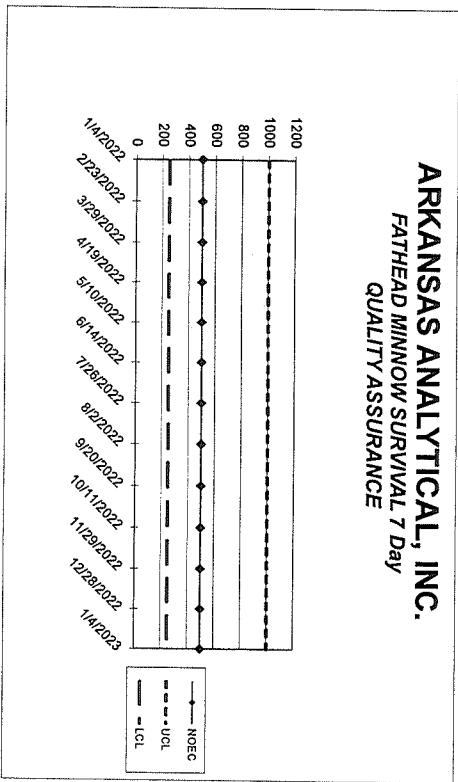
7d Survival Rate Binomials

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
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
8		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
11		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

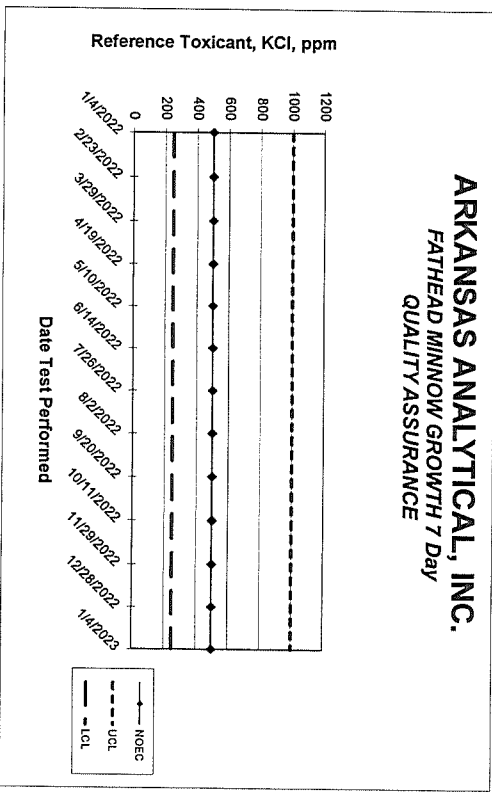
CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING									
Lab # / Sample ID <i>K2302001</i>					Fathead Minnow				
Client: <i>NLRW - Faulkner</i>					Test Start (Date/Time) <i>2-7-23, 1250</i>				
					Test End (Date/Time) <i>2-14-23, 1110</i>				
		Day of Test							
		1	2	3	4	5	6	7	notes/remarks
Control	<i>MHS 060</i>	<i>2/7</i>	<i>2/8</i>	<i>2/9</i>	<i>2/10</i>	<i>2/11</i>	<i>2/12</i>	<i>2/13</i>	
D.O. (mg/L)	INITIAL	<i>8.6</i>	<i>8.6</i>	<i>9.1</i>	<i>8.8</i>	<i>7.9</i>	<i>8.4</i>	<i>8.5</i>	
	FINAL	<i>8.1</i>	<i>8.4</i>	<i>8.2</i>	<i>6.1</i>	<i>8.0</i>	<i>8.4</i>	<i>8.6</i>	
pH (s.u.)	INITIAL	<i>7.4</i>	<i>7.8</i>	<i>7.4</i>	<i>7.5</i>	<i>7.9</i>	<i>7.5</i>	<i>7.6</i>	
	FINAL	<i>7.7</i>	<i>7.5</i>	<i>7.5</i>	<i>7.7</i>	<i>7.5</i>	<i>7.6</i>	<i>7.6</i>	
temp (C)	INITIAL	<i>22</i>	<i>20</i>	<i>21</i>	<i>20</i>	<i>19</i>	<i>20</i>	<i>21</i>	
	FINAL	<i>25</i>	<i>25</i>	<i>25</i>	<i>19</i>	<i>19</i>	<i>25</i>	<i>25</i>	
ALKALINITY (mg/L)		<i>61</i>							
HARDNESS (mg/L)		<i>81</i>							
CONDUCTIVITY (umhos/cm)		<i>316</i>							
CHLORINE (mg/L)		<i>0.05</i>							
CONC:	<i>3%</i>								
D.O. (mg/L)	INITIAL	<i>8.6</i>	<i>8.8</i>	<i>9.1</i>	<i>9.2</i>	<i>7.2</i>	<i>7.9</i>	<i>8.3</i>	
	FINAL	<i>7.9</i>	<i>8.3</i>	<i>8.0</i>	<i>5.9</i>	<i>7.9</i>	<i>8.1</i>	<i>8.3</i>	
pH (s.u.)	INITIAL	<i>7.4</i>	<i>7.8</i>	<i>7.4</i>	<i>7.5</i>	<i>7.8</i>	<i>7.4</i>	<i>7.6</i>	
