

Arkansas Analytical, Inc.

Toxicity Test Results

**NORTH LITTLE ROCK WASTEWATER UTILITY
FAULKNER LAKE
NPDES PERMIT NUMBER: AR0020303
3rd Quarter Test 2022**

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** Prepared by:
North Little Rock Wastewater
7400 Baucom Pike
North Little Rock, Arkansas 72117

Arkansas Analytical
8100 National Drive
Little Rock, Arkansas 72209
Lab Number K2208004

Wednesday, August 24, 2022

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- 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> 7/26/22-8/3/22		<i>Pimephales promelas</i> 7/26/22-8/2/22	
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

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	21.4%	%CV Growth Parameter: TQP6C	20.4%
PMSD Reproduction	20.9%	PMSD Growth	16.6%


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, Jettie Parnell, Samantha Denton

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			Project Description		Turnaround Time		Preservation Codes:				
NLRWWW 7400 Baucom Pike North Little Rock, AR 72117 Attn: Chris Lumpkin Telephone: 501-945-7186 Email: CLumpkin@nlrww.com; MEggleston@nlrww.com			Faulkner Lake -- AR0020303 Chronic Toxicity -- 3rd Quarter 2022 Reporting Information		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				
Sampler(s) Signature: <i>[Signature]</i> Sampler(s) Printed: <i>Karla Jones</i>			Sample Identification/Description Outfall Composite		Preservative Code: Bottle Type:		TEST PARAMETERS 1 P Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas) X Arkansas Analytical Work Order Number: <i>K2208-004A</i>				
Field Number	Date/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	REMARKS / SAMPLE COMMENTS				
Comp Start Date/Time	8-7-22	6730	X	X	4	Water	1. Relinquished by: (Signature) <i>[Signature]</i> Date/Time 8/8/22/1030 2. Received by: (Signature) <i>[Signature]</i> 3. Relinquished by: (Signature) <i>[Signature]</i> Date/Time 8/8/22/1500 4. Received by: (Signature) <i>[Signature]</i> 5. Temperature on Receipt: 1 °C 6. Temperature Gun ID: HHT# 5 FOR COMPLETION BY LAE ONLY				
Comp End Date/Time	8-8-22	0710									

CETIS Summary Report

Report Date: 24 Aug-22 12:33 (p 1 of 2)
 Test Code/ID: K2208004FH / 21-4016-1640

Fathead Minnow 7-d Larval Survival and Growth Test

Arkansas Analytical

Batch ID: 13-0756-3082	Test Type: Growth-Survival (7d)	Analyst: Jettie Parnell
Start Date: 09 Aug-22 12:46	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 16 Aug-22 14:46	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 2h	Taxon: Actinopterygii	Source: Aquatox, AR Age: <24
Sample ID: 11-4082-4907	Code: K2208004FH	Project: WET Quarterly Compliance Test (3Q)
Sample Date: 08 Aug-22 07:10	Material: POTW Effluent	Source: Faulkner Lake (AR0020303)
Receipt Date: 08 Aug-22 16:00	CAS (PC):	Station:
Sample Age: 30h (1 °C)	Client: Faulkner	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2208004B	10 Aug-22 07:15	10 Aug-22 11:41	11 Aug-22 00:00	3
2	K2208004C	12 Aug-22 07:20	12 Aug-22 11:47	13 Aug-22 00:00	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
21-3811-9638	7d Survival Rate	Steel Many-One Rank Sum Test	11	>11	n/a	9.091	9.09%	1
10-5160-1721	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	11	>11	n/a	9.091	16.6%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
21-3811-9638	7d Survival Rate	Control Resp	0.98	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	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	0.00%
3		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	0.00%
5		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	0.00%
6		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	0.00%
8		5	0.9400	0.7734	1.0000	0.7000	1.0000	0.0600	0.1342	14.27%	4.08%
11		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-2.04%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.7142	0.6618	0.7666	0.655	0.762	0.01889	0.04224	5.91%	0.00%
3		5	0.6818	0.6162	0.7474	0.598	0.742	0.02362	0.05281	7.75%	4.54%
5		5	0.6278	0.5474	0.7082	0.548	0.695	0.02896	0.06475	10.31%	12.10%
6		5	0.6824	0.5621	0.8027	0.511	0.747	0.04332	0.09688	14.20%	4.45%
8		5	0.6338	0.473	0.7946	0.431	0.787	0.05792	0.1295	20.44%	11.26%
11		5	0.6612	0.5937	0.7287	0.6	0.739	0.02433	0.05439	8.23%	7.42%

