

Arkansas Analytical, Inc.

Toxicity Test Results

Paragould Light, Water & Cable
NPDES PERMIT NUMBER: AR0033766
Second 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 K2004012

Monday, May 04, 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 32%, 42%, 56%, 80%, 100%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

<i>Ceriodaphnia dubia</i> 3/25/20-3/31/20		<i>Pimephales promelas</i> 3/25/20-4/1/20	
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

<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	39.2%	%CV Growth Parameter: TQP6C	13.3%
PMSD Reproduction	28.7%	PMSD Growth	17.1%

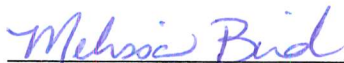
Conclusion

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, Ali Abdulrahim

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 401 Grant Lane Paragould, AR 72450		Paragould, Light, Water, & Cable P.O. Box 9 Paragould, AR 72450		Chronic Toxicity		1 Day (100%) 2 Day (50%) 3 Day (25%) <i>Routine</i>		1. Cool 4 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	
PO #: 9520LE		Reporting Information Telephone: 870-239-7795		Email: lellington@paragould.com		Preservative Code: P		TEST PARAMETERS	
Attn: Lisa Ellington		Fax: 870-239-7791		Bottle Type:		1		Bottle Type Code	
NPDES Permit AR0033766		Sampler(s) Signature <i>Steve Parker</i> <i>Colin Hester</i>		Sampler(s) Printed Steve Parker Colin Hester		Chronic Toxicity		Arkansas Analytical Work Order Number: K2004-012A	
Field Number	SAMPLE COLLECTION Dates	Time/s	Grab	Number of Comp Bottles	Sample Matrix	IDENTIFICATION/ DESCRIPTION	SAMPLE CONDITION UPON RECEIPT IN LAB		REMARKS / SAMPLE COMMENTS
	04/20/2020 to 04/21/2020	8:21 AM to 8:50 AM		X	4	Water	Effluent Outfall 001 -- Day 1	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: <i>1°C</i> 6. TEMPERATURE GUN ID: <i>HHT #2</i>	
1. Relinquished by: (Signature) <i>Steve Parker</i>		Date/Time <i>4/21/20 9:15am</i>		2. Received by: (Signature) <i>URS</i>		3. RECEIVED BY LAB ONLY			
3. Relinquished by: (Signature) <i>WPS</i>		Date/Time <i>4-21-2020, 1033</i>		4. Received by lab: (Signature) <i>Sydney James</i>		FOR COMPLETION BY LAB ONLY			



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%) 2 Day (50%) 3 Day (25%) <i>Routine</i>		1. Cool 4 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	
401 Grant Lane		P.O. Box 9		Reporting Information		Telephone: 870-239-7795 Fax: 870-239-7791		Bottle Type Code	
Paragould, AR 72450		Paragould, AR 72450		Email: lellington@paragould.com		Preservative Code: P		Bottle Type Code	
PO #: 9520LE		Attn: Lisa Ellington		NPDES Permit AR0033766		Bottle Type:		Arkansas Analytical Work Order Number: K2004-012B	
Gle WA		Gle WA		Colin Hester		Chronic Toxicity			
Field Number	SAMPLE COLLECTION Dates	Time/s	Grab	Number of Comp. Bottles	Sample Matrix	IDENTIFICATION/ DESCRIPTION		SAMPLE TEST PARAMETERS	
	04/21/2020 to 04/22/2020	9:05 AM to 8:11 AM		X	4	Water	Effluent Outfall 001 -- Day 2	X	
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		Date/Time		REMARKS / SAMPLE COMMENTS	
Steve Parker		4/23/20 9:00am		VPS		4/23-2020, 0929			
3. Relinquished by: (Signature)		Date/Time		4. Received by lab: (Signature)		Date/Time			
VPS		4/23-2020, 0929		Sgt. J. Jones		4/23-2020, 0929			

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: Yes No
 6. TEMPERATURE GUN ID: HTT #2

FOR COMPLETION BY LAB ONLY



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%) 2 Day (50%) 3 Day (25%) <i>Routine</i>		1. Cool, 4 Degrees Centigrade 2. Sulfuric Acid (H ₂ SO ₄), pH < 2 3. Nitric Acid (HNO ₃), pH < 2 4. Thiouanite for Dechlorination 5. Hydrochloric Acid(HCl) 6. Sodium Hydroxide (NaOH), pH > 12	
401 Grant Lane		P.O. Box 9		Reporting Information		Telephone: 870-239-7795 Fax: 870-239-7791 Email: lallington@paragould.com		Preservative Code: P Bottle Type:	
Paragould, AR 72450		Paragould, AR 72450		Attn: Lisa Ellington		NPDES Permit AR0033766		G - Glass; P - Plastic V - Septum; A - Amber	
PO #: 9520LE		PO #: 9520LE		Signature: <i>Lillian Newson</i> Printed: LILLIAN NEWSON		Sampler(s) Signature: _____ Sampler(s) Printed: _____		Field Number: _____ SAMPLE COLLECTION Dates: _____ Time(s): _____ Grab _____ Comp _____ Number of Bottles _____ Sample Matrix _____ 04/22/2020 to 04/23/2020 8:35 AM to 7:47AM X 4 Water Effluent Outfall 001 -- Day 3	
1. Relinquished by: (Signature)		Date/Time		2. Received by: (Signature)		SAMPLE IDENTIFICATION DESCRIPTION		SAMPLE CONDITION UPON RECEIPT IN LAB 1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes ___ No 2. CONTAINERS CORRECT: ___ Yes ___ No 3. COC/LABELS AGREE: ___ Yes ___ No 4. RECEIVED ON ICE: ___ Yes ___ No 5. TEMPERATURE ON RECEIPT: <u>12</u> 6. TEMPERATURE GUN ID: <u>HT #2</u> FOR COMPLETION BY LAB ONLY	
Signature: <i>Lillian Newson</i> Date/Time: <u>4-23-20</u> <u>9:15am</u>		Signature: <i>WPS</i> Date/Time: <u>4-24-2020</u> <u>0930</u>		Signature: <i>Sydney James</i> Date/Time: _____		Chronic Toxicity X		REMARKS / SAMPLE COMMENTS <u>12004-</u> <u>012c</u>	

CETIS Summary Report

Report Date: 04 May-20 11:09 (p 1 of 2)
 Test Code/ID: K2004012FH / 08-3880-4748

Fathead Minnow 7-d Larval Survival and Growth Test

Arkansas Analytical

Batch ID: 04-5540-6467	Test Type: Growth-Survival (7d)	Analyst: Emily Nichols
Start Date: 22 Apr-20 13:21	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 29 Apr-20 11:35	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 22h	Taxon: Actinopterygii	Source: Aquatox, AR Age: <24
Sample ID: 03-4027-2091	Code: K2004012FH	Project: WET Quarterly Compliance Test (2Q)
Sample Date: 21 Apr-20 08:50	Material: POTW Effluent	Source: Paragould (AR0033766)
Receipt Date: 21 Apr-20 10:33	CAS (PC):	Station:
Sample Age: 29h (1 °C)	Client: Paragould	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2004012B	22 Apr-20 08:11	23 Apr-20 09:29	24 Apr-20 00:00	1
2	K2004012C	23 Apr-20 07:47	24 Apr-20 09:30	26 Apr-20 00:00	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
17-8512-2484	7d Survival Rate	Steel Many-One Rank Sum Test		100	>100	n/a	1	7.9%	1
12-7677-2085	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test		100	>100	n/a	1	17.1%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
17-8512-2484	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria	
12-7677-2085	Mean Dry Biomass-mg	Control Resp	0.5698	0.25	>>	Yes	Passes Criteria	
12-7677-2085	Mean Dry Biomass-mg	PMSD	0.1708	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	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	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%
80		5	0.9600	0.8489	1.0000	0.8000	1.0000	0.0400	0.0894	9.32%	4.00%
100		5	0.9400	0.8289	1.0000	0.8000	1.0000	0.0400	0.0894	9.52%	6.00%

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.5698	0.476	0.6636	0.487	0.674	0.03379	0.07556	13.26%	0.00%
32		5	0.5004	0.4237	0.5771	0.429	0.576	0.02763	0.06178	12.35%	12.18%
42		5	0.5054	0.4445	0.5663	0.442	0.565	0.02194	0.04906	9.71%	11.30%
56		5	0.5468	0.4927	0.6009	0.495	0.609	0.01948	0.04356	7.97%	4.04%
80		5	0.5358	0.4284	0.6432	0.397	0.618	0.03868	0.08649	16.14%	5.97%
100		5	0.5362	0.4562	0.6162	0.461	0.634	0.02882	0.06444	12.02%	5.90%

CETIS Summary Report

Report Date: 04 May-20 11:09 (p 2 of 2)
Test Code/ID: K2004012FH / 08-3880-4748

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	0.9000	1.0000	1.0000
80		1.0000	0.8000	1.0000	1.0000	1.0000
100		1.0000	0.9000	1.0000	1.0000	0.8000

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.487	0.552	0.519	0.674	0.617
32		0.457	0.576	0.55	0.49	0.429
42		0.538	0.565	0.442	0.474	0.508
56		0.569	0.609	0.528	0.495	0.533
80		0.618	0.397	0.512	0.583	0.569
100		0.525	0.461	0.555	0.634	0.506

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	9/10	10/10	10/10
80		10/10	8/10	10/10	10/10	10/10
100		10/10	9/10	10/10	10/10	8/10

CETIS Summary Report

Report Date: 04 May-20 11:15 (p 1 of 2)
 Test Code/ID: K2004012CD / 02-2465-7402

Ceriodaphnia 7-d Survival and Reproduction Test

Arkansas Analytical

Batch ID: 15-4861-1427	Test Type: Reproduction-Survival (7d)	Analyst: Emily Nichols
Start Date: 22 Apr-20 12:29	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 29 Apr-20 10:59	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 22h	Taxon: Branchiopoda	Source: In-House Culture Age: <24
Sample ID: 12-8313-8327	Code: K2004012CD	Project: WET Quarterly Compliance Test (2Q)
Sample Date: 21 Apr-20 08:50	Material: POTW Effluent	Source: Paragould (AR0033766)
Receipt Date: 21 Apr-20 10:33	CAS (PC):	Station:
Sample Age: 28h (1 °C)	Client: Paragould	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	K2004012B	22 Apr-20 08:11	23 Apr-20 09:29	24 Apr-20 00:00	1
2	K2004012C	23 Apr-20 07:47	24 Apr-20 09:30	26 Apr-20 00:00	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
09-1234-2980	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test		100	>100	n/a	1	n/a	1
14-8786-8831	Reproduction	Steel Many-One Rank Sum Test		100	>100	n/a	1	28.7%	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
09-1234-2980	7d Survival Rate	Control Resp	0.9	0.8	>>	Yes	Passes Criteria	
14-8786-8831	Reproduction	Control Resp	30.56	15	>>	Yes	Passes Criteria	
14-8786-8831	Reproduction	PMSD	0.2869	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	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
32		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
42		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
56		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
80		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
100		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	9	30.56	24.62	36.49	16	38	2.572	7.715	25.25%	0.00%
32		9	34.33	29.22	39.45	22	42	2.217	6.652	19.37%	-12.36%
42		9	35.78	29.16	42.4	13	40	2.871	8.614	24.08%	-17.09%
56		9	36.22	33.01	39.43	32	44	1.392	4.177	11.53%	-18.55%
80		9	32.67	27.57	37.77	18	40	2.211	6.633	20.31%	-6.91%
100		9	31.67	22.13	41.21	0	40	4.137	12.41	39.19%	-3.64%

CETIS Summary Report

Report Date: 04 May-20 11:15 (p 2 of 2)
 Test Code/ID: K2004012CD / 02-2465-7402

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	0.0000	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	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		32	19	32	34	33	34	37	16	38
32			37	22	36	40	38	42	25	34	35
42			13	37	39	40	37	38	39	40	39
56			34	39	33	40	33	38	32	33	44
80			39	18	30	37	30	34	40	31	35
100			0	31	35	38	40	37	36	29	39

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	0/1	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	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 K2004012

Test Start (Date/Time) 4-22-2020/1321

Client: Paragould

Test End (Date/Time) 4-29-2020/1135

		Day of Test							
		1	2	3	4	5	6	7	notes
Control	MHS 065	4/22	4/23	4/24	4/25	4/26	4/27	4/28	MHS 066 4/23
D.O. (mg/L)	INITIAL	7.5	8.7	8.4	8.5	8.8	9.1	8.1	
	FINAL	7.2	7.0	8.1	8.6	7.8	7.4	7.9	
pH (s.u.)	INITIAL	7.9	8.1	8.2	7.0	7.0	8.3	8.1	
	FINAL	8.0	7.9	7.9	8.1	7.6	7.8	8.1	
temp (C)	INITIAL	21	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		60	58						
HARDNESS (mg/L)		96	100						
CONDUCTIVITY (umhc)		334	360						
CHLORINE (mg/L)		40.05	40.05						
CONC:	32%								
D.O. (mg/L)	INITIAL	8.2	8.3	8.4	8.6	8.9	8.9	8.2	
	FINAL	7.1	7.2	7.8	8.3	8.7	7.4	7.6	
pH (s.u.)	INITIAL	8.2	8.1	8.1	7.7	7.6	8.1	8.0	
	FINAL	8.0	7.9	7.9	8.0	7.9	8.0	8.0	
temp (C)	INITIAL	22	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	42%								
D.O. (mg/L)	INITIAL	8.1	8.3	8.6	8.8	9.0	8.9	8.3	
	FINAL	7.2	7.0	7.6	7.9	7.4	7.4	7.5	
pH (mg/L)	INITIAL	8.1	8.1	8.0	7.9	7.8	8.0	8.0	
	FINAL	7.9	7.8	8.0	8.0	7.9	7.9	8.0	
temp (C)	INITIAL	22	22	23	22	22	19	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	56%								
D.O. (mg/L)	INITIAL	8.2	8.3	8.7	8.9	9.0	8.9	8.4	
	FINAL	7.1	6.9	7.3	7.8	7.2	7.3	7.4	
pH (s.u.)	INITIAL	8.1	8.1	7.9	7.9	7.9	8.0	8.0	
	FINAL	7.9	7.9	8.0	8.1	7.9	7.9	8.0	
temp (C)	INITIAL	22	22	23	22	22	19	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	80%								
D.O. (mg/L)	INITIAL	8.3	8.3	8.9	9.0	9.1	8.9	8.4	
	FINAL	6.9	7.0	7.2	7.8	7.1	7.2	7.3	
pH (s.u.)	INITIAL	8.1	8.0	7.9	7.9	7.9	7.9	8.0	
	FINAL	8.0	8.0	8.0	8.1	7.9	8.0	8.1	
temp (C)	INITIAL	22	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	100%								
D.O. (mg/L)	INITIAL	8.4	8.4	9.3	9.1	9.3	9.0	8.5	
	FINAL	6.8	7.0	7.2	7.8	7.1	7.1	7.3	
pH (s.u.)	INITIAL	8.1	8.0	7.8	7.9	7.9	7.9	7.9	
	FINAL	8.1	8.1	8.1	8.2	8.0	8.0	8.1	
temp (C)	INITIAL	22	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	100%	A	A	B	B	C	C	C	
ALKALINITY (mg/L)		128		116		126			
HARDNESS (mg/L)		64		48		64			
CONDUCTIVITY (umhc)		545		545		542			
CHLORINE (mg/L)		40.05		40.05		40.05			

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Ceriodaphnia Dubia

Lab # / Sample ID *K2004012*

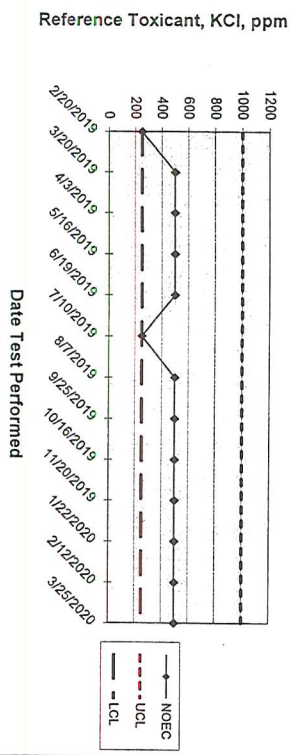
Test Start (Date/Time) *4-22-2020/1229*

Client: *Paragon*

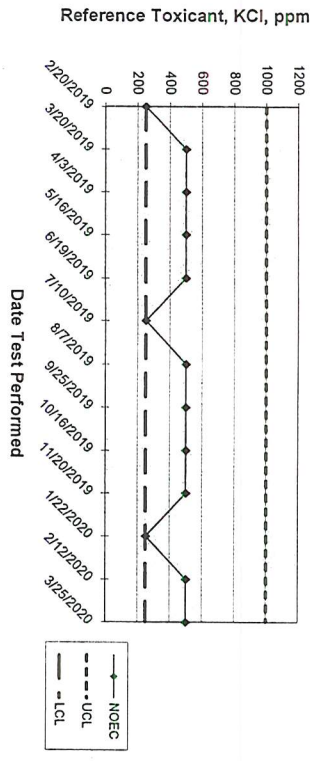
Test End (Date/Time) *4-29-2020/1059*

		Day of Test							notes/remarks
		1	2	3	4	5	6	7	
Control	MHS 065	4/22	4/23	4/24	4/25	4/26	4/27	4/28	MHS066 4/23
D.O. (mg/L)	INITIAL	7.5	8.3	8.4	8.5	8.8	9.1	8.1	
	FINAL	8.2	8.3	8.6	8.6	8.4	8.2	8.2	
pH (s.u.)	INITIAL	7.9	8.1	8.2	7.0	7.0	8.3	8.1	
	FINAL	8.3	8.3	8.2	8.2	8.1	8.1	8.0	
temp (C)	INITIAL	21	22	22	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
ALKALINITY (mg/L)		60	58						
HARDNESS (mg/L)		96	100						
CONDUCTIVITY (umhos/cm)		334	360						
CHLORINE (mg/L)		40.05	40.05						
CONC:	<i>32%</i>								
D.O. (mg/L)	INITIAL	8.2	8.5	8.4	8.6	8.9	8.9	8.2	
	FINAL	8.3	8.4	8.6	8.6	8.2	8.2	8.3	
pH (s.u.)	INITIAL	8.2	8.1	8.1	7.7	7.6	8.1	8.0	
	FINAL	8.4	8.2	8.2	8.2	8.2	8.1	8.1	
temp (C)	INITIAL	22	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>42%</i>								
D.O. (mg/L)	INITIAL	8.1	8.3	8.6	8.8	9.0	8.9	8.3	
	FINAL	8.3	8.5	8.6	8.6	8.2	8.2	8.3	
pH (mg/L)	INITIAL	8.1	8.1	8.0	7.9	7.8	8.0	8.0	
	FINAL	8.4	8.3	8.3	8.2	8.2	8.2	8.2	
temp (C)	INITIAL	22	22	23	22	22	19	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>56%</i>								
D.O. (mg/L)	INITIAL	8.2	8.3	8.7	8.9	9.0	8.9	8.4	
	FINAL	8.3	8.4	8.6	8.6	8.2	8.2	8.3	
pH (s.u.)	INITIAL	8.1	8.1	7.9	7.9	7.9	8.0	8.0	
	FINAL	8.4	8.2	8.3	8.3	8.2	8.2	8.2	
temp (C)	INITIAL	22	22	23	22	22	19	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>80%</i>								
D.O. (mg/L)	INITIAL	8.3	8.3	8.9	9.0	9.1	8.9	8.4	
	FINAL	8.4	8.5	8.6	8.6	8.2	8.2	8.3	
pH (s.u.)	INITIAL	8.1	8.0	7.9	7.9	7.9	7.9	8.0	
	FINAL	8.5	8.4	8.3	8.3	8.3	8.2	8.2	
temp (C)	INITIAL	22	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>100%</i>								
D.O. (mg/L)	INITIAL	8.4	8.4	9.3	9.1	9.3	9.0	8.5	
	FINAL	8.5	8.6	8.6	8.6	8.2	8.2	8.3	
pH (s.u.)	INITIAL	8.1	8.0	7.8	7.9	7.9	7.9	7.9	
	FINAL	8.6	8.4	8.4	8.3	8.3	8.3	8.2	
temp (C)	INITIAL	22	22	23	22	22	20	23	
	FINAL	25	25	25	25	25	25	25	
CONC:	<i>100%</i>	A	A	B	B	C	C	C	
ALKALINITY (mg/L)		128		116		126			
HARDNESS (mg/L)		64		48		68			
CONDUCTIVITY (umhos/cm)		545		545		542			
CHLORINE (mg/L)		40.05		40.05		40.05			

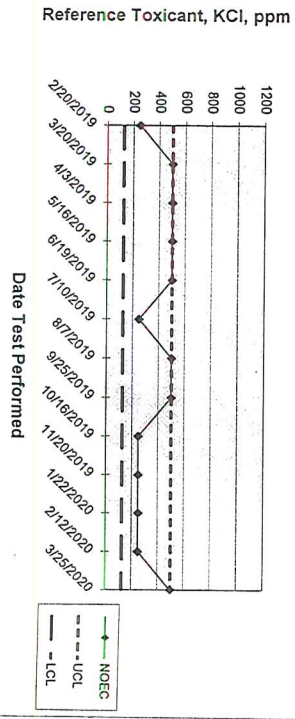
ARKANSAS ANALYTICAL, INC.
FATHEAD MINNOW SURVIVAL 7 Day
QUALITY ASSURANCE



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



ARKANSAS ANALYTICAL, INC.
CERIODAPHNIA DUBIA SURVIVAL
QUALITY ASSURANCE



ARKANSAS ANALYTICAL, INC.
CERIODAPHNIA DUBIA REPRODUCTION
QUALITY ASSURANCE