	FINAL	<i>7.6</i>	<i>7.5</i>	<i>7.5</i>	<i>7.6</i>	<i>7.5</i>	<i>7.6</i>	<i>7.7</i>	
temp (C)	INITIAL	<i>22</i>	<i>20</i>	<i>21</i>	<i>20</i>	<i>19</i>	<i>20</i>	<i>21</i>	
	FINAL	<i>25</i>	<i>25</i>	<i>25</i>	<i>19</i>	<i>19</i>	<i>25</i>	<i>25</i>	
CONC:	<i>5%</i>								
D.O. (mg/L)	INITIAL	<i>8.7</i>	<i>8.8</i>	<i>9.1</i>	<i>9.2</i>	<i>7.1</i>	<i>7.5</i>	<i>8.2</i>	
	FINAL	<i>7.9</i>	<i>8.4</i>	<i>8.4</i>	<i>6.0</i>	<i>7.7</i>	<i>8.0</i>	<i>8.2</i>	
pH (mg/L)	INITIAL	<i>7.4</i>	<i>7.8</i>	<i>7.4</i>	<i>7.5</i>	<i>7.8</i>	<i>7.4</i>	<i>7.6</i>	
	FINAL	<i>7.6</i>	<i>7.5</i>	<i>7.5</i>	<i>7.6</i>	<i>7.5</i>	<i>7.6</i>	<i>7.7</i>	
temp (C)	INITIAL	<i>22</i>	<i>20</i>	<i>21</i>	<i>20</i>	<i>19</i>	<i>19</i>	<i>21</i>	
	FINAL	<i>25</i>	<i>25</i>	<i>25</i>	<i>19</i>	<i>19</i>	<i>25</i>	<i>25</i>	
CONC:	<i>6%</i>								
D.O. (mg/L)	INITIAL	<i>8.8</i>	<i>8.8</i>	<i>9.1</i>	<i>9.2</i>	<i>7.2</i>	<i>7.9</i>	<i>8.4</i>	
	FINAL	<i>8.2</i>	<i>8.1</i>	<i>8.2</i>	<i>6.3</i>	<i>7.6</i>	<i>7.7</i>	<i>8.1</i>	
pH (s.u.)	INITIAL	<i>7.4</i>	<i>7.8</i>	<i>7.4</i>	<i>7.5</i>	<i>7.8</i>	<i>7.3</i>	<i>7.6</i>	
	FINAL	<i>7.6</i>	<i>7.5</i>	<i>7.5</i>	<i>7.6</i>	<i>7.6</i>	<i>7.6</i>	<i>7.8</i>	
temp (C)	INITIAL	<i>22</i>	<i>20</i>	<i>21</i>	<i>20</i>	<i>19</i>	<i>19</i>	<i>21</i>	
	FINAL	<i>25</i>	<i>25</i>	<i>22</i>	<i>19</i>	<i>19</i>	<i>25</i>	<i>25</i>	
CONC:	<i>8%</i>								
D.O. (mg/L)	INITIAL	<i>8.7</i>	<i>8.9</i>	<i>9.1</i>	<i>9.0</i>	<i>7.2</i>	<i>7.7</i>	<i>8.6</i>	
	FINAL	<i>8.4</i>	<i>7.8</i>	<i>8.0</i>	<i>6.2</i>	<i>7.6</i>	<i>7.6</i>	<i>8.0</i>	
pH (s.u.)	INITIAL	<i>7.4</i>	<i>7.8</i>	<i>7.4</i>	<i>7.5</i>	<i>7.7</i>	<i>7.4</i>	<i>7.6</i>	