CETIS Summary ReportReport Date: 24 Aug-22 12:33 (p 2 of 2)
Test Code/ID: K2208004FH / 21-4016-1640**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	0.9000	1.0000
3		1.0000	1.0000	1.0000	0.9000	1.0000
5		1.0000	0.9000	1.0000	1.0000	1.0000
6		1.0000	1.0000	1.0000	1.0000	0.9000
8		1.0000	1.0000	0.7000	1.0000	1.0000
11		1.0000	1.0000	1.0000	1.0000	1.0000

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.69	0.762	0.655	0.724	0.74
3		0.698	0.742	0.696	0.598	0.675
5		0.686	0.548	0.578	0.695	0.632
6		0.722	0.725	0.707	0.511	0.747
8		0.787	0.68	0.431	0.622	0.649
11		0.6	0.691	0.739	0.644	0.632

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	10/10	10/10	10/10	9/10	10/10
3		10/10	10/10	10/10	9/10	10/10
5		10/10	9/10	10/10	10/10	10/10
6		10/10	10/10	10/10	10/10	9/10
8		10/10	10/10	7/10	10/10	10/10
11		10/10	10/10	10/10	10/10	10/10

CETIS Summary Report

Report Date: 24 Aug-22 12:22 (p 1 of 2)
 Test Code/ID: K2208004CD / 08-1920-4839

Ceriodaphnia 7-d Survival and Reproduction Test

Arkansas Analytical

Batch ID: 03-8314-6523	Test Type: Reproduction-Survival (7d)	Analyst: Jettie Parnell
Start Date: 09 Aug-22 09:16	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 16 Aug-22 09:25	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatox, AR Age: <24
Sample ID: 12-1236-3027	Code: K2208004CD	Project: WET Quarterly Compliance Test (3Q)
Sample Date: 08 Aug-22 07:10	Material: POTW Effluent	Source: Faulkner Lake (AR0020303)
Receipt Date: 08 Aug-22 16:00	CAS (PC):	Station:
Sample Age: 26h (1 °C)	Client: Faulkner	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2208004B	10 Aug-22 07:15	10 Aug-22 11:41	11 Aug-22 00:00	3
2	K2208004C	12 Aug-22 07:20	12 Aug-22 11:47	13 Aug-22 00:00	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
15-9666-6993	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	11	>11	n/a	9.091	n/a	1
13-3058-3854	Reproduction	Dunnett Multiple Comparison Test	11	>11	n/a	9.091	20.9%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
15-9666-6993	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria	
13-3058-3854	Reproduction	Control Resp	21.2	15	>>	Yes	Passes Criteria	
13-3058-3854	Reproduction	PMSD	0.2086	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	21.2	18.32	24.08	15	30	1.272	4.022	18.97%	0.00%
3		10	19.8	16.73	22.87	15	28	1.356	4.29	21.66%	6.60%
5		10	21.9	19.5	24.3	18	28	1.059	3.348	15.29%	-3.30%
6		10	22	17.84	26.16	12	32	1.838	5.812	26.42%	-3.77%
8		10	21.8	18.47	25.13	15	30	1.474	4.662	21.38%	-2.83%
11		10	21.2	18.87	23.53	17	25	1.031	3.259	15.37%	0.00%

CETIS Summary Report

Report Date: 24 Aug-22 12:22 (p 2 of 2)
 Test Code/ID: K2208004CD / 08-1920-4839

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	20	30	20	15	17	22	22	23	23	20
3		17	19	28	15	26	19	15	20	18	21
5		23	19	28	21	19	22	18	22	20	27
6		12	20	28	18	20	22	20	32	28	20
8		21	19	25	30	23	21	16	15	27	21
11		23	18	24	19	17	25	19	24	18	25

