

Arkansas Analytical, Inc.

Toxicity Test Results

Paragould Light, Water & Cable
NPDES PERMIT NUMBER: AR0033766
Third Quarter 2021
AFIN # 28-00470

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

Ceriodaphnia dubia, Survival and Reproduction Test
Test 1002.0

Prepared for: **Lisa Ellington**
401 Grant Lane
Paragould, Arkansas 72450

Prepared by: Arkansas Analytical, Inc.
8100 National Drive
Little Rock, Arkansas 72209
Lab Number K2107003

Wednesday, August 04, 2021

Plant location

City of Paragould. The facility is located at 401 Grant Lane, Paragould, AR 72450, approximately 1.4 miles south of U.S. Highway 412 and 0.4 miles west of Arkansas Highway 69 on Grant Lane in Greene 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%, 80%, 100%
- Dilution water: Receiving water
- 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%, 80%, 100%
- Dilution water: Receiving water
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

<i>Ceriodaphnia dubia</i> 6/29-7/6/21		<i>Pimephales promelas</i> 6/29/21-7/6/21	
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

Paragould Light, Water & Cable

<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	17.4%	%CV Growth Parameter: TQP6C	19.5%
PMSD Reproduction	32.3%	PMSD Growth	20.1%
Chronic Toxicity NOEC Parameter: 51710	Lethality: 100% Sub-lethality: 100%	Chronic Toxicity NOEC Parameter: 51714	Lethality: 100% Sub-lethality: 100%

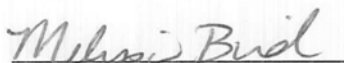
Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to the Paragould Light, Water & Cable, 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 Paragould Light, Water & Cable, specifies 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, Camille Foscue, Jettie Parnell, Anna Allcorn

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 Drive
 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:						
Paragould, Light, Water & Cable		Paragould, Light, Water, & Cable		Chronic Toxicity		1 Day (100%)		1. Cool, 4 Degrees Centigrade		4. Thiosulfate for Dechlorination				
401 Grant Lane		P.O. Box 9				2 Day (50%)		2. Sulfuric Acid (H ₂ SO ₄), pH < 2		5. Hydrochloric Acid (HCl)				
Paragould, AR 72450		Paragould, AR 72450		Reporting Information		3 Day (25%)		3. Nitric Acid (HNO ₃), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12				
PO #: 9521LE				Telephone: 870-239-7795		Routine		TEST PARAMETERS						
Attn: Lisa Ellington				Fax: 870-239-7791		Preservative Code:		1					Bottle Type Code	
NPDES Permit AR0033766				Email: lellington@paragould.com		Bottle Type:		P					G = Glass, P = Plastic V = Septum, A = Amber	
Signature: <i>Lisa Ellington</i>		Signature: <i>Tiffani Newson</i>		Sampler(s) Printed		Tiffani Newson							Arkansas Analytical Work Order Number: K2107003	
Sampler(s) Signature		Sampler(s) Printed		Number of Bottles		Sample Matrix		SAMPLE IDENTIFICATION/DESCRIPTION						
Field Number		SAMPLE COLLECTION		Grab Comp		Water		Effluent Outfall 001 -- Day 1					Chronic Toxicity	
Date/s		Date/Time		X		4							A	
07/12/2021 to 07/13/2021		7:12 AM to 7:08 AM												
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		Date/Time		SAMPLE CONDITION UPON RECEIPT IN LAB					REMARKS / SAMPLE COMMENTS	
<i>Steve Bender</i>		7/13/21 9:00am		<i>URS</i>				1. CUSTODY SEALS: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature)		Date/Time		2. CONTAINERS CORRECT: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						
<i>URS</i>		7/14/21 1230		<i>Tammy Riddick</i>				3. COC/LABELS AGREE: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						
								4. RECEIVED ON ICE: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>						
								5. TEMPERATURE ON RECEIPT: <i>12</i>						
								6. TEMPERATURE GUN ID: <i>HH1#4</i>						
								FOR COMPLETION BY LAB ONLY						



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		BILLING INFORMATION		Project Description		Turnaround Time		Preservation Codes:							
Paragould, Light, Water & Cable		Paragould, Light, Water, & Cable		Chronic Toxicity		1 Day (100%)		1. Cool, 4 Degrees Centigrade		4. Thiosulfate for Dechlorination					
401 Grant Lane		P.O. Box 9				2 Day (50%)		2. Sulfuric Acid (H ₂ SO ₄), pH < 2		5. Hydrochloric Acid(HCl)					
Paragould, AR 72450		Paragould, AR 72450		Reporting Information		3 Day (25%)		3. Nitric Acid (HNO ₃), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12					
PO #9521LE				Telephone: 870-239-7795		Routine		TEST PARAMETERS							
Aftn: Lisa Ellington				Fax: 870-239-7791		Preservative Code:		1					Bottle Type Code		
NPDES Permit AR0033766				Email: lellington@paragould.com		Bottle Type:		P					G = Glass; P = Plastic		
<i>Steve Parker</i>		<i>Steve Parker</i>											V = Septum; A = Amber		
<i>Harry Symons</i>		<i>Harry Symons</i>											Arkansas Analytical Work Order Number:		
Sampler(s) Signature		Sampler(s) Printed													
Field Number	SAMPLE COLLECTION Date/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION								
	07/12/2021	1:58 PM	X		7	Water	PLWC River Water - 8-Mile Creek								
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		Date/Time		SAMPLE CONDITION UPON RECEIPT IN LAB							
<i>Steve Parker</i>		7/13/21 9:06am		VP5		VP5		1. CUSTODY SEALS: Yes ___ No ___							
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature)		Date/Time		2. CONTAINERS CORRECT: Yes ___ No ___							
VP5		7/14/21 1230		<i>Johnny Riddle</i>		1230		3. COC/LABELS AGREE: Yes ___ No ___							
								4. RECEIVED ON ICE: Yes ___ No ___							
								5. TEMPERATURE ON RECEIPT: Yes ___ No ___							
								6. TEMPERATURE GUN ID: Yes ___ No ___							
								FOR COMPLETION BY LAB ONLY							



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CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		BILLING INFORMATION		Project Description		Turnaround Time		Preservation Codes:									
Paragould, Light, Water & Cable		Paragould, Light, Water, & Cable		Chronic Toxicity		1 Day (100%)		1. Cool, 4 Degrees Centigrade		4. Thiosulfate for Dechlorination							
401 Grant Lane		P.O. Box 9		Reporting Information		2 Day (50%)		2. Sulfuric Acid (H ₂ SO ₄), pH < 2		5. Hydrochloric Acid(HCl)							
Paragould, AR 72450		Paragould, AR 72450		Telephone: 870-239-7795		3 Day (25%)		3. Nitric Acid (HNO ₃), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12							
PO #: 9521LE				Email: lellington@paragould.com		Routine		TEST PARAMETERS									
Attn: Lisa Ellington				Fax: 870-239-7791		Preservative Code:		1					Bottle Type Code				
NPDES Permit AR0033766				Email: lellington@paragould.com		Bottle Type:		P					G = Glass; P = Plastic V = Septum; A = Amber				
 Sampler(s) Signature		 Sampler(s) Printed		Chronic Toxicity							Arkansas Analytical Work Order Number: K2107003						
Field Number	DATE/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION										
	07/13/2021 to 07/14/2021	7:25 AM to 7:26 AM	X	X	4	Water	Effluent Outfall 001 -- Day 2										
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		SAMPLE CONDITION UPON RECEIPT IN LAB						REMARKS / SAMPLE COMMENTS					
 Steve Parley		7/14/21 9:00		URS		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: 1°C 6. TEMPERATURE GUN ID: HHT#4											
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature)		FOR COMPLETION BY LAB ONLY											
 UPS		7.15.21 1002		Tammy Riddle													

CETIS Summary Report

Report Date: 04 Aug-21 10:01 (p 1 of 2)
 Test Code/ID: K2107003FH / 13-7226-1085

Fathead Minnow 7-d Larval Survival and Growth Test Arkansas Analytical

Batch ID: 10-8383-1505	Test Type: Growth-Survival (7d)	Analyst: Jettie Parnell
Start Date: 14 Jul-21 14:18	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 21 Jul-21 13:05	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatox, AR Age: <24
Sample ID: 07-0938-2593	Code: K2107003FH	Project: WET Quarterly Compliance Test (3Q)
Sample Date: 13 Jul-21 07:08	Material: POTW Effluent	Source: Paragould (AR0033766)
Receipt Date: 14 Jul-21 12:30	CAS (PC):	Station:
Sample Age: 31h (1 °C)	Client: Paragould	

Receiving water was sampled 7/12/2021, 13:58 and received 7/14/2021, 12:30.

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2107003B	14 Jul-21 07:26	15 Jul-21 10:02	15 Jul-21 00:00	1
2	K2107003C	15 Jul-21 07:29	16 Jul-21 09:57	16 Jul-21 00:00	5

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
21-2805-2150	7d Survival Rate	Steel Many-One Rank Sum Test	100	>100	n/a	1	9.23%	1
18-6902-4868	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	100	>100	n/a	1	20.1%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
21-2805-2150	7d Survival Rate	Control Resp	0.9	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	R	5	0.9000	0.7479	1.0000	0.7000	1.0000	0.0548	0.1225	13.61%	0.00%
32		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
42		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
56		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-8.89%
80		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-8.89%
100		5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	-6.67%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	R	5	0.6888	0.5729	0.8047	0.553	0.788	0.04174	0.09334	13.55%	0.00%
32		5	0.7264	0.6423	0.8105	0.64	0.8	0.03029	0.06774	9.33%	-5.46%
42		5	0.7308	0.6788	0.7828	0.667	0.764	0.01875	0.04192	5.74%	-6.10%
56		5	0.7814	0.7356	0.8272	0.732	0.815	0.01649	0.03687	4.72%	-13.44%
80		5	0.8496	0.7174	0.9818	0.691	0.935	0.04762	0.1065	12.53%	-23.35%
100		5	0.7878	0.5972	0.9784	0.638	1.045	0.06864	0.1535	19.48%	-14.37%

CETIS Summary Report

Report Date: 04 Aug-21 10:01 (p 2 of 2)
Test Code/ID: K2107003FH / 13-7226-1085

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	R	1.0000	0.7000	0.9000	0.9000	1.0000
32		1.0000	1.0000	1.0000	1.0000	1.0000
42		1.0000	1.0000	1.0000	1.0000	1.0000
56		1.0000	0.9000	1.0000	1.0000	1.0000
80		1.0000	0.9000	1.0000	1.0000	1.0000
100		1.0000	0.9000	0.9000	1.0000	1.0000

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	R	0.712	0.553	0.788	0.641	0.75
32		0.64	0.784	0.68	0.728	0.8
42		0.667	0.709	0.755	0.764	0.759
56		0.815	0.732	0.753	0.797	0.81
80		0.788	0.914	0.92	0.691	0.935
100		0.638	1.045	0.727	0.744	0.785

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	R	10/10	7/10	9/10	9/10	10/10
32		10/10	10/10	10/10	10/10	10/10
42		10/10	10/10	10/10	10/10	10/10
56		10/10	9/10	10/10	10/10	10/10
80		10/10	9/10	10/10	10/10	10/10
100		10/10	9/10	9/10	10/10	10/10

CETIS Summary Report

Report Date: 04 Aug-21 10:00 (p 1 of 2)
 Test Code/ID: K2107003CD / 04-3402-8005

Ceriodaphnia 7-d Survival and Reproduction Test **Arkansas Analytical**

Batch ID: 05-5035-2192	Test Type: Reproduction-Survival (7d)	Analyst: Jettie Parnell
Start Date: 14 Jul-21 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Receiving Water
Ending Date: 21 Jul-21 12:37	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: In-House Culture Age: <24
Sample ID: 18-3003-9925	Code: K2107003CD	Project: WET Quarterly Compliance Test (3Q)
Sample Date: 13 Jul-21 07:08	Material: POTW Effluent	Source: Paragould (AR0033766)
Receipt Date: 14 Jul-21 12:30	CAS (PC):	Station:
Sample Age: 31h (1 °C)	Client: Paragould	

Receiving water was sampled 7/12/2021, 13:58 and was received 7/14/2021, 12:30.

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2107003B	14 Jul-21 07:26	15 Jul-21 10:02	15 Jul-21 00:00	1
2	K2107003C	15 Jul-21 07:29	16 Jul-21 09:57	16 Jul-21 00:00	5

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
20-9402-9740	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	>100	n/a	1	n/a	1
15-7852-7481	Reproduction	Steel Many-One Rank Sum Test	100	>100	n/a	1	32.3%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
20-9402-9740	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
15-7852-7481	Reproduction	Control Resp	27.1	15	>>	Yes	Passes Criteria
15-7852-7481	Reproduction	PMSD	0.3228	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	0.8000	0.4984	1.0000	0.0000	1.0000	0.1333	0.4216	52.70%	20.00%
42		10	0.8000	0.4984	1.0000	0.0000	1.0000	0.1333	0.4216	52.70%	20.00%
56		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
80		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
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	27.1	23.74	30.46	19	32	1.487	4.701	17.35%	0.00%
32		10	23.1	14	32.2	0	32	4.023	12.72	55.08%	14.76%
42		10	23.3	15.46	31.14	0	37	3.464	10.95	47.02%	14.02%
56		10	31.5	26.04	36.96	12	39	2.414	7.634	24.23%	-16.24%
80		10	30.4	25.03	35.77	15	40	2.372	7.501	24.67%	-12.18%
100		10	31.5	28.33	34.67	25	39	1.4	4.428	14.06%	-16.24%

CETIS Summary Report

Report Date: 04 Aug-21 10:00 (p 2 of 2)
 Test Code/ID: K2107003CD / 04-3402-8005

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	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000
42		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
56		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000
80		1.0000	1.0000	1.0000	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	27	32	27	19	31	32	28	23	21	31
32		28	32	26	32	0	0	31	20	32	30
42		20	31	27	32	37	33	17	18	0	18
56		30	34	30	38	30	36	35	39	31	12
80		36	33	36	22	40	27	28	33	34	15
100		39	37	33	29	28	25	28	35	30	31

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	0/1	0/1	1/1	1/1	1/1	1/1
42		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1
56		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1
80		1/1	1/1	1/1	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 K2107003

Test Start (Date/Time) 7-14-21 / 1418

Client: Paragould

Test End (Date/Time) 7-21-21 / 1305

Day of Test

		1	2	3	4	5	6	7	notes
Control	BW	7/14	7/15	7/16	7/17	7/18	7/19	7/20	
D.O. (mg/L)	INITIAL	8.4	9.0	8.2	8.3	8.6	8.5	8.5	
	FINAL	8.3	8.3	8.3	7.7	6.2	7.9	7.8	
pH (s.u.)	INITIAL	8.9	7.0	7.9	6.4	6.9	7.1	8.1	
	FINAL	7.8	7.9	7.1	7.2	7.3	7.7	7.6	
temp (C)	INITIAL	24	23	21	22	21	23	21	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		46							→
HARDNESS (mg/L)		42							→
CONDUCTIVITY (umhc)		142							→
CHLORINE (mg/L)		<0.05							→
CONC:	327.								
D.O. (mg/L)	INITIAL	8.8	9.4	8.5	8.3	8.5	8.5	8.5	
	FINAL	7.7	7.8	8.3	7.3	5.8	7.5	7.2	
pH (s.u.)	INITIAL	7.2	7.3	7.8	6.9	7.1	7.2	8.1	
	FINAL	7.6	7.7	7.5	7.4	7.3	7.5	7.6	
temp (C)	INITIAL	24	23	21	22	21	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	427.								
D.O. (mg/L)	INITIAL	8.8	9.0	8.5	9.1	8.7	8.5	8.5	
	FINAL	7.6	7.6	7.3	6.0	5.5	7.1	7.1	
pH (mg/L)	INITIAL	7.5	7.6	7.8	7.2	7.2	7.4	7.4	
	FINAL	7.6	7.7	7.4	7.3	7.4	7.6	7.8	
temp (C)	INITIAL	24	24	21	22	21	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	567.								
D.O. (mg/L)	INITIAL	8.9	9.0	8.7	9.1	8.7	8.5	8.6	
	FINAL	7.4	7.5	7.2	6.3	5.7	7.0	7.1	
pH (s.u.)	INITIAL	7.7	7.6	7.8	7.3	7.4	7.6	7.8	
	FINAL	7.7	7.8	7.7	7.5	7.6	7.7	7.9	
temp (C)	INITIAL	24	25	21	21	21	24	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	807.								
D.O. (mg/L)	INITIAL	9.0	8.9	8.8	9.1	9.1	6.5	8.7	
	FINAL	7.2	7.4	7.3	6.2	6.0	7.0	7.5	
pH (s.u.)	INITIAL	7.8	7.7	7.9	7.5	7.5	7.7	7.8	
	FINAL	7.8	7.9	7.8	7.6	7.7	7.9	7.9	
temp (C)	INITIAL	24	24	21	21	21	25	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	1007.								
D.O. (mg/L)	INITIAL	9.7	8.9	8.9	9.3	9.3	8.6	8.7	
	FINAL	7.2	7.4	7.4	6.4	5.9	7.0	7.4	
pH (s.u.)	INITIAL	7.8	7.7	7.9	7.6	7.6	7.8	7.9	
	FINAL	8.0	8.0	8.0	7.8	7.7	8.0	8.0	
temp (C)	INITIAL	23	25	21	21	21	26	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	A	B	C	A	B	C	C	C	
ALKALINITY (mg/L)		130	154	156	130	154	156		→
HARDNESS (mg/L)		44	52	50	44	52	50		→
CONDUCTIVITY (umhc)		572	595	600	572	595	600		→
CHLORINE (mg/L)		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		→

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Ceriodaphnia Dubia

Lab # / Sample ID K2107003

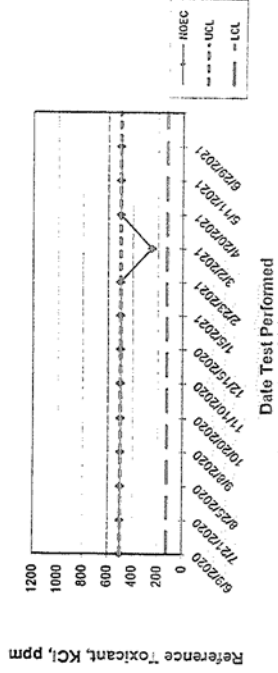
Test Start (Date/Time) 7/14/21, 1405

Client: Parapula

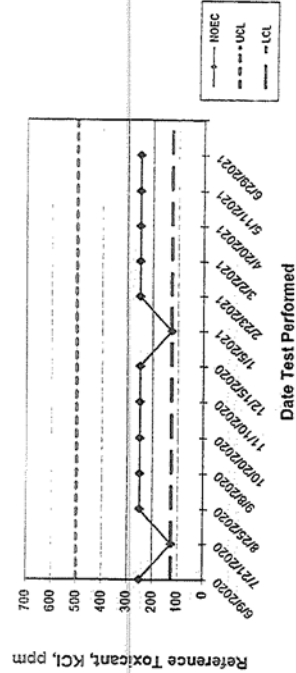
Test End (Date/Time) 7/21/21, 1237

		Day of Test							notes/remarks
		1	2	3	4	5	6	7	
Control	MHT RW	7/14	7/15	7/16	7/17	7/18	7/19	7/20	
D.O. (mg/L)	INITIAL	8.4	9.0	8.2	8.3	8.6	8.5	8.5	
	FINAL	8.7	8.9	8.3	8.5	8.7	8.3	8.1	
pH (s.u.)	INITIAL	6.9	7.0	7.9	7.5	6.9	7.1	8.9	
	FINAL	7.7	8.0	7.7	7.7	7.2	7.8	7.6	
temp (C)	INITIAL	24	23	21	22	21	23	21	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		46							→
HARDNESS (mg/L)		42							→
CONDUCTIVITY (umhos/cm)		142							→
CHLORINE (mg/L)		0.05							→
CONC: 32%									
D.O. (mg/L)	INITIAL	8.8	9.4	8.5	8.3	8.3	8.5	8.5	
	FINAL	8.6	8.8	8.3	8.5	8.6	8.3	8.1	
pH (s.u.)	INITIAL	7.2	7.3	7.8	6.9	7.1	7.2	8.1	
	FINAL	7.8	8.1	7.7	7.8	7.8	7.8	7.6	
temp (C)	INITIAL	24	23	21	22	21	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 42%									
D.O. (mg/L)	INITIAL	8.8	9.0	8.5	9.1	8.7	8.5	8.5	
	FINAL	8.5	8.7	8.3	8.5	8.4	8.3	8.2	
pH (mg/L)	INITIAL	7.6	7.6	7.7	7.2	7.2	7.4	7.4	
	FINAL	7.9	8.2	7.9	7.9	7.9	7.9	7.7	
temp (C)	INITIAL	24	24	21	22	21	23	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 56%									
D.O. (mg/L)	INITIAL	8.9	9.0	8.7	9.1	8.7	8.5	8.6	
	FINAL	8.5	8.8	8.3	8.5	8.4	8.3	8.2	
pH (s.u.)	INITIAL	7.7	7.6	7.8	7.3	7.4	7.6	7.8	
	FINAL	8.0	8.3	8.0	7.9	8.0	8.0	7.8	
temp (C)	INITIAL	24	25	21	21	21	24	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 80%									
D.O. (mg/L)	INITIAL	9.0	8.9	8.8	9.1	9.1	8.5	8.7	
	FINAL	8.5	8.8	8.4	8.5	8.5	8.3	8.2	
pH (s.u.)	INITIAL	7.8	7.7	7.9	7.5	7.5	7.7	7.8	
	FINAL	8.1	8.5	8.1	8.1	8.1	8.0	7.8	
temp (C)	INITIAL	24	24	21	21	21	25	22	
	FINAL	25	25	25	25	25	25	25	
CONC: 100%									
D.O. (mg/L)	INITIAL	9.1	8.9	8.9	9.3	9.3	8.6	8.7	
	FINAL	8.4	8.9	8.5	8.6	8.6	8.4	8.2	
pH (s.u.)	INITIAL	7.8	7.7	7.9	7.6	7.6	7.6	7.9	
	FINAL	8.2	8.4	8.2	8.2	8.3	8.1	7.9	
temp (C)	INITIAL	23	25	21	21	21	26	22	
	FINAL	25	25	25	25	25	25	25	
CONC: A B C A B C C									
ALKALINITY (mg/L)		130	154	156	130	154	156		→
HARDNESS (mg/L)		44	52	50	44	52	50		→
CONDUCTIVITY (umhos/cm)		572	595	600	572	595	600		→
CHLORINE (mg/L)		0.05	0.05	0.05	0.05	0.05	0.05		→

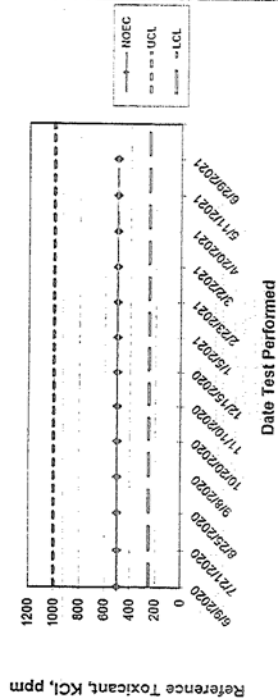
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