

Arkansas Analytical, Inc.

Toxicity Test Results

City of Hope
Permit Number: AR0038466
AFIN # 29-00034
Fourth Quarter Test 2020

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

Ceriodaphnia dubia, Survival and Reproduction Test
Test 1002.0

Prepared for: **Bobby Arney**
City of Hope
P.O. Box 667
Hope, Arkansas 71802

Prepared by: Arkansas Analytical, Inc.
8100 National Drive
Little Rock, Arkansas 72209
Lab Number K2011001

Wednesday, November 11, 2020

Plant location

City of Hope WWTP: 3307 Hwy 67 West, Hope, AR 71801, West on Highway 67 to County Road 381, then 1 mile south on 381 to WWTP in Hempstead 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%, 32%, 42%, 56%, 75%, 100%
- 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%, 32%, 42%, 56%, 75%, 100%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

<i>Ceriodaphnia dubia</i> 10/20/20-10/27/20		<i>Pimephales promelas</i> 10/20/20-10/27/20	
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

City of Hope

<i>Ceriodaphnia dubia</i>		<i>Pimephales promelas</i>	
NOEC Survival Parameter: TOP3B	100%	NOEC Survival Parameter: TOP6C	100%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	100%	NOEC Growth Parameter: TPP6C	100%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	26.4%	%CV Growth Parameter: TQP6C	13.4%
PMSD Reproduction	26.9%	PMSD Growth	18.7%

Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to the City of Hope, specifies that the **critical dilution is 100% 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 the City of Hope, specifies that the **critical dilution is 100% 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, Emily Nichols, Jettie Parnell, Melissa Bird

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		BILLING INFORMATION		Project Description		Turnaround Time		Preservation Codes:							
City of Hope		City of Hope		West Plant Toxicity Sample		1 Day (100%)		1. Cool, 4 Degrees Centigrade		4. Thiosulfate for Dechlorination					
1603 West 3rd St.		P.O. Box 667		Reporting Information		2 Day (50%)		2. Sulfuric Acid (H ₂ SO ₄), pH < 2		5. Hydrochloric Acid(HCl)					
Hope, AR 71801		Hope, AR 71801		Telephone: 870-722-8644		3 Day (25%)		3. Nitric Acid (HNO ₃), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12					
Attn: Bobby Arney				Fax: 870-722-2511		5 Day (routine)		Preservative Code:		TEST PARAMETERS				Bottle Type Code	
				Email: wwlab@hopearkansas.net		Bottle Type:		1						G = Glass; P = Plastic	
				Auto Sampler				P						V = Septum; A = Amber	
Sampler(s) Signature		Sampler(s) Printed		SAMPLE IDENTIFICATION/ DESCRIPTION		Number of Bottles		Sample Matrix		Grab		Comp		Chronic Toxicity	
Field Number		Date/s		Time/s		X		Water		Final Effluent Composite - Day		1		X	
11/1/20-11/2/20		7A-7A													
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		SAMPLE CONDITION UPON RECEIPT IN LAB		1. CUSTODY SEALS:		Yes ___ No ___		REMARKS / SAMPLE COMMENTS			
<i>[Signature]</i>		11-2-20 9:41		<i>[Signature]</i>		2. CONTAINERS CORRECT:		Yes ___ No ___							
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature)		3. COC/LABELS AGREE:		Yes ___ No ___							
<i>[Signature]</i>				<i>[Signature]</i> Johnny Riddle		4. RECEIVED ON ICE:		Yes ___ No ___							
						5. TEMPERATURE ON RECEIPT: 1°C									
						6. TEMPERATURE GUN ID: HH THZ									
						FOR COMPLETION BY LAB ONLY									

CETIS Summary Report

Report Date: 11 Nov-20 12:50 (p 1 of 2)
 Test Code/ID: K2011001FH / 06-1882-8754

Fathead Minnow 7-d Larval Survival and Growth Test

Arkansas Analytical

Batch ID: 10-9939-1569	Test Type: Growth-Survival (7d)	Analyst: Emily Nichols
Start Date: 03 Nov-20 13:02	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 10 Nov-20 11:24	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 22h	Taxon: Actinopterygii	Source: Aquatox, AR Age: <24
Sample ID: 17-0899-8449	Code: K2011001FH	Project: WET Quarterly Compliance Test (4Q)
Sample Date: 02 Nov-20 07:00	Material: POTW Effluent	Source: Hope (AR0038466)
Receipt Date: 02 Nov-20 09:41	CAS (PC):	Station:
Sample Age: 30h (1 °C)	Client: Hope	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2011001B	04 Nov-20 07:00	04 Nov-20 14:00	05 Nov-20 00:00	1
2	K2011001C	06 Nov-20 07:00	06 Nov-20 09:58	07 Nov-20 00:00	4

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
13-3614-9353	7d Survival Rate	Steel Many-One Rank Sum Test	100	>100	n/a	1	6.01%	1
07-5034-0493	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	100	>100	n/a	1	18.7%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Decision
				Lower	Upper	Overlap	
13-3614-9353	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
07-5034-0493	Mean Dry Biomass-mg	Control Resp	0.4126	0.25	>>	Yes	Passes Criteria
07-5034-0493	Mean Dry Biomass-mg	PMSD	0.187	0.12	0.3	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%
32		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%
42		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%
56		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%
75		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.4126	0.3624	0.4628	0.379	0.475	0.01809	0.04046	9.81%	0.00%
32		5	0.405	0.3273	0.4827	0.337	0.47	0.02799	0.06259	15.45%	1.84%
42		5	0.4004	0.3355	0.4653	0.318	0.456	0.02339	0.05229	13.06%	2.96%
56		5	0.3866	0.3106	0.4626	0.314	0.481	0.02736	0.06118	15.83%	6.30%
75		5	0.3596	0.3158	0.4034	0.305	0.394	0.01578	0.03529	9.81%	12.85%
100		5	0.3912	0.3264	0.456	0.329	0.436	0.02336	0.05223	13.35%	5.19%

CETIS Summary ReportReport Date: 11 Nov-20 12:50 (p 2 of 2)
Test Code/ID: K2011001FH / 06-1882-8754**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
32		1.0000	0.9000	1.0000	1.0000	1.0000
42		0.9000	1.0000	1.0000	1.0000	1.0000
56		0.9000	1.0000	1.0000	1.0000	1.0000
75		1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.9000	1.0000	1.0000

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.431	0.395	0.379	0.383	0.475
32		0.337	0.47	0.341	0.454	0.423
42		0.391	0.318	0.406	0.431	0.456
56		0.36	0.481	0.314	0.383	0.395
75		0.377	0.305	0.394	0.345	0.377
100		0.329	0.436	0.42	0.34	0.431

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
32		10/10	9/10	10/10	10/10	10/10
42		9/10	10/10	10/10	10/10	10/10
56		9/10	10/10	10/10	10/10	10/10
75		10/10	10/10	10/10	10/10	10/10
100		10/10	10/10	9/10	10/10	10/10

CETIS Summary Report

Report Date: 16 Nov-20 15:26 (p 1 of 2)
 Test Code/ID: K2011001CD / 15-5215-8905

Ceriodaphnia 7-d Survival and Reproduction Test

Arkansas Analytical

Batch ID: 03-4728-4797	Test Type: Reproduction-Survival (7d)	Analyst: Melissa Bird
Start Date: 03 Nov-20 09:47	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 10 Nov-20 08:28	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: In-House Culture Age: <24
Sample ID: 03-2661-0030	Code: K2011001CD	Project: WET Quarterly Compliance Test (4Q)
Sample Date: 02 Nov-20 07:00	Material: POTW Effluent	Source: Hope (AR0038466)
Receipt Date: 02 Nov-20 09:41	CAS (PC):	Station:
Sample Age: 27h (1 °C)	Client: Hope	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2011001B	04 Nov-20 07:00	04 Nov-20 14:00	05 Nov-20 00:00	1
2	K2011001C	06 Nov-20 07:00	06 Nov-20 09:58	07 Nov-20 00:00	4

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
04-5966-8722	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	>100	n/a	1	n/a	1
16-9581-6763	Reproduction	Dunnett Multiple Comparison Test	100	>100	n/a	1	26.9%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
04-5966-8722	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria	
16-9581-6763	Reproduction	Control Resp	21.4	15	>>	Yes	Passes Criteria	
16-9581-6763	Reproduction	PMSD	0.2693	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%
32		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
42		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
56		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
100		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	21.4	17.69	25.11	12	29	1.641	5.19	24.25%	0.00%
32		10	21.2	18.38	24.02	15	27	1.245	3.938	18.58%	0.93%
42		10	21.8	18.4	25.2	13	28	1.504	4.756	21.82%	-1.87%
56		10	18.1	13.91	22.29	10	28	1.853	5.859	32.37%	15.42%
75		10	19.6	14.07	25.13	4	30	2.446	7.734	39.46%	8.41%
100		10	21.1	17.12	25.08	13	27	1.76	5.567	26.38%	1.40%

CETIS Summary Report

Report Date: 16 Nov-20 15:26 (p 2 of 2)
 Test Code/ID: K2011001CD / 15-5215-8905

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
32		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
42		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
75		1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		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	28	21	19	24	29	20	19	12	17	25
32		17	21	24	24	20	27	25	15	22	17
42		26	27	21	21	28	21	17	13	19	25
56		15	15	21	28	22	26	13	10	15	16
75		18	22	4	27	25	30	21	11	22	16
100		24	27	13	27	19	22	23	27	13	16

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
32		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
42		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
56		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
75		1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		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 K2011001

Test Start (Date/Time) 11-3-2020/1302

Client: Hope

Test End (Date/Time) 11-10-2020/1124

Day of Test

		1	2	3	4	5	6	7	notes
Control	MHS 091	11/3	11/4	11/5	11/6	11/7	11/8	11/9	
D.O. (mg/L)	INITIAL	8.5	8.4	8.7	8.4	8.6	8.6	8.26	
	FINAL	6.7	7.4	7.2	7.8	7.7	7.8	8.0	
pH (s.u.)	INITIAL	8.3	8.2	8.2	8.2	8.1	8.0	8.1	
	FINAL	7.8	7.9	7.8	7.9	8.0	7.8	7.9	
temp (C)	INITIAL	22	22	22	22	23	23	22	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		66							
HARDNESS (mg/L)		104							
CONDUCTIVITY (umhd)		370							
CHLORINE (mg/L)		60.05							
CONC:	<u>32%</u>								
D.O. (mg/L)	INITIAL	8.4	8.4	8.6	8.5	8.6	8.6	8.24	
	FINAL	6.7	7.6	7.4	7.8	7.7	7.9	8.2	
pH (s.u.)	INITIAL	8.2	8.2	8.2	8.2	8.2	8.1	8.2	
	FINAL	8.0	8.1	8.0	7.8	7.9	7.8	8.4	
temp (C)	INITIAL	22	22	23	23	23	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<u>42%</u>								
D.O. (mg/L)	INITIAL	8.5	8.4	8.5	8.4	8.5	8.6	8.39	
	FINAL	6.8	7.7	7.5	7.7	7.7	7.9	8.2	
pH (mg/L)	INITIAL	8.2	8.2	8.2	8.2	8.3	8.1	8.2	
	FINAL	8.1	8.3	8.2	7.9	7.9	7.8	8.4	
temp (C)	INITIAL	22	22	23	24	23	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<u>56%</u>								
D.O. (mg/L)	INITIAL	8.4	8.3	8.4	8.4	8.4	8.6	8.36	
	FINAL	7.0	7.7	7.6	7.7	7.6	7.9	8.2	
pH (s.u.)	INITIAL	8.2	8.2	8.3	8.2	8.4	8.2	8.2	
	FINAL	8.2	8.4	8.3	7.8	7.9	7.7	8.4	
temp (C)	INITIAL	22	22	23	24	24	24	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<u>75%</u>								
D.O. (mg/L)	INITIAL	8.4	8.3	8.3	8.3	8.4	8.5	8.40	
	FINAL	7.2	7.6	7.7	7.6	7.6	7.8	8.2	
pH (s.u.)	INITIAL	8.2	8.2	8.3	8.3	8.3	8.3	8.2	
	FINAL	8.3	8.3	8.4	7.9	7.9	7.8	8.5	
temp (C)	INITIAL	23	23	23	24	24	24	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<u>100%</u>								
D.O. (mg/L)	INITIAL	8.5	8.3	8.4	8.4	8.4	8.5	8.89	
	FINAL	7.3	7.7	7.7	7.6	7.6	7.8	8.9	
pH (s.u.)	INITIAL	8.1	8.2	8.3	8.2	8.3	8.3	8.2	
	FINAL	8.4	8.5	8.5	8.0	7.9	7.7	8.6	
temp (C)	INITIAL	23	23	23	25	25	25	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<u>100%</u>	A	A	B	B	C	C	C	
ALKALINITY (mg/L)		204		210		206			
HARDNESS (mg/L)		58		60		54			
CONDUCTIVITY (umhd)		1022		1083		1044			
CHLORINE (mg/L)		60.05		60.05		60.05			

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Ceriodaphnia Dubia

Lab # / Sample ID *K2011001*

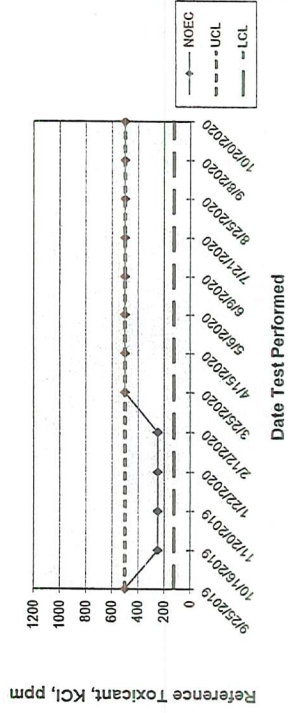
Test Start (Date/Time) *11-3-2020/0947*

Client: *Hope*

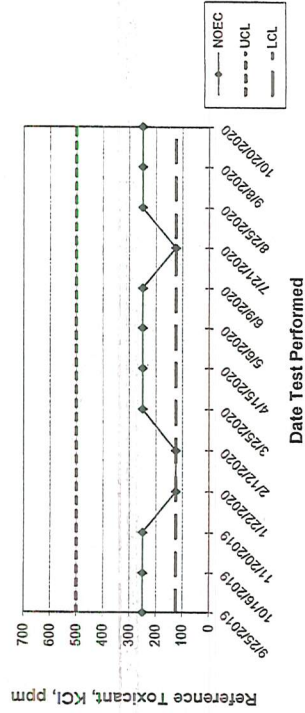
Test End (Date/Time) *11-10-2020/0828*

		Day of Test							notes/remarks
		1	2	3	4	5	6	7	
Control	<i>MHS 091</i>	<i>11/3</i>	<i>11/4</i>	<i>11/5</i>	<i>11/6</i>	<i>11/7</i>	<i>11/8</i>	<i>11/9</i>	
D.O. (mg/L)	INITIAL	8.5	8.4	8.7	8.4	8.4	8.6	8.26	
	FINAL	8.6	8.5	7.7	8.28	8.14	8.4	8.4	
pH (s.u.)	INITIAL	8.3	8.2	8.2	8.2	8.1	8.0	8.1	
	FINAL	8.3	8.6	8.1	8.18	8.4	8.7	8.3	
temp (C)	INITIAL	22	22	22	22	23	23	22	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		66							
HARDNESS (mg/L)		104							
CONDUCTIVITY (umhos/cm)		370							
CHLORINE (mg/L)		40.05							
CONC:	<i>32%</i>								
D.O. (mg/L)	INITIAL	8.4	8.4	8.6	8.5	8.6	8.6	8.24	
	FINAL	8.6	8.5	8.3	8.07	8.28	8.4	8.4	
pH (s.u.)	INITIAL	8.2	8.2	8.2	8.2	8.2	8.1	8.2	
	FINAL	8.5	8.7	8.3	8.4	8.5	8.3	8.5	
temp (C)	INITIAL	22	22	23	23	23	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>42%</i>								
D.O. (mg/L)	INITIAL	8.5	8.4	8.5	8.4	8.5	8.6	8.39	
	FINAL	8.6	8.6	8.6	8.25	8.31	8.4	8.4	
pH (mg/L)	INITIAL	8.2	8.2	8.2	8.2	8.3	8.1	8.2	
	FINAL	8.5	8.7	8.7	8.5	8.6	8.5	8.5	
temp (C)	INITIAL	22	22	23	24	23	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>56%</i>								
D.O. (mg/L)	INITIAL	8.4	8.3	8.4	8.4	8.4	8.6	8.36	
	FINAL	8.7	8.7	8.7	8.14	8.28	8.4	8.4	
pH (s.u.)	INITIAL	8.2	8.2	8.3	8.2	8.4	8.2	8.2	
	FINAL	8.5	8.9	8.7	8.5	8.6	8.5	8.6	
temp (C)	INITIAL	22	22	23	24	24	24	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>75%</i>								
D.O. (mg/L)	INITIAL	8.4	8.3	8.3	8.3	8.4	8.5	8.40	
	FINAL	8.7	8.8	8.8	8.2	7.89	8.4	8.4	
pH (s.u.)	INITIAL	8.2	8.2	8.3	8.3	8.3	8.3	8.2	
	FINAL	8.6	8.8	8.7	8.6	8.68	8.6	8.7	
temp (C)	INITIAL	23	23	23	24	24	24	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>100%</i>								
D.O. (mg/L)	INITIAL	8.5	8.3	8.4	8.4	8.4	8.5	8.89	
	FINAL	8.7	8.8	8.8	8.06	8.06	8.4	8.5	
pH (s.u.)	INITIAL	8.1	8.2	8.3	8.2	8.3	8.3	8.2	
	FINAL	8.7	8.8	8.8	8.7	8.8	8.7	8.7	
temp (C)	INITIAL	23	23	23	25	25	25	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>100%</i>	A	A	B	B	C	C	C	
ALKALINITY (mg/L)		204		210		206			
HARDNESS (mg/L)		58		60		54			
CONDUCTIVITY (umhos/cm)		1022		1083		1044			
CHLORINE (mg/L)		40.05		40.05		40.05			

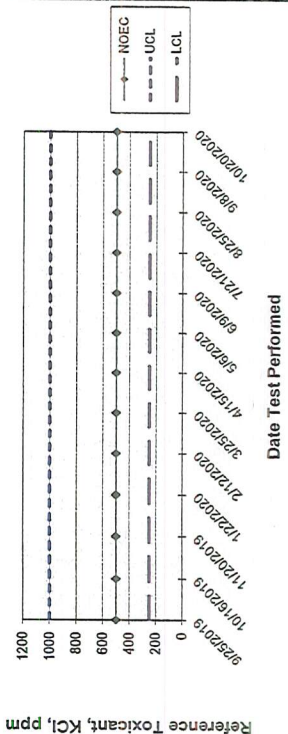
ARKANSAS ANALYTICAL, INC.
CERIODAPHNIA DUBIA SURVIVAL
QUALITY ASSURANCE



ARKANSAS ANALYTICAL, INC.
CERIODAPHNIA DUBIA REPRODUCTION
QUALITY ASSURANCE



ARKANSAS ANALYTICAL, INC.
FATHEAD MINNOW SURVIVAL 7 Day
QUALITY ASSURANCE



ARKANSAS ANALYTICAL, INC.
FATHEAD MINNOW GROWTH 7 Day
QUALITY ASSURANCE