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								Fathead Minnow	
Lab # / Sample ID <i>V2208004</i>				Test Start (Date/Time) <i>8/9/22-1246</i>					
Client: <i>Faultline</i>				Test End (Date/Time) <i>8/16/22-1446</i>					
	Day of Test								
	<i>MHS 032A</i>	1	2	3	4	5	6	7	notes
Control		<i>8/9</i>	<i>8/10</i>	<i>8/11</i>	<i>8/12</i>	<i>8/13</i>	<i>8/14</i>	<i>8/15</i>	<i>MHS 033</i>
D.O. (mg/L)	INITIAL	8.7	8.5	8.2	8.5	8.8	8.8	8.2	<i>8/15</i>
	FINAL	6.6	7.2	7.6	7.8	7.8	7.3	6.6	
pH (s.u.)	INITIAL	6.7	7.5	7.3	7.8	7.2	7.1	7.8	
	FINAL	7.6	7.7	7.8	7.4	7.5	7.7	8.1	
temp (C)	INITIAL	23	22	21	21	20	21	22	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		62						68	
HARDNESS (mg/L)		88					88	84	
CONDUCTIVITY (umhc)		340						319	
CHLORINE (mg/L)		40.05							
CONC: 3									
D.O. (mg/L)	INITIAL	8.6	8.6	8.5	8.7	8.9	8.7	8.5	
	FINAL	6.7	7.3	7.6	7.6	7.8	6.9	6.7	
pH (s.u.)	INITIAL	6.8	7.9	7.4	7.8	7.2	7.1	7.8	
	FINAL	7.6	7.6	7.6	7.4	7.5	7.7	7.9	
temp (C)	INITIAL	23	22	21	21	20	21	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 5									
D.O. (mg/L)	INITIAL	8.7	8.6	8.6	8.7	8.8	8.8	8.5	
	FINAL	6.8	7.2	7.6	7.5	7.9	7.0	6.8	
pH (mg/L)	INITIAL	6.8	7.9	7.5	7.8	7.2	7.2	7.8	
	FINAL	7.7	7.6	7.6	7.4	7.5	7.6	7.8	
temp (C)	INITIAL	23	22	20	21	20	21	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 6									
D.O. (mg/L)	INITIAL	8.7	8.6	8.6	8.7	8.9	8.8	8.6	
	FINAL	6.7	7.3	7.3	7.1	7.9	7.3	6.7	
pH (s.u.)	INITIAL	7.0	7.9	7.6	7.8	7.3	7.3	7.9	
	FINAL	7.6	7.6	7.6	7.3	7.5	7.6	7.8	
temp (C)	INITIAL	23	22	20	21	20	20	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 8									
D.O. (mg/L)	INITIAL	8.6	8.6	8.7	8.7	8.9	8.8	8.6	
	FINAL	6.9	7.5	7.4	7.1	7.8	7.1	6.7	
pH (s.u.)	INITIAL	7.0	7.8	7.6	7.7	7.3	7.3	7.8	
	FINAL	7.6	7.6	7.5	7.4	7.5	7.6	7.7	
temp (C)	INITIAL	23	22	20	21	20	20	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 11									
D.O. (mg/L)	INITIAL	8.6	8.6	8.7	8.7	8.9	8.8	8.5	
	FINAL	6.7	7.7	7.4	7.4	7.8	6.7	6.6	
pH (s.u.)	INITIAL	7.1	7.8	7.6	7.8	7.4	7.4	7.8	
	FINAL	7.6	7.6	7.5	7.4	7.6	7.6	7.7	
temp (C)	INITIAL	23	22	20	21	20	20	22	
	FINAL	25	25	25	25	25	25	25	
CONC:		A	A	B	B	C	C	C	
ALKALINITY (mg/L)		36		16		58			
HARDNESS (mg/L)		78		60		64			
CONDUCTIVITY (umhc)		472		437		446			
CHLORINE (mg/L)		40.05							

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Ceriodaphnia Dubia

Lab # / Sample ID *V#2208004*

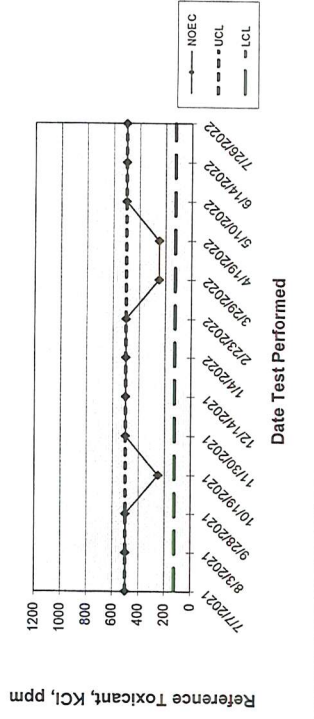
Test Start (Date/Time) *8/9/22-0916*

Client: *Faullner*

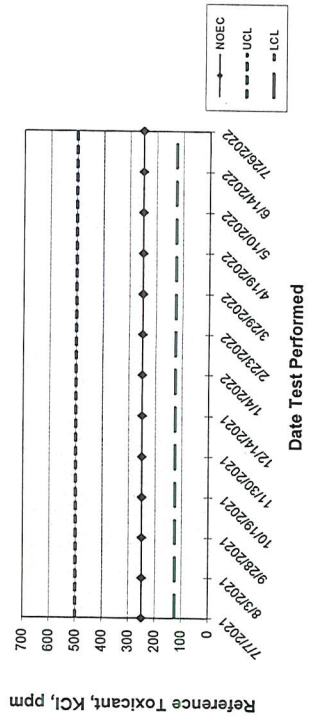
Test End (Date/Time) *8/16/22-0925*

		Day of Test							notes/remarks
		1	2	3	4	5	6	7	
Control	MHS 032	8/9	8/10	8/11	8/12	8/13	8/14	8/15	MHS 033 - 8/15
D.O. (mg/L)	INITIAL	8.7	8.5	8.2	8.5	8.8	8.8	8.2	
	FINAL	8.4	8.7	8.7	8.2	8.1	6.5	8.1	
pH (s.u.)	INITIAL	6.7	7.9	7.3	7.8	7.2	7.1	7.8	
	FINAL	7.8	7.7	8.3	8.3	8.3	8.1	8.0	
temp (C)	INITIAL	23	22	21	21	20	21	22	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		62						68	
HARDNESS (mg/L)		88						84	
CONDUCTIVITY (umhos/cm)		340						319	
CHLORINE (mg/L)		0.05							
CONC: 3									
D.O. (mg/L)	INITIAL	8.6	8.6	8.5	8.7	8.9	8.7	8.5	
	FINAL	8.4	8.8	8.8	8.3	8.2	6.9	8.1	
pH (s.u.)	INITIAL	6.8	7.9	7.4	7.8	7.2	7.1	7.8	
	FINAL	7.8	7.8	8.2	8.1	8.1	8.0	7.9	
temp (C)	INITIAL	23	22	21	21	20	21	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 5									
D.O. (mg/L)	INITIAL	8.7	8.6	8.6	8.7	8.8	8.8	8.5	
	FINAL	8.4	8.8	8.8	8.3	8.2	6.5	8.2	
pH (mg/L)	INITIAL	6.8	7.9	7.5	7.8	7.2	7.2	7.8	
	FINAL	7.8	7.8	8.1	8.0	8.0	7.9	7.9	
temp (C)	INITIAL	23	22	20	21	20	21	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 6									
D.O. (mg/L)	INITIAL	8.7	8.6	8.6	8.7	8.9	8.8	8.6	
	FINAL	8.5	8.9	8.8	8.3	8.3	6.8	8.2	
pH (s.u.)	INITIAL	7.0	7.9	7.6	7.8	7.3	7.3	7.9	
	FINAL	7.8	7.8	8.0	8.0	8.0	7.8	7.9	
temp (C)	INITIAL	23	22	20	21	20	20	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 8									
D.O. (mg/L)	INITIAL	8.6	8.6	8.7	8.7	8.9	8.8	8.6	
	FINAL	8.5	8.9	8.8	8.3	8.3	7.1	8.2	
pH (s.u.)	INITIAL	7.0	7.8	7.6	7.7	7.3	7.3	7.8	
	FINAL	7.8	7.9	8.0	8.0	8.0	7.8	7.8	
temp (C)	INITIAL	23	22	20	21	20	20	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 11									
D.O. (mg/L)	INITIAL	8.6	8.6	8.7	8.7	8.9	8.8	8.5	
	FINAL	8.4	8.8	8.8	8.2	8.3	7.3	8.2	
pH (s.u.)	INITIAL	7.1	7.8	7.6	7.8	7.4	7.4	7.8	
	FINAL	7.8	7.9	8.0	8.0	8.0	7.8	7.8	
temp (C)	INITIAL	23	22	20	21	20	20	22	
	FINAL	25	25	25	25	25	25	25	
CONC:									
		A	A	B	B	C	C	C	
ALKALINITY (mg/L)		36		16		58			
HARDNESS (mg/L)		78		60		64			
CONDUCTIVITY (umhos/cm)		472		437		446			
CHLORINE (mg/L)		<0.05							

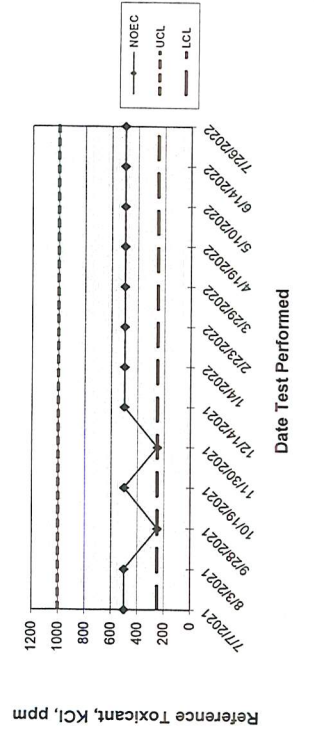
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