	FINAL	<i>7.6</i>	<i>7.5</i>	<i>7.5</i>	<i>7.6</i>	<i>7.6</i>	<i>7.6</i>	<i>7.8</i>	
temp (C)	INITIAL	<i>22</i>	<i>20</i>	<i>21</i>	<i>20</i>	<i>19</i>	<i>19</i>	<i>21</i>	
	FINAL	<i>25</i>	<i>25</i>	<i>25</i>	<i>19</i>	<i>19</i>	<i>25</i>	<i>25</i>	
CONC:	<i>11%</i>								
D.O. (mg/L)	INITIAL	<i>8.8</i>	<i>8.9</i>	<i>9.0</i>	<i>9.0</i>	<i>7.1</i>	<i>7.5</i>	<i>8.5</i>	
	FINAL	<i>8.6</i>	<i>7.9</i>	<i>8.0</i>	<i>6.0</i>	<i>7.9</i>	<i>7.5</i>	<i>8.0</i>	
pH (s.u.)	INITIAL	<i>7.4</i>	<i>7.7</i>	<i>7.4</i>	<i>7.5</i>	<i>7.7</i>	<i>7.4</i>	<i>7.5</i>	
	FINAL	<i>7.6</i>	<i>7.5</i>	<i>7.0</i>	<i>7.6</i>	<i>7.6</i>	<i>7.6</i>	<i>7.8</i>	
temp (C)	INITIAL	<i>22</i>	<i>20</i>	<i>21</i>	<i>20</i>	<i>19</i>	<i>19</i>	<i>21</i>	
	FINAL	<i>25</i>	<i>25</i>	<i>25</i>	<i>19</i>	<i>19</i>	<i>25</i>	<i>25</i>	
CONC:		<i>A</i>	<i>A</i>	<i>B</i>	<i>B</i>	<i>C</i>	<i>C</i>	<i>C</i>	
ALKALINITY (mg/L)		<i>16</i>	<i>→</i>	<i>48</i>	<i>→</i>	<i>27</i>	<i>→</i>	<i>→</i>	
HARDNESS (mg/L)		<i>40</i>	<i>→</i>	<i>46</i>	<i>→</i>	<i>46</i>	<i>→</i>	<i>→</i>	
CONDUCTIVITY (umhos/cm)		<i>281</i>	<i>→</i>	<i>326</i>	<i>→</i>	<i>183</i>	<i>→</i>	<i>→</i>	
CHLORINE (mg/L)		<i>0.05</i>	<i>→</i>	<i>0.05</i>	<i>→</i>	<i>0.05</i>	<i>→</i>	<i>→</i>	

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING		Ceriodaphnia Dubia							
Lab # / Sample ID		K2302001		Test Start (Date/Time)		2-7-23, 0952			
Client: NLRWW-Faulkner				Test End (Date/Time)		2-13-23, 1021			
		Day of Test							
		1	2	3	4	5	6	7	notes/remarks
Control	MHS 060	2/7	2/8	2/9	2/10	2/11	2/12		
D.O. (mg/L)	INITIAL	8.6	8.6	9.1	8.8	7.4	8.4		
	FINAL	8.4	8.0	8.9	9.0	9.0	8.2		
pH (s.u.)	INITIAL	7.4	7.8	7.4	7.5	7.9	7.5		
	FINAL	7.6	7.6	7.6	8.0	8.4	7.9		
temp (C)	INITIAL	22	20	21	20	19	20		
	FINAL	25	25	25	25	25	25		
ALKALINITY (mg/L)		61							
HARDNESS (mg/L)		81							
CONDUCTIVITY (umhos/cm)		316							
CHLORINE (mg/L)		60.05							
CONC:	3%								
D.O. (mg/L)	INITIAL	8.6	8.8	9.1	9.2	7.7	7.9		
	FINAL	8.8	8.1	8.8	9.0	9.0	8.0		
pH (s.u.)	INITIAL	7.4	7.8	7.4	7.5	7.8	7.4		
	FINAL	7.5	7.7	7.6	8.6	8.3	7.9		
temp (C)	INITIAL	22	20	21	20	19	20		
	FINAL	25	25	25	25	25	25		
CONC:	5%								
D.O. (mg/L)	INITIAL	8.7	8.8	9.1	9.2	7.1	2.5		
	FINAL	8.8	8.1	8.7	9.1	8.9	8.2		
pH (mg/L)	INITIAL	7.4	7.8	7.4	7.5	7.8	7.4		
	FINAL	7.5	7.7	7.6	8.7	8.2	7.9		
temp (C)	INITIAL	22	20	21	20	19	19		
	FINAL	25	25	25	25	25	25		
CONC:	6%								
D.O. (mg/L)	INITIAL	8.8	8.8	9.1	9.2	7.2	7.9		
	FINAL	8.8	8.1	8.6	9.1	8.8	8.3		
pH (s.u.)	INITIAL	7.4	7.8	7.4	7.5	7.8	7.3		
	FINAL	7.6	7.7	7.6	8.4	8.2	7.9		
temp (C)	INITIAL	22	20	21	20	19	19		
	FINAL	25	25	25	25	25	25		
CONC:	8%								
D.O. (mg/L)	INITIAL	8.7	8.9	9.1	9.0	7.2	7.8		
	FINAL	8.8	8.2	8.7	9.1	8.9	8.4		
pH (s.u.)	INITIAL	7.4	7.8	7.4	7.5	7.7	7.4		
	FINAL	7.6	7.7	7.6	8.2	8.1	7.9		
temp (C)	INITIAL	22	20	21	20	19	19		
	FINAL	25	25	25	25	25	25		
CONC:	11%								
D.O. (mg/L)	INITIAL	8.8	8.9	9.0	9.0	7.1	7.5		
	FINAL	8.6	8.2	8.7	9.2	8.9	8.6		
pH (s.u.)	INITIAL	7.4	7.7	7.4	7.5	7.7	7.4		
	FINAL	7.7	7.7	7.6	8.2	8.1	7.9		
temp (C)	INITIAL	22	20	21	20	19	19		
	FINAL	25	25	25	25	25	25		
CONC:	A	A	B	B	C	C			
ALKALINITY (mg/L)		116	→	48	→	27	→		
HARDNESS (mg/L)		40	→	46	→	46	→		
CONDUCTIVITY (umhos/cm)		281	→	326	→	183	→		
CHLORINE (mg/L)		60.05	→	60.05	→	60.05	→		

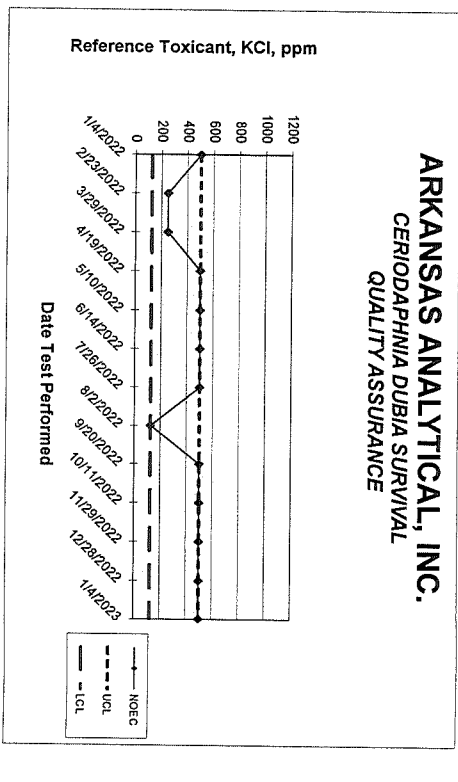
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