Arkansas Analytical, Inc.

Toxicity Test Results

Paragould Light, Water & Cable
NPDES PERMIT NUMBER: AR0033766
Fourth Quarter 2020
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 K2010008

Thursday, October 22, 2020

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: 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%, 80%, 100%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

Ceriodaphnia dubia 9/8/20-9/16/20		*Pimephales promelas* 9/8/20-9/15/20	
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

Paragould Light, Water & Cable

Ceriodaphnia dubia		*Pimephales promelas*	
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**	35.7%	%CV Growth Parameter: **TQP6C**	9.45%
PMSD Reproduction	33.9%	PMSD Growth	11.8%

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, Emily Nichols, Jettie Parnell

Reviewed by:

Melissa Bird

Melissa Bird

Appendices

Appendix A.....Chains of custody

Appendix B.....Fathead minnow data & statistics

Appendix C.....*Ceriodaphnia dubia* data & statistics

Appendix D.....Water chemistry data

Appendix E.....Reference toxicant control charts

Arkansas Analytical Inc.

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_2SO_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 #: 9520LE		Telephone: 870-239-7795	Routine	TEST PARAMETERS
Attn: Lisa Ellington		Fax: 870-239-7791	Preservative Code:	1
NPDES Permit AR0033766		Email: lellington@paragould.com	Bottle Type:	P

Bottle Type Code: G = Glass; P = Plastic; V = Septum; A = Amber

Sampler(s) Signature: [signature]

Sampler(s) Printed: Colin Testa

Field Number	SAMPLE COLLECTION Date/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION	Chronic Toxicity	Arkansas Analytical Work Order Number:
	10/12/2020 to 10/13/2020	7:27 AM to 7:17 AM		X	4	Water	Effluent Outfall 001 -- Day 1	X	K2010008 A

1. Relinquished by: (Signature)	Date/Time	2. Received by: (Signature)
Steve Rowlen	10/13/20 9:00am	UPS
3. Relinquished by: (Signature)	Date/Time	4. Received by lab: (Signature)
UPS	10.15.2020 1134	Jimmy Riddle

SAMPLE CONDITION UPON RECEIPT IN LAB

1. CUSTODY SEALS:	✓ Yes	No
2. CONTAINERS CORRECT:	Yes	No
3. COC/LABELS AGREE:	Yes	No
4. RECEIVED ON ICE:	Yes	No
5. TEMPERATURE ON RECEIPT:	2°c	
6. TEMPERATURE GUN ID:	HHTH2	

FOR COMPLETION BY LAB ONLY

REMARKS / SAMPLE COMMENTS

Arkansas Analytical Inc.

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_2SO_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 #: 9520LE		Telephone: 870-239-7795	Routine	TEST PARAMETERS
Attn: Lisa Ellington		Fax: 870-239-7791	Preservative Code:	1
NPDES Permit AR0033766		Email: lellington@paragould.com	Bottle Type:	P

Bottle Type Code: G = Glass; P = Plastic; V = Septum; A = Amber

Sampler(s) Signature: CL

Sampler(s) Printed: Colin Hester

Field Number	SAMPLE COLLECTION Date/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION	Chronic Toxicity	Arkansas Analytical Work Order Number:
	10/13/2020 to 10/14/2020	7:46 AM to 7:21 AM		X	4	Water	Effluent Outfall 001 -- Day 2	X	K2010008 B

1. Relinquished by: (Signature)	Date/Time	2. Received by: (Signature)
Steve Rader	10/14/20 9:30	URS
3. Relinquished by: (Signature)	Date/Time	4. Received by lab: (Signature)
UPS	10.15.2020 947	Tammy Riddle

SAMPLE CONDITION UPON RECEIPT IN LAB

1. CUSTODY SEALS:	✓ Yes	___ No
2. CONTAINERS CORRECT:	___ Yes	___ No
3. COC/LABELS AGREE:	___ Yes	___ No
4. RECEIVED ON ICE:	___ Yes	___ No
5. TEMPERATURE ON RECEIPT:	1°c	
6. TEMPERATURE GUN ID:	HHT#2	

FOR COMPLETION BY LAB ONLY

REMARKS / SAMPLE COMMENTS

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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_2SO_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 #: 9520LE		Telephone: 870-239-7795	Routine	TEST PARAMETERS
Attn: Lisa Ellington		Fax: 870-239-7791	Preservative Code:	1
NPDES Permit AR0033766		Email: lellington@paragould.com	Bottle Type:	P

