



04/03/2023

Mountain Home WWTP  
Mr. Terry Sanders  
537 Hicks Rd  
Mountain Home, AR 72653

Ref: Analytical Testing  
Report Number: 23-073-0390  
Client Project Description: Bioassay  
AR0021211  
Bi-annual 1

Dear Mr. Terry Sanders:

The results of this WET (Whole Effluent Toxicity) test are acceptable according to test review criteria. There were no significant deficiencies found in sample handling, test performance, or reporting. The test results are within the limits established by your NPDES permit and were entered into the permittee's records in the database.

Results:	<i>Ceriodaphnia dubia</i>	NOEL = 99 %	CV = 36.95 %	PMSD = 46.4 %
	Fathead minnow	NOEL = 99 %	CV = 7.67 %	PMSD = 11.7 %

Permit Limit:           Critical Dilution = 99 %  
Maximum Coefficient of Variation (CV) < 40 %

EPA Methods:        1002.0 *Ceriodaphnia dubia* Survival and Reproduction  
                          1000.0 *Pimephales promelas* Larval Survival and Growth

All statistical interpretations generated by CETIS - Comprehensive Environmental Toxicity Information System (v2.1.4.6x64). CETIS created by Tidepool Scientific Software

Respectfully,

Blake Smith  
Lab Supervisor

# CETIS Summary Report

Report Date: 03 Apr-23 11:33 (p 1 of 2)  
 Test Code/ID: 23-073-0390-cd / 11-9231-9855

## Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

**Batch ID:** 04-4976-4708    **Test Type:** Reproduction-Survival (7d)    **Analyst:** Lauren N. Richardson  
**Start Date:** 14 Mar-23 09:22    **Protocol:** EPA/821/R-02-013 (2002)    **Diluent:** 20% DMW  
**Ending Date:** 20 Mar-23 10:55    **Species:** Ceriodaphnia dubia    **Brine:** Not Applicable  
**Test Length:** 6d 2h    **Taxon:**    **Source:** In-House Culture    **Age:** <24

**Sample ID:** 13-1023-5672    **Code:** 23-073-0390    **Project:** WET Biannual Compliance Test (1st)  
**Sample Date:** 13 Mar-23 07:20    **Material:** POTW Effluent    **Source:** Mountain Home WWTP (AR0021211)  
**Receipt Date:** 14 Mar-23 07:52    **CAS (PC):**    **Station:** Outfall 001  
**Sample Age:** 26h (1.6 °C)    **Client:** Mountain Home WWTP

### Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-073-0390	15 Mar-23 07:20	16 Mar-23 08:05	16 Mar-23 00:00	1.8
2	23-073-0390	16 Mar-23 10:30	17 Mar-23 07:31	18 Mar-23 00:00	0.8

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	TU	S
12-2710-3012	6d Survival Rate	Fisher Exact/Bonferroni-Holm Test		99	>99	--	--	1	1
05-4126-9648	Reproduction	Steel Many-One Rank Sum Test		99	>99	--	46.4%	1	1

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
12-2710-3012	6d Survival Rate	Control Resp	0.9	0.8	<<	Yes	Passes Criteria	
05-4126-9648	Reproduction	Control Resp	21	15	<<	Yes	Passes Criteria	
05-4126-9648	Reproduction	PMSD	0.4644	0.13	0.47	Yes	Passes Criteria	

### 6d 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	1.1260	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
31		10	0.9000	0.6738	1.1260	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
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%
74		10	0.9000	0.6738	1.1260	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
99		10	0.9000	0.6738	1.1260	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%

### Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	21	15.45	26.55	7	36	2.454	7.76	36.95%	0.00%
31		10	29	20.86	37.14	5	41	3.599	11.38	39.25%	-38.10%
42		10	29.8	24.81	34.79	20	39	2.205	6.973	23.40%	-41.90%
56		10	33.6	28.69	38.51	24	46	2.172	6.867	20.44%	-60.00%
74		10	27.1	18.7	35.5	0	40	3.713	11.74	43.33%	-29.05%
99		10	30.6	22.73	38.47	5	41	3.481	11.01	35.97%	-45.71%

**CETIS Summary Report**

**Report Date:** 03 Apr-23 11:33 (p 2 of 2)  
**Test Code/ID:** 23-073-0390-cd / 11-9231-9855

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

**Waypoint Analytical Tennessee, LLC.**

**6d Survival Rate Detail**

MD5: 7005A50F26BA2F77B1C710F6D4843CD0

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	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31		1.0000	1.0000	0.0000	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
74		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
99		1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000

**Reproduction Detail**

MD5: 6D305F8882922B9571EC0AB75375A3BC

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	24	16	16	36	7	23	25	22	16	25
31		34	16	5	41	29	38	33	38	34	22
42		26	20	35	24	31	39	34	29	39	21
56		32	25	24	46	28	38	38	38	31	36
74		25	34	29	14	34	33	40	31	0	31
99		39	30	23	41	39	5	39	26	28	36

**6d 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	0/1	1/1	1/1	1/1	1/1	1/1
31		1/1	1/1	0/1	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
74		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1
99		1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1

# CETIS Measurement Report

Report Date: 03 Apr-23 11:33 (p 1 of 3)  
Test Code/ID: 23-073-0390-cd / 11-9231-9855

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## Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

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<b>Batch ID:</b> 04-4976-4708	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lauren N. Richardson
<b>Start Date:</b> 14 Mar-23 09:22	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 20 Mar-23 10:55	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 2h	<b>Taxon:</b>	<b>Source:</b> In-House Culture <b>Age:</b> <24
<hr/>		
<b>Sample ID:</b> 13-1023-5672	<b>Code:</b> 23-073-0390	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 13 Mar-23 07:20	<b>Material:</b> POTW Effluent	<b>Source:</b> Mountain Home WWTP (AR0021211)
<b>Receipt Date:</b> 14 Mar-23 07:52	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 26h (1.6 °C)	<b>Client:</b> Mountain Home WWTP	

**CETIS Measurement Report**

**Report Date:** 03 Apr-23 11:33 (p 2 of 3)  
**Test Code/ID:** 23-073-0390-cd / 11-9231-9855

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

**Waypoint Analytical Tennessee , LLC.**

**Total Residual Chlorine-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	0	0	0	0	0	0	0
99		0	0	0	0	0	0	0

**Conductivity-µS/cm**

Conc-%	Code	1	2	3	4	5	6	7
0	L	180	176.5	182.1	187.1	186.7	185.4	186.9
99		556.4	547.7	598.2	597.9	614.4	628.7	625.6

**Final Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	10.4	8.9	8.9	9	9.1	10.6	---
31		10.4	9	8.9	9	9.1	10.5	---
42		10.4	8.9	9	9	9.2	10.5	---
56		10.4	9	9	8.9	9.3	10.6	---
74		10.4	9.1	9	9	9.2	10.5	---
99		10.3	9.2	9	9	9	10.5	---

**Initial Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.2	9.2	9	8.6	9.2	8.6	10
31		8.2	9.2	9.3	8.8	9.3	8.9	10.2
42		8.3	9.8	9.4	9	9.4	9.1	10.3
56		8.3	10	9.6	9.3	9.1	9.2	10.4
74		8.5	10.1	9.6	9.4	9.2	9.4	10.5
99		8.6	10	10.4	9.5	9.7	10	10.8

**Final pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.4	8.4	8.7	8.9	8.7	8.4	---
31		8.4	8.3	8.6	8.7	8.7	8.5	---
42		8.4	8.5	8.6	8.8	8.7	8.5	---
56		8.5	8.5	8.7	8.8	8.7	8.6	---
74		8.5	8.6	8.7	8.8	8.7	8.6	---
99		8.5	8.6	8.7	8.8	8.7	8.6	---

**Initial pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8	8.2	8.1	8.2	8.2	8.4	8.1
31		7.9	8	7.9	8	8	8.2	7.9
42		7.9	7.8	7.8	8	7.9	8.1	7.9
56		8	7.9	7.8	7.9	7.9	8.1	7.8
74		8	7.8	7.8	7.8	7.8	8	7.8
99		8	7.8	7.7	7.8	7.8	8	7.8

**Final Temperature-°C**

Conc-%	Code	1	2	3	4	5	6	7
0	L	24.1	24.9	25.3	25.1	25.5	25.4	---
31		24	24.9	25.3	25	25.6	25.5	---
42		24.1	24.9	25.3	25	25.7	25.3	---
56		24.2	25	25.3	25	25.7	25.4	---
74		24.3	25	25.3	25.1	25.8	25.5	---
99		24.3	24.9	25.2	25.1	25.8	25.4	---

# CETIS Measurement Report

Report Date: 03 Apr-23 11:33 (p 3 of 3)  
Test Code/ID: 23-073-0390-cd / 11-9231-9855

## Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

### Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	23.2	24.2	23.5	24.1	24.1	24.2	24.9
31		23.5	24.5	23.6	24.7	24.1	24.4	25
42		23.7	24.6	23.9	24.9	23.7	25.1	25.1
56		23.9	25	24.1	25.1	24	25.4	25.2
74		24.5	25.3	24.1	25.2	24.3	26	24.9
99		24.7	25.6	24.1	25.4	24.9	26.3	24.7

# CETIS Summary Report

Report Date: 03 Apr-23 12:35 (p 1 of 2)  
 Test Code/ID: 23-073-0390-fh / 01-7242-5350

## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 13-8459-7136 Test Type: Growth-Survival (7d) Analyst: Lauren N. Richardson  
 Start Date: 14 Mar-23 09:36 Protocol: EPA/821/R-02-013 (2002) Diluent: 20% DMW  
 Ending Date: 21 Mar-23 09:38 Species: Pimephales promelas Brine: Not Applicable  
 Test Length: 7d 0h Taxon: Source: Aquatic Biosystems, CO Age: <24

Sample ID: 13-1023-5672 Code: 23-073-0390 Project: WET Biannual Compliance Test (1st)  
 Sample Date: 13 Mar-23 07:20 Material: POTW Effluent Source: Mountain Home WWTP (AR0021211)  
 Receipt Date: 14 Mar-23 07:52 CAS (PC): Station: Outfall 001  
 Sample Age: 26h (1.6 °C) Client: Mountain Home WWTP

### Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-073-0390	15 Mar-23 07:20	16 Mar-23 08:05	16 Mar-23 00:00	1.8
2	23-073-0390	16 Mar-23 10:30	17 Mar-23 07:31	18 Mar-23 00:00	0.8

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	TU	S
01-6496-5170	7d Survival Rate	Steel Many-One Rank Sum Test		99	>99	--	6.37%	1	1
09-1904-0588	Mean Dry Weight-mg	Dunnett Multiple Comparison Test		99	>99	--	11.7%	1	1

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
01-6496-5170	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-1904-0588	Mean Dry Weight-mg	Control Resp	0.805	0.25	<<	Yes	Passes Criteria	
09-1904-0588	Mean Dry Weight-mg	PMSD	0.1174	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%
31		5	0.9528	0.8723	1.0330	0.8750	1.0000	0.0290	0.0649	6.81%	4.72%
42		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
56		5	0.9750	0.9056	1.0440	0.8750	1.0000	0.0250	0.0559	5.73%	2.50%
74		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
99		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

### Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.805	0.7334	0.8766	0.725	0.85	0.0258	0.05769	7.17%	0.00%
31		5	0.9506	0.8382	1.063	0.8222	1.056	0.04048	0.09053	9.52%	-18.08%
42		5	1.007	0.942	1.073	0.95	1.087	0.02358	0.05274	5.23%	-25.15%
56		5	0.935	0.8867	0.9833	0.875	0.975	0.01741	0.03893	4.16%	-16.15%
74		5	0.9575	0.8968	1.018	0.9	1.013	0.02187	0.04889	5.11%	-18.94%
99		5	0.995	0.9002	1.09	0.925	1.087	0.03414	0.07634	7.67%	-23.60%

# CETIS Summary Report

Report Date: 03 Apr-23 12:35 (p 2 of 2)  
 Test Code/ID: 23-073-0390-fh / 01-7242-5350

## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

### 7d Survival Rate Detail

MD5: 2D07B602233DDF003CC13EFE1F927097

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	1.0000	1.0000	1.0000	1.0000	1.0000
31		1.0000	0.8889	0.8750	1.0000	1.0000
42		1.0000	1.0000	1.0000	1.0000	1.0000
56		1.0000	1.0000	1.0000	1.0000	0.8750
74		1.0000	1.0000	1.0000	1.0000	1.0000
99		1.0000	1.0000	1.0000	1.0000	1.0000

### Mean Dry Weight-mg Detail

MD5: A4F786028C5D6B51B8B1A7FC860D5BA7

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.85	0.8375	0.725	0.85	0.7625
31		1.056	0.8222	1.012	0.9125	0.95
42		1.025	1.087	1	0.95	0.975
56		0.875	0.9625	0.9375	0.975	0.925
74		0.9875	0.9	1.013	0.9125	0.975
99		0.925	0.975	1.062	0.925	1.087

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	8/8	8/8	8/8	8/8	8/8
31		9/9	8/9	7/8	8/8	8/8
42		8/8	8/8	8/8	8/8	8/8
56		8/8	8/8	8/8	8/8	7/8
74		8/8	8/8	8/8	8/8	8/8
99		8/8	8/8	8/8	8/8	8/8



# CETIS Measurement Report

Report Date: 03 Apr-23 12:35 (p 1 of 3)  
Test Code/ID: 23-073-0390-fh / 01-7242-5350

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## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

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<b>Batch ID:</b> 13-8459-7136	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lauren N. Richardson
<b>Start Date:</b> 14 Mar-23 09:36	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 21 Mar-23 09:38	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d 0h	<b>Taxon:</b>	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b> <24

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<b>Sample ID:</b> 13-1023-5672	<b>Code:</b> 23-073-0390	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 13 Mar-23 07:20	<b>Material:</b> POTW Effluent	<b>Source:</b> Mountain Home WWTP (AR0021211)
<b>Receipt Date:</b> 14 Mar-23 07:52	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 26h (1.6 °C)	<b>Client:</b> Mountain Home WWTP	

**CETIS Measurement Report**

**Report Date:** 03 Apr-23 12:35 (p 2 of 3)  
**Test Code/ID:** 23-073-0390-fh / 01-7242-5350

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Waypoint Analytical Tennessee , LLC.**

**Total Residual Chlorine-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	0	0	0	0	0	0	0
99		0	0	0	0	0	0	0

**Conductivity-µS/cm**

Conc-%	Code	1	2	3	4	5	6	7
0	L	180	176.5	182.1	187.1	186.7	185.4	186.9
99		556.4	547.7	598.2	597.9	614.4	628.7	625.6

**Final Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.8	8.1	7.3	7.6	8	9.1	8.7
31		7.5	8	7.4	7.5	7.9	9.1	7.7
42		7.9	7.8	7.4	7.5	8	9	7.7
56		8.1	7.6	7.5	7.3	7.8	8.9	7.5
74		8.1	7.7	7.6	7.3	7.8	9	7.5
99		8.1	7.7	7.4	7.2	7.5	9.1	7.4

**Initial Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.2	9.2	9	8.6	9.2	8.6	10
31		8.2	9.5	9.3	8.8	9.3	8.9	10.2
42		8.3	9.8	9.4	9	9.4	9.1	10.3
56		8.3	10	9.6	9.3	9.1	9.2	10.4
74		8.5	10.1	9.6	9.4	9.2	9.4	10.5
99		8.6	10	10.4	9.5	9.7	10	10.8

**Final pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.5	7.6	7.5	7.6	7.7	7.7	7.7
31		7.7	7.8	7.7	7.7	7.7	7.8	7.7
42		7.9	7.8	7.7	7.7	7.7	7.7	7.7
56		7.9	7.9	7.8	7.8	7.8	7.8	7.7
74		8	7.9	7.8	7.8	7.9	7.9	7.8
99		8.1	8	7.9	7.9	8	8.1	7.9

**Initial pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8	8.2	8.1	8.2	8.2	8.4	8.1
31		7.9	8	7.9	8	8	8.2	7.9
42		7.9	7.8	7.8	8	7.9	8.1	7.9
56		8	7.9	7.8	7.9	7.9	8.1	7.8
74		8	7.8	7.8	7.8	7.8	8	7.8
99		8	7.8	7.7	7.8	7.8	8	7.8

**Final Temperature-°C**

Conc-%	Code	1	2	3	4	5	6	7
0	L	25	24.4	24.8	25.3	24.5	24.9	24.8
31		25.1	24.6	25	25.4	24.9	24.9	24.4
42		25.2	24.4	25.1	25.4	24.8	24.8	24.5
56		25.3	24.4	25	25.3	24.7	24.7	24.8
74		25.3	24.6	25.1	25.6	24.6	25	24.8
99		25.2	24.3	25.1	25.5	24.7	24.9	24.9

# CETIS Measurement Report

Report Date: 03 Apr-23 12:35 (p 3 of 3)  
Test Code/ID: 23-073-0390-fh / 01-7242-5350

## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

### Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	23.2	24.2	23.5	24.1	24.1	24.2	24.9
31		23.5	24.6	23.6	24.7	24.1	24.4	25
42		23.7	24.6	23.9	24.9	23.7	25.1	25.1
56		23.9	25	24.1	25.1	24	25.4	25.2
74		24.5	25.3	24.1	25.2	24.3	26	24.9
99		24.7	25.6	24.1	25.4	24.9	26.3	24.7

Additional Toxicity Test Information

1. Methods/Instrumentation used in chemical analysis:
  - Dissolved oxygen, DM 4: (SM 4500-O G-2016)
  - pH, PH 21: (SM 4500-H + B-2011)
  - Temperature, T148 & T124
  - Conductivity, C 2: (SM 2510 B-2011)
  - Alkalinity: (SM 2320 B-2011)
  - Hardness: (EPA 200.7 / SM 2340 B-2011)
  - Total Residual Chlorine: (SM 4500-CL G-2011)
    - Reported value of “0” indicates result below detection limit of 0.02 mg/L
    - Reported value of “1” indicates result above detection limit of 0.02 mg/L
  - EPA Acute Manual Edition and Date: EPA-821-R-02-012, OCT 2002 (Fifth edition)
  - EPA Chronic Manual Edition and Date: EPA-821-R-02-013, OCT 2002 (Fourth edition)
2. Laboratory
  - Incubator Temperature: 25± 1°C
    - Incubator ID: BIO Thermometer ID: 120554
  - Sample Temperature: 25± 3°C
    - Sample Temperatures are read after the organisms have been transferred and counted.
      - Depending on temperature of laboratory and time spent on organisms the temperature of the sample may drop below limits. However, the organisms are maintained at 25± 3°C
  - Light Cycle: 16 hours light/ 8 hours dark
  - Light intensity: 50-100 foot-candles, average
  - Control (Dilution) Water: Dilute mineral water made with 20 % Perrier in Nanopure (20%DMW)
    - Maintained in the incubator at 25± 1°C
  - Pretreatment: none
3. Method 1002.0 *Ceriodaphnia dubia* Survival and Reproduction
  - Test chambers: 30 mL disposable plastic beakers
  - Volume per chamber: 15 mL
  - Number of organisms per chamber: 1
  - Number of replicates: 10
  - Food: *Ceriodaphnia dubia* are fed 0.15mL *Raphidocelis subcapitata* (Algae) and YTC solution daily.
  - Acclimation of organisms: In house cultures are raised at 25°C. Purchased organisms are allowed to reach 25°C prior to use.
4. Method 1000.0 *Pimephales promelas* (Fathead minnow) Larval Survival and Growth
  - Test chambers: 20 oz. Disposable plastic cups
  - Volume per chamber: 250 mL
  - Average number of organisms per chamber: 8
  - Number of replicates per concentration: 5
  - Food: Fathead minnows are fed 0.15 mL *Artemia* brine shrimp hatched in laboratory twice daily
  - Acclimation of organisms: Dilution water is added until organisms are contained in a culture media that consists of 80% dilution water. Organisms are allowed to reach 25°C prior to use.
5. Reference Toxicity
  - Reference toxicity tests are performed monthly on each method performed by the laboratory.
  - Potassium Chloride is used as the reference toxicity chemical for vertebrate species
  - Current chemical ID: CS 6169894
  - Sodium Chloride is used as the reference toxicity chemical for invertebrate species
  - Current chemical ID: CS 6171709
6. Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA methodology that were necessary for these tests as well as any sample manipulations which were performed, such as aeration, dechlorination with sodium thiosulfate, etc. and the justification for such manipulations or deviations. Attach additional pages as needed.
  - None

03314  
 Mountain Home WWTP  
 Mr. Terry Sanders  
 537 Hicks Rd  
 Mountain Home , AR 72653

Project Bioassay  
 Information :

Report Date : 04/03/2023  
 Received : 03/14/2023

Report Number : **23-073-0390**

**REPORT OF ANALYSIS**

Lab No : **98853**  
 Sample ID : **Bioassay**

Matrix: **Aqueous**  
 Sampled: **3/13/2023 7:20**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>188</b>	mg/L	1	1	03/27/23 11:11	CND	2320B-2011
Calcium	<b>48.5</b>	mg/L	0.100	1	03/21/23 03:18	BKN	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>229</b>	mg/L	0.100	1	03/21/23 03:18		EPA-200.7
Magnesium	<b>26.3</b>	mg/L	0.100	1	03/21/23 03:18	BKN	EPA-200.7

Lab No : **98854**  
 Sample ID : **Bioassay**

Matrix: **Aqueous**  
 Sampled: **3/15/2023 7:20**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>180</b>	mg/L	1	1	03/23/23 09:30	GBB	2320B-2011
Calcium	<b>50.4</b>	mg/L	0.100	1	03/21/23 03:23	BKN	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>239</b>	mg/L	0.100	1	03/21/23 03:23		EPA-200.7
Magnesium	<b>27.5</b>	mg/L	0.100	1	03/21/23 03:23	BKN	EPA-200.7

Lab No : **98855**  
 Sample ID : **Bioassay**

Matrix: **Aqueous**  
 Sampled: **3/16/2023 10:30**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>162</b>	mg/L	1	1	03/29/23 09:30	GBB	2320B-2011
Calcium	<b>50.0</b>	mg/L	0.100	1	03/21/23 03:28	BKN	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>238</b>	mg/L	0.100	1	03/21/23 03:28		EPA-200.7
Magnesium	<b>27.5</b>	mg/L	0.100	1	03/21/23 03:28	BKN	EPA-200.7

**Qualifiers/ Definitions**      DF      Dilution Factor      L      Limit Exceeded  
 MQL      Method Quantitation Limit



#1

Kit ID:	192079
Initiated By:	Sydney Andres
Initiated Date:	9/28/2022
Project Comment	Mountain home bioassay

CHAIN-OF-CUSTODY

23-073-0390  
 03314  
 03-14-2023  
 08:41:56  
 Mountain Home WWTP  
 Bioassay

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Mountain Home WWTP	03314	Mr. Terry Sanders	9909556
Site Name	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
Bioassay - Bi-annual - 1 - A - 03/12-13/2023			
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
Mountain Home - Bioassay	(870) 425-6510	tsanders@cityofmountainhome.com	

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
3-13-23	7:20a	23-502 Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
3-13-23	7:20a	23-502 Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
3-13-23	7:20a	23-502 Outfall 001 - Composite 1	Aqueous	C	2	Plastic - Gallon	NONE	chronic CD/FH

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	James Hestley					
(Y/N)	(Y/N)		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			Terry Sanders	3-13-23 1:00p				
Blank/Coole Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
1.60a 7:35					Emily Peterson	3/14/23		

0752

#2

Kit ID:	192080
Initiated By:	Sydney Andres
Initiated Date:	9/28/2022
Project Comment	Mountain Home bioassay

CHAIN-OF-CUSTODY



23-073-0390  
 03314  
 03-14-2023  
 08:41:56  
 Mountain Home WWTP  
 Bioassay / 3/14/23

Company Name		Company Number		Client Project Manager/Contact			Purchase Order Number		
Mountain Home WWTP		03314		Mr. Terry Sanders			9909556		
Site Name		Project Number		<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed			Method of Shipment <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other		
Bioassay - Bi-annual - 1 - B - 03/14-15/2023									
LIMS Project ID		Project Manager Phone #		Project Manager Email			Site/Facility ID #		
Mountain Home - Bioassay		(870) 425-6510		tsanders@cityofmountainhome.com					
Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses	
3-15-23	7:20a	23-517 Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	alkalinity	
3-15-23	7:20a	23-517 Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness	
3-15-23	7:20a	23-517 Outfall 001 - Composite 2	Aqueous	C	2	Plastic - Gallon	NONE	chronic CD/FH	

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	James Hestley					
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			Terry Sanders	3-15-23 12:00 PM				
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
1.8 <sup>th</sup> 1135 EP					Emily Peterson	3/16/23	0805	



Kit ID:	192081
Initiated By:	Sydney Andres
Initiated Date:	9/28/2022
Project Comment	Mountain Home bioassay

CHAIN-OF-CUSTODY

#3

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Mountain Home WWTP	03314	Mr. Terry Sanders	9909556
Site Name	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment
Bioassay - Bi-annual - 1 - C - 03/16-17/2023			<input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
Mountain Home - Bioassay	(870) 425-6510	tsanders@cityofmountainhome.com	

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
3-16-23	10:30a	<sup>23-528</sup> Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
3-16-23	10:30a	<sup>23-528</sup> Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
3-16-23	10:30a	<sup>23-528</sup> Outfall 001 - Composite 3	Aqueous	C	3	Plastic - Gallon	NONE	chronic CD/FH


 23-073-0390  
 03314  
 03-14-2023  
 Mountain Home WWTP  
 Bioassay / 3/14/23/3/16/23  
 08:41:56

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	JAMES HESTLEY					
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			Terry Sanders	3-16-23 1:00 PM				
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
T100 0.8°C								



Sample ID: Mountain Home Date/Time Start: 3/14/2023 9:22 Analyst: LR

Report #: 23-073-0390 Date/Time End: 3/20/2023 10:55 Analyst: IM

Data Entered By: 3/30/23 IM Data Reviewed By: PJS 3/30/23

Method 1002.0 - Ceriodaphnia dubia Survival and Reproduction Data

Table with columns: Conc. % EFF, Day #, Replicate (1-10), Total live young, # live Adults, Young per Live adult, % Coeff. Includes handwritten annotations like '6 DAYS', '9', '10', '31', '42', '56', '74', '99' and checkmarks.

Parameters for control acceptability:
- the average number of live adults must be >= 80 %
- the average number a young per live adult must be >= 15.
- 60 % of the controls must produce 3 broods.

Sample ID: Mountain Home Date/Time Start: 3/14/2023 9:36 Analyst: LR

Report # 23-073-0390 Date/Time End: 3/21/23 9:38 Analyst: CF

Data Entered By: 3/30/23 IM Data Reviewed By: BS 3/21/23  
date / initial date / initial

Method 1000.0 - *Pimephales promelas* (Fathead Minnow) Survival and Growth Data

Conch % EFF	REP	DAY								Proportion Survival	Avg. Dry Wt. surviving org (mg)	Avg. Dry Wt. original org (mg)	initial weight	final weight
		0	1	2	3	4	5	6	7					
Control	A	8	8	8	8	8	8	8	8	1.00	0.850	0.850	29.6951	29.7019
	B	8	8	8	8	8	8	8	8	1.00	0.837	0.837	27.7498	27.7565
	C	8	8	8	8	8	8	8	8	1.00	0.725	0.725	26.0367	26.0425
	D	8	8	8	8	8	8	8	8	1.00	0.850	0.850	35.3714	35.3782
	E	8	8	8	8	8	8	8	8	1.00	0.762	0.762	31.2342	31.2403

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.8050 Survival % COEF = 0.00

Mean average weight (surviving organisms) mg = 0.8050 Growth % COEF = 7.17

32

A	9	9	9	9	9	9	9	9	1.00	1.056	1.056	31.5946	31.6041
B	8	8	8	8	8	8	8	8	1.00	0.925	0.925	28.7296	28.7370
C	8	8	8	7	7	7	7	7	0.88	1.012	1.012	33.9320	33.9401
D	8	8	8	8	8	8	8	8	1.00	0.913	0.913	27.5947	27.6020
E	8	8	8	8	8	8	8	8	1.00	0.950	0.950	28.1518	28.1594

Mean proportion survival = 0.95

Mean average weight (original organisms) mg = 0.9711 Survival % COEF = 6.81

Growth % COEF = 0.279.52

42

A	8	8	8	8	8	8	8	8	1.00	1.025	1.025	31.2789	31.2871
B	8	8	8	8	8	8	8	8	1.00	1.088	1.088	28.8824	28.8911
C	8	8	8	8	8	8	8	8	1.00	1.000	1.000	33.6364	33.6444
D	8	8	8	8	8	8	8	8	1.00	0.950	0.950	25.6669	25.6745
E	8	8	8	8	8	8	8	8	1.00	0.975	0.975	24.6935	24.7013

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 1.0075 Survival % COEF = 0.00

Growth % COEF = 5.23

56

A	8	8	8	8	8	8	8	8	1.00	0.875	0.875	34.5761	34.5831
B	8	8	8	8	8	8	8	8	1.00	0.962	0.962	29.3943	29.4020
C	8	8	8	8	8	8	8	8	1.00	0.938	0.938	29.5913	29.5988
D	8	8	8	8	8	8	8	8	1.00	0.975	0.975	27.3401	27.3479
E	8	8	8	8	8	7	7	7	0.88	0.925	0.925	27.9144	27.9218

Mean proportion survival = 0.98

Mean average weight (original organisms) mg = 0.9350 Survival % COEF = 5.73

Growth % COEF = 4.16

75

A	8	8	8	8	8	8	8	8	1.00	0.987	0.987	27.4939	27.5018
B	8	8	8	8	8	8	8	8	1.00	0.900	0.900	22.0124	22.0196
C	8	8	8	8	8	8	8	8	1.00	1.013	1.013	28.4596	28.4677
D	8	8	8	8	8	8	8	8	1.00	0.913	0.913	31.9587	31.9660
E	8	8	8	8	8	8	8	8	1.00	0.975	0.975	31.5527	31.5605

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.9575 Survival % COEF = 0.00

Growth % COEF = 5.11

99

A	8	8	8	8	8	8	8	8	1.00	0.925	0.925	22.6708	22.6782
B	8	8	8	8	8	8	8	8	1.00	0.975	0.975	28.8228	28.8306
C	8	8	8	8	8	8	8	8	1.00	1.062	1.062	32.4011	32.4096
D	8	8	8	8	8	8	8	8	1.00	0.925	0.925	26.7037	26.7111
E	8	8	8	8	8	8	8	8	1.00	1.088	1.088	30.1766	30.1853

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.9950 Survival % COEF = 0.00

Growth % COEF = 7.67

Parameters for control acceptability:

- the mean proportion survival must be  $\geq 80\%$
- the mean average weight must be  $\geq 0.250\text{mg}$

**Waypoint Analytical, LLC.**  
**READINGS DATA SHEET FOR 7-DAY CHRONIC TESTING**

1012

**SAMPLE ID:** Mountain Home

**Report Number:** 23-073-0390

**Date test started:** 3/14/23

		DAY	1	2	3	4	5	6	7	
<b>INITIAL READINGS</b>	<b>pH CTRL</b>		8.0	8.2	8.1	8.2	8.2	8.4	8.1	
	<b>Initial R</b>									
		1	7.9	8.0	7.9	8.0	8.0	8.2	7.9	
		2	7.9	7.8	7.8	8.0	7.9	8.1	7.9	
		3	8.0	7.9	7.8	7.9	7.9	8.1	7.8	
		4	8.0	7.8	7.8	7.8	7.8	8.0	7.8	
		5	8.0	7.8	7.7	7.8	7.8	8.0	7.8	
	<b>DO CTRL</b>		8.2	9.2	9.0	8.6	9.2	8.6	10.0	
	<b>Initial (mg/L) R</b>									
		31	1	8.2	9.5	9.3	8.8	9.5	8.9	10.2
		42	2	8.3	9.8	9.4	9.0	9.4	9.1	10.3
		56	3	8.3	10.0	9.6	9.3	9.1	9.2	10.4
		74	4	8.5	10.1	9.6	9.4	9.2	9.4	10.5
		99	5	8.6	10.0	10.4	9.5	9.7	10.0	10.8
	<b>Temp CTRL</b>		23.2	24.2	23.5	24.1	24.1	24.2	24.9	
<b>Initial (°C) R</b>										
	1	23.5	24.5	23.6	24.7	24.1	24.4	25.0		
	2	23.7	24.6	23.9	24.9	23.7	25.1	25.1		
	3	23.9	25.0	24.1	25.1	24.0	25.4	25.2		
	4	24.5	25.3	24.1	25.2	24.3	26.0	24.9		
	5	24.7	25.6	24.1	25.4	24.9	26.3	24.7		
<b>ANALYST:</b>		UR	UR	IM	CF	IM	IM	CF		
<b>DATE:</b>		3/14/23	3/15/23	3/16/23	3/17/23	3/18/23	3/19/23	3/20/23		

		DAY	1	2	3	4	5	6	7
<b>CERIODAPHNIA DUBIA READINGS</b>	<b>pH - CD CTRL</b>		8.4	8.4	8.7	8.7	8.7	8.4	
	<b>After 24 hrs. R</b>								
		1	8.4	8.3	8.6	8.7	8.7	8.5	
		2	8.4	8.5	8.6	8.8	8.7	8.5	
		3	8.5	8.5	8.7	8.8	8.7	8.6	
		4	8.5	8.6	8.7	8.8	8.7	8.6	
		5	8.5	8.6	8.7	8.8	8.7	8.6	
	<b>DO - CD CTRL</b>		10.4	8.9	8.9	9.0	9.1	10.6	
	<b>After 24 hrs. R</b>								
		31	1	10.4	9.0	8.9	9.0	9.1	CF 8.105
		42	2	10.4	8.9	9.0	9.0	9.2	10.5
		56	3	10.4	9.0	9.0	8.9	9.3	10.6
		74	4	10.4	9.1	9.0	9.0	9.2	10.5
		99	5	10.3	9.2	9.0	9.0	9.0	10.5
	<b>Temp CTRL</b>		24.1	24.9	25.3	25.1	25.5	25.4	
<b>After 24 hrs (°C)R</b>									
	1	24.0	24.9	25.3	25.0	25.6	25.5		
	2	24.1	24.9	25.3	25.0	25.7	25.3		
	3	24.2	25.0	25.3	25.0	25.7	25.4		
	4	24.3	25.0	25.3	25.1	25.8	25.5		
	5	24.3	24.9	25.2	25.1	25.8	25.4		
<b>ANALYST:</b>		UR	UR	CF	IM	IM	IM		
<b>DATE:</b>		3/15/23	3/16/23	3/17/23	3/18/23	3/19/23	3/20/23		

READINGS DATA SHEET FOR 7-DAY CHRONIC TESTING

SAMPLE ID: Mountain Home

Report Number: 23-073-0390

Date test started: 3/14/23

		DAY	1	2	3	4	5	6	7
FATHEAD MINNOW READINGS	pH - FH CTRL		7.5	7.6	7.5	7.6	7.7	7.7	7.7
	After 24 hrs. R								
		1	7.7	7.8	7.7	7.7	7.7	7.8	7.7
		2	7.9	7.8	7.7	7.7	7.7	7.7	7.7
		3	7.9	7.9	7.8	7.8	7.8	7.8	7.7
		4	8.0	7.9	7.8	7.8	7.9	7.9	7.8
		5	8.1	8.0	7.9	7.9	8.0	8.1	7.9
	DO - FH CTRL		7.8	8.1	7.3	7.6	8.0	9.1	8.7
	After 24 hrs. R								
		31	7.5	8.0	7.4	7.5	7.9	9.1	7.7
		42	7.9	7.8	7.4	7.5	8.0	9.0	7.7
		56	8.1	7.6	7.5	7.3	7.8	8.9	7.5
		74	8.1	7.7	7.6	7.3	7.8	9.0	7.5
		99	8.1	7.7	7.4	7.2	7.5	9.1	7.4
	Temp CTRL		25.0	24.4	24.8	25.3	24.5	24.9	24.8
After 24 hrs (°C)R									
	1	25.1	24.6	25.0	25.4	24.9	24.9	24.4	
	2	25.2	24.4	25.1	25.4	24.8	24.8	24.5	
	3	25.3	24.4	25.0	25.3	24.7	24.7	24.8	
	4	25.3	24.6	25.1	25.6	24.6	25.0	24.8	
	5	25.2	24.3	25.1	25.3	24.7	24.9	24.9	
ANALYST:		UR	IM	CF	IM	IM	CF	IM	
DATE:		3/15/23	3/16/23	3/17/23	3/18/23	3/19/23	3/20/23	3/21/23	

Conductivity (µS/cm)

INITIAL READINGS	Initial CTRL	180.0	176.5	182.1	187.1	186.7	185.4	186.9
	R							
	100%	556.4	547.7	598.2	597.9	614.4	628.7	625.6
	INITIAL :	UR	UR	UR	UR	IM	IM	CF
	DATE :	3/14/23	3/15/23	3/16/23	3/17/23	3/18/23	3/19/23	3/20/23
	Total Residual Chlorine DL = 0.02mg/L							
Initial CTRL	20.02		20.02		20.02			
R								
100%	20.02		20.02		20.02			
INITIAL :	UR		UR		IM			
DATE :	3/14/23		3/16/23		3/18/23			
DPD Cl2 Reagent	23-Reag- 0422			23-Reag- 0422		23-Reag- 0422		

Comments / Observations:

Tests are maintained at 25 ± 1 ° C / Incubator ID: BIO / Therm. ID: 120554

Samples stored in fridge at 0-6 ° C / Fridge ID: R6 / Therm. ID: T123

Samples warmed in waterbath then maintained in Bio2 until use / Waterbath Therm. ID: T124 / Bio2 Therm. ID: T113

Meter	ID
pH	PH 21
Conductivity	C 2
DO	DM4
Temp.	T148

Waypoint Analytical, LLC.  
**CERIODAPHNIA SURVIVAL AND REPRODUCTION DATA**

SAMPLE ID: Mountain Home TEST START - DATE/TIME: 3/14/23 922 ANALYST: LR  
 REPORT #: 23-073-0390 TEST END - DATE/TIME: 3/20/23 10:55 ANALYST: lm  
 ORGANISM REF#: 23-REAG-0012 RANDOMIZING KEY #: 10CC ANALYST: LR

CONC.	REPLICATE										INITIALS	DATE	
	DAY	1	2	3	4	5	6	7	8	9			10
1	1	0	0	0	0	0	0	0	0	0	0	LR	3/15/23
	2	0	0	0	0	0	0	0	0	0	0	LR	3/16/23
	3	5	6	5	4	3	5	5	7	4	5	CF	3/17/23
	4	12	10	X	0	12	X2	0	0	8	0	lm	3/18/23
	5	1	8	1	6	1	1	15	13	1	14	lm	3/19/23
	6	21	10	1	14	13	1	18	18	15	17	lm	3/20/23
	7												
2	1	0	0	0	0	0	0	0	0	0	0	LR	
	2	0	0	0	0	0	0	0	0	0	0	LR	
	3	3	5	4	8	7	5	6	4	4	5	CF	
	4	7	6	0	0	X4	10	0	0	10	0	lm	
	5	0	0	10	15	0	0	11	16	0	12	lm	
	6	15	23	2	23	1	8	23	18	17	19	lm	
	7												
3	1	0	0	0	0	0	0	0	0	0	0	LR	
	2	0	0	0	0	0	0	0	0	0	0	LR	
	3	7	0	6	6	4	5	6	8	0	9	CF	
	4	6	9	0	3	8	9	0	0	X	0	lm	
	5	0	0	12	12	0	1	10	10	1	12	lm	
	6	13	16	17	20	19	23	17	13	1	0	lm	
	7												
4	1	0	0	0	0	0	0	0	0	0	0	LR	
	2	0	0	0	0	0	0	0	0	0	0	LR	
	3	7	7	3	3	5	5	7	6	4	4	CF	
	4	3	6	0	0	9	10	0	0	10	0	lm	
	5	0	0	5	11	1	0	12	10	0	6	lm	
	6	14	3	16	0	13	23	15	6	2	15	lm	
	7												
5	1	0	0	0	0	0	0	0	0	0	0	LR	
	2	0	0	0	0	0	0	0	0	0	0	LR	
	3	6	6	5	5	8	7	4	6	6	5	CF	
	4	11	2	5	0	9	3	0	7	12	0	lm	
	5	0	6	1	12	0	0	11	1	0	9	lm	
	6	17	2	12	19	22	23	10	15	21	8	lm	
	7												
6	1	0	0	0	0	0	0	0	0	0	0	LR	
	2	0	0	0	0	0	0	0	0	0	0	LR	
	3	4	3	3	5	7	6	3	6	4	5	CF	
	4	8	6	6	0	11	16	0	3	8	9	lm	
	5	1	0	0	14	0	0	15	2	0	0	lm	
	6	19	21	20	22	16	17	21	15	22	17	lm	
	7												

WAYPOINT ANALYTICAL, LLC.  
 TEST TRACEABILITY RECORD  
**7-DAY CERIODAPHNIA DUBIA**

SAMPLE ID: Mountain Home REPORT # 23-073-0390

DATE START: 3/14/23 DATE END: 3/20/23

CERIODAPHNIA DUBIA REFERENCE # 23-REAG- 0012

Neonates obtained from: Brood Tray ID: Monday / Tuesday / Wednesday (A) / B  
 (circle) Brood Tray Set: Y / (P) / B / O / G

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	ALGAE	YCT
CHRONIC	3/14/23	UR	0	23-REAG-1271	23-REAG-1154
	3/15/23	UR	1	23-REAG-1271	23-REAG-1154
	3/16/23	UR	2	23-REAG-1271	23-REAG-1154
	3/17/23	CS	3	23-REAG-1271	23-REAG-1154
	3/18/23	Im	4	23-REAG-1271	23-REAG-1154
	3/19/23	Im	5	23-REAG-1271	23-REAG-1154
			6	23-REAG-	23-REAG-

	TEST DAY	CONTROL WATER	SAMPLE LAB ID
(Comp. 1)	0	23-REAG-1418	L98853
	1	23-REAG-1450	L98853
(Comp. 2)	2	23-REAG-1521	L98854
	3	23-REAG-1523	L98854
(Comp. 3)	4	23-REAG-1552	L98855
	5	23-REAG-1567	L98855
	6	23-REAG-	

COMMENTS: YCT is filtered with 60 - micron mesh to remove additional debris.  
 Organisms are fed 0.15 mL Algae and YCT daily after renewal.  
 Test conducted at 25 ±1 °C Incubator ID: BIO / Thermometer ID: 120554

ANALYST COMMENTS:

If an organisms did not produce any broods, check under microscope for sex of organism.  
 Annotate the Concentration and Replicate of organism that is MALE: \_\_\_\_\_

CERIODAPHNIA RANDOMIZATION TRANSLATION

RANDOMIZING KEY #:

10CC

REPORT #

23-073-0390

TEST CONCENTRATIONS:

1: Control

2: 31

3: 42

4: 50

5: 74

6: 99

Row	REPLICATE									
	1	2	3	4	5	6	7	8	9	10
1	6	3	2	3	2	6	4	2	6	6

Row	REPLICATE									
	1	2	3	4	5	6	7	8	9	10
2	5	5	1	4	1	1	5	4	4	4

Row	REPLICATE									
	1	2	3	4	5	6	7	8	9	10
3	3	4	3	2	3	2	2	5	5	3

Row	REPLICATE									
	1	2	3	4	5	6	7	8	9	10
4	1	2	4	5	4	4	3	1	1	1

Row	REPLICATE									
	1	2	3	4	5	6	7	8	9	10
5	2	1	6	1	6	5	1	3	3	2

Row	REPLICATE									
	1	2	3	4	5	6	7	8	9	10
6	4	6	5	6	5	3	6	6	2	5

**Waypoint Analytical, LLC.**  
**TEST DATA SHEET FOR FATHEAD MINNOW SURVIVAL (7-DAY)**

SAMPLE ID: Mountain Home REPORT #: 23-073-0390

TEST START - DATE/TIME: 3/14/23 936 ANALYST: LR

TEST END - DATE/TIME : 3/21/23 938<sup>05</sup> ANALYST: CF

**NOTE: PER ADEQ REQUIREMENTS THE INTIAL NUMBER OF FISH PER REPLICATE MUST BE 8 II**

CONC.	REP NO.	NO. OF SURVIVORS								REMARKS
		DAY								
		0	1	2	3	4	5	6	7	
1	42 A	8	8	8	8	8	8	8	8	
	C B	8	8	8	8	8	8	8	8	
	74 C	8	8	8	8	8	8	8	8	
	42 D	8	8	8	8	8	8	8	8	
	31 E	8	9	9	9	9	9	9	9	
2	56 A	8	8	8	8	8	8	8	8	
	74 B	8	8	8	8	8	8	8	8	
	56 C	8	8	8	8	8	8	8	8	
	99 D	8	8	8	8	8	8	8	8	
	74 E	8	8	8	8	8	8	8	8	
3	99 A	8	8	8	8	8	8	8	8	
	31 B	8	9	9	9	9	9	9	9	
	99 C	8	8	8	8	8	8	8	8	
	C D	8	8	8	8	8	8	8	8	
	42 E	8	8	8	8	8	8	8	8	
4	31 A	8	8	8	8	7	7	7	7	
	56 B	8	8	8	8	8	8	8	8	
	C C	8	8	8	8	8	8	8	8	
	56 D	8	8	8	8	8	8	8	8	
	31 E	8	8	8	8	8	8	8	8	
5	74 A	8	8	8	8	8	8	8	8	
	99 B	8	8	8	8	8	8	8	8	
	42 C	8	8	8	8	8	8	8	8	
	C D	8	8	8	8	8	8	8	8	
	99 E	8	8	8	8	8	8	8	8	
6	C A	8	8	8	8	8	8	8	8	
	31 B	8	8	8	8	8	8	8	8	
	42 C	8	8	8	8	8	8	8	8	
	56 D	8	8	8	8	8	7	7	7	
	74 E	8	8	8	8	8	8	8	8	
INITIALS		LR	LR	LR	CF	lm	lm	CF	CF	
DATE		3/14/23	3/15/23	3/16/23	3/17/23	3/18/23	3/19/23	3/20/23	3/21/23	

ORGANISM REF#: 23-REAG- 1477

COMMENTS:