Bottle Type Code: G = Glass; P = Plastic; V = Septum; A = Amber

Sampler(s) Signature: [signature]

Sampler(s) Printed: Colin Hester

Field Number	SAMPLE COLLECTION Date/s	Time/s	Grab	Comp	Number of Bottles	Sample Matrix	SAMPLE IDENTIFICATION/ DESCRIPTION	Chronic Toxicity	Arkansas Analytical Work Order Number:
	10/14/2020 to 10/15/2020	8:18 AM to 7:40 AM		X	4	Water	Effluent Outfall 001 -- Day 3	X	K2010008 C

1. Relinquished by: (Signature)	Date/Time	2. Received by: (Signature)
Steve Paulus	10/15/20 9:10 am	UPS
3. Relinquished by: (Signature)	Date/Time	4. Received by lab: (Signature)
UPS	10-16-2020 11:10	Danny Riddle

SAMPLE CONDITION UPON RECEIPT IN LAB

1. CUSTODY SEALS:	✓ Yes	___ No
2. CONTAINERS CORRECT:	___ Yes	___ No
3. COC/LABELS AGREE:	___ Yes	___ No
4. RECEIVED ON ICE:	___ Yes	___ No
5. TEMPERATURE ON RECEIPT:	1°C	
6. TEMPERATURE GUN ID:	HHT#2	

FOR COMPLETION BY LAB ONLY

REMARKS / SAMPLE COMMENTS

CETIS Summary Report

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

Batch ID:	04-4726-9521	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Emily Nichols	
Start Date:	14 Oct-20 13:07	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water	
Ending Date:	21 Oct-20 12:23	**Species:**	Pimephales promelas	**Brine:**	Not Applicable	
Test Length:	6d 23h	**Taxon:**	Actinopterygii	**Source:**	Aquatox, AR	**Age:** <48
Sample ID:	21-0929-2711	**Code:**	K2010008FH	**Project:**	WET Quarterly Compliance Test (4Q)	
Sample Date:	13 Oct-20 07:17	**Material:**	POTW Effluent	**Source:**	Paragould (AR0033766)	
Receipt Date:	14 Oct-20 11:34	**CAS (PC):**		**Station:**		
Sample Age:	30h (2 °C)	**Client:**	Paragould			

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2010008B	14 Oct-20 07:21	15 Oct-20 09:47	15 Oct-20 00:00	1
2	K2010008C	15 Oct-20 07:40	16 Oct-20 11:10	16 Oct-20 00:00	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
00-1248-4605	7d Survival Rate	Steel Many-One Rank Sum Test		100	>100	n/a	1	4.07%	1
13-7974-7001	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test		100	>100	n/a	1	11.8%	1

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
00-1248-4605	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
13-7974-7001	Mean Dry Biomass-mg	Control Resp	0.5778	0.25	>>	Yes	Passes Criteria
13-7974-7001	Mean Dry Biomass-mg	PMSD	0.1177	0.12	0.3	Yes	Below 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	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
42		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
56		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
80		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	0.5778	0.5332	0.6224	0.539	0.633	0.01608	0.03596	6.22%	0.00%
32		5	0.5182	0.469	0.5674	0.474	0.567	0.01771	0.03961	7.64%	10.32%
42		5	0.481	0.4362	0.5258	0.424	0.523	0.01614	0.03609	7.50%	16.75%
56		5	0.5074	0.4224	0.5924	0.396	0.57	0.0306	0.06843	13.49%	12.18%
80		5	0.5778	0.5349	0.6207	0.543	0.624	0.01544	0.03454	5.98%	0.00%
100		5	0.5186	0.4578	0.5794	0.463	0.593	0.02191	0.04898	9.45%	10.25%

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	1.0000	1.0000	1.0000	1.0000
42		1.0000	1.0000	1.0000	1.0000	1.0000
56		1.0000	1.0000	1.0000	1.0000	1.0000
80		1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	0.9000

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.561	0.633	0.539	0.591	0.565
32		0.549	0.487	0.514	0.567	0.474
42		0.481	0.424	0.523	0.495	0.482
56		0.396	0.542	0.538	0.491	0.57
80		0.604	0.563	0.624	0.543	0.555
100		0.463	0.498	0.593	0.503	0.536

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	10/10	10/10	10/10	10/10
42		10/10	10/10	10/10	10/10	10/10
56		10/10	10/10	10/10	10/10	10/10
80		10/10	10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10	9/10

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

Batch ID:	07-4967-4880	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Emily Nichols	
Start Date:	14 Oct-20 15:00	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water	
Ending Date:	20 Oct-20 14:22	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable	
Test Length:	5d 23h	**Taxon:**	Branchiopoda	**Source:**	In-House Culture	**Age:** <24
Sample ID:	08-4711-1010	**Code:**	K2010008CD	**Project:**	WET Quarterly Compliance Test (4Q)	
Sample Date:	13 Oct-20 07:17	**Material:**	POTW Effluent	**Source:**	Paragould (AR0033766)	
Receipt Date:	14 Oct-20 11:34	**CAS (PC):**		**Station:**		
Sample Age:	32h (2 °C)	**Client:**	Paragould			

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2010008B	14 Oct-20 07:21	15 Oct-20 09:47	15 Oct-20 00:00	1
2	K2010008C	15 Oct-20 07:40	16 Oct-20 11:10	16 Oct-20 00:00	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
11-9868-4954	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test		100	>100	n/a	1	n/a	1
06-6215-2856	Reproduction	Steel Many-One Rank Sum Test		100	>100	n/a	1	33.9%	1

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
11-9868-4954	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
06-6215-2856	Reproduction	Control Resp	17.5	15	>>	Yes	Passes Criteria
06-6215-2856	Reproduction	PMSD	0.3388	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%
80		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
100		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	17.5	14.69	20.31	11	22	1.241	3.923	22.42%	0.00%
32		10	18.2	16.74	19.66	15	22	0.6464	2.044	11.23%	-4.00%
42		10	17.7	14.31	21.09	6	22	1.499	4.739	26.77%	-1.14%
56		10	16.1	11.29	20.91	3	23	2.126	6.724	41.76%	8.00%
80		10	16.2	11.02	21.38	0	22	2.289	7.239	44.68%	7.43%
100		10	~~16.3~~	10.69	21.91	2	27	2.481	7.846	~~48.14%~~	6.86%

Avg. neonates per surviving female at the 100%

$\bar{X}$ = 17.9 CV = 35.7%

ew 10-22-2020

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
80		1.0000	1.0000	1.0000	1.0000	0.0000	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	0.0000	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	14	22	18	17	22	19	17	22	13	11
32		18	18	18	22	20	18	17	16	20	15
42		20	22	20	19	21	20	6	16	14	19
56		20	9	20	23	22	12	3	12	18	22
80		21	22	22	19	0	22	16	19	9	12
100		27	19	3	18	17	17	19	2	19	22

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
80		1/1	1/1	1/1	1/1	0/1	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	0/1	1/1	1/1

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING									Fathead Minnow
Lab # / Sample ID:		20100058			Test Start (Date/Time):		10-14-2020 11307		
Client:		Paragould			Test End (Date/Time):		10-21-2020 11223		
		Day of Test							
		1	2	3	4	5	6	7	notes
Control	MHS037	10/14	10/15	10/16	10/17	10/18	10/19	10/20	MHS038
D.O. (mg/L)	INITIAL	8.2	8.1	8.6	8.4	8.5	8.6	8.7	10/15
	FINAL	7.75	7.9	8.7	8.6	7.8	7.7	8.1	
pH (s.u.)	INITIAL	8.1	8.3	8.2	8.2	8.3	8.1	8.2	
	FINAL	8.0	7.8	8.0	8.0	8.0	7.9	8.0	
temp (C)	INITIAL	22	21	22	21	21	21	22	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		62	68						
HARDNESS (mg/L)		104	90						
CONDUCTIVITY (umhc		345	330						
CHLORINE (mg/L)		<0.05	<0.05						
CONC:	32%								
D.O. (mg/L)	INITIAL	8.1	8.3	8.2	8.5	8.5	8.5	8.7	
	FINAL	7.81	7.9	8.5	8.3	8.0	7.8	7.9	
pH (s.u)	INITIAL	7.9	8.1	8.1	8.1	8.2	8.2	8.2	
	FINAL	8.0	8.0	8.1	8.1	8.1	8.1	8.2	
temp (C)	INITIAL	22	21	23	21	21	21	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	42%								
D.O. (mg/L)	INITIAL	8.4	8.5	8.4	8.7	8.6	8.6	8.6	
	FINAL	7.65	7.9	8.3	8.0	7.9	7.8	7.9	
pH (mg/L)	INITIAL	7.9	8.1	8.1	8.1	8.2	8.2	8.2	
	FINAL	8.0	8.0	8.2	8.1	8.1	8.1	8.2	
temp (C)	INITIAL	22	21	23	21	21	21	22	
	FINAL	25	25	25	25	25	25	25	
CONC:	56%								
D.O. (mg/L)	INITIAL	8.5	8.5	8.4	8.7	8.6	8.6	8.6	
	FINAL	7.67	7.7	8.3	8.0	8.0	7.7	7.8	
pH (s.u.)	INITIAL	8.0	8.1	8.1	8.0	8.1	8.2	8.2	
	FINAL	8.1	8.0	8.2	8.1	8.2	8.2	8.3	
temp (C)	INITIAL	22	21	23	21	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	80%								
D.O. (mg/L)	INITIAL	8.5	8.5	8.4	8.8	8.7	8.7	8.7	
	FINAL	7.67	7.7	8.3	8.0	8.0	7.8	7.8	
pH (s.u.)	INITIAL	7.9	8.2	8.1	8.0	8.1	8.2	8.2	
	FINAL	8.0	8.1	8.3	8.2	8.2	8.3	8.3	
temp (C)	INITIAL	23	21	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	100%								
D.O. (mg/L)	INITIAL	8.6	8.6	8.8	9.2	9.1	8.8	8.9	
	FINAL	7.61	7.7	8.2	7.9	7.8	7.8	7.8	
pH (s.u.)	INITIAL	7.9	8.1	8.1	7.9	8.1	8.3	8.1	
	FINAL	8.1	8.1	8.3	8.2	8.2	8.3	8.4	
temp (C)	INITIAL	23	21	24	22	22	21	24	
	FINAL	25	25	25	25	25	25	25	
CONC:	100%	A	B	C	A	B	C	C	
ALKALINITY (mg/L)		118	118	124	118	118	124	124	
HARDNESS (mg/L)		74	66	52	74	66	52	52	
CONDUCTIVITY (umhc		401	512	580	401	512	580	580	
CHLORINE (mg/L)		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING — Ceriodaphnia Dubia

Lab # / Sample ID: K2010008 — Test Start (Date/Time): 10-14-2020/1500

Client: Paragould — Test End (Date/Time): 10-20-2020/1422

		Day of Test 1	2	3	4	5	6	7	notes/remarks
Control	MHS 087	10/14	10/15	10/16	10/17	10/18	10/19	10/20	MHS 088 10/15
D.O. (mg/L)	INITIAL	8.2	8.1	8.6	8.4	8.5	8.6	8.7	
	FINAL	8.5	8.8	8.19	8.34	8.4	8.0		
pH (s.u.)	INITIAL	8.1	8.3	8.2	8.2	8.3	8.1	8.2	
	FINAL	8.2	8.5	8.3	8.3	8.2	8.1		
temp (C)	INITIAL	23	21	22	21	21	21	22	
	FINAL	25	25	25	25	25	25		
ALKALINITY (mg/L)		62	68						
HARDNESS (mg/L)		104	90						
CONDUCTIVITY (umhos/cm)		345	330						
CHLORINE (mg/L)		<0.05	<0.05						
CONC: 32%									
D.O. (mg/L)	INITIAL	8.1	8.3	8.2	8.5	8.5	8.5	8.7	
	FINAL	8.6	9.2	8.3	8.49	8.3	8.0		
pH (s.u)	INITIAL	7.9	8.1	8.1	8.1	8.2	8.2	8.2	
	FINAL	8.4	8.5	8.3	8.3	8.4	8.3		
temp (C)	INITIAL	22	21	23	21	21	21	22	
	FINAL	25	25	25	25	25	25		
CONC: 42%									
D.O. (mg/L)	INITIAL	8.4	8.5	8.4	8.7	8.6	8.6	8.6	
	FINAL	8.7	9.3	8.25	8.36	8.4	8.0		
pH (mg/L)	INITIAL	7.9	8.1	8.1	8.1	8.2	8.2	8.2	
	FINAL	8.5	8.5	8.4	8.3	8.4	8.3		
temp (C)	INITIAL	22	21	23	21	21	21	22	
	FINAL	25	25	25	25	25	25		
CONC: 56%									
D.O. (mg/L)	INITIAL	8.5	8.5	8.4	8.7	8.6	8.6	8.6	
	FINAL	8.7	9.3	8.29	8.36	8.4	8.1		
pH (s.u.)	INITIAL	8.0	8.1	8.1	8.0	8.1	8.2	8.2	
	FINAL	8.4	8.6	8.4	8.3	8.4	8.4		
temp (C)	INITIAL	22	21	23	21	22	20	23	
	FINAL	25	25	25	25	25	25		
CONC: 80%									
D.O. (mg/L)	INITIAL	8.5	8.5	8.4	8.8	8.7	8.7	8.7	
	FINAL	8.7	9.4	8.25	8.27	8.4	8.2		
pH (s.u.)	INITIAL	7.9	8.2	8.1	8.0	8.1	8.2	8.2	
	FINAL	8.5	8.6	8.5	8.4	8.4	8.4		
temp (C)	INITIAL	23	21	23	22	22	20	23	
	FINAL	25	25	25	25	25	25		
CONC: 100%									
D.O. (mg/L)	INITIAL	8.6	8.6	8.8	9.2	9.1	8.8	8.9	
	FINAL	8.6	9.4	8.23	8.27	8.4	8.2		
pH (s.u.)	INITIAL	7.9	8.1	8.1	7.9	8.1	8.2	8.1	
	FINAL	8.4	8.6	8.5	8.4	8.5	8.5		
temp (C)	INITIAL	23	21	24	22	22	21	24	
	FINAL	25	25	25	25	25	25		
CONC:		A	B	C	A	B	C	C	
ALKALINITY (mg/L)		118	118	124	118	118	124	124	
HARDNESS (mg/L)		74	66	52	74	66	52	52	
CONDUCTIVITY (umhos/cm)		401	512	580	401	512	580	580	
CHLORINE (mg/L)		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

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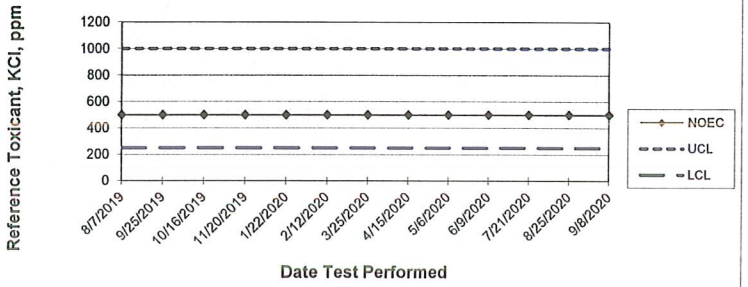
FATHEAD MINNOW SURVIVAL 7 Day
QUALITY ASSURANCE



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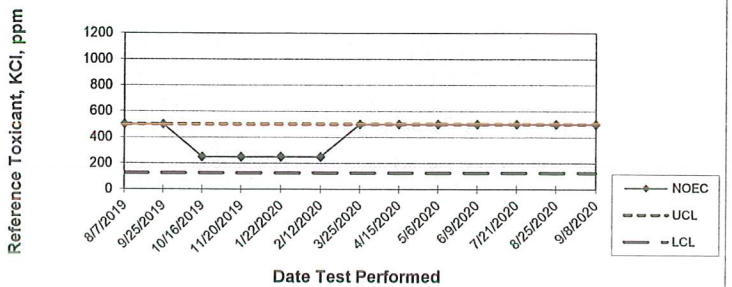
CERIODAPHNIA DUBIA SURVIVAL
QUALITY ASSURANCE



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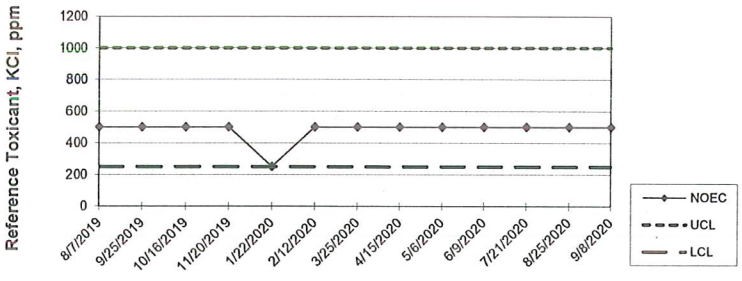
FATHEAD MINNOW GROWTH 7 Day
QUALITY ASSURANCE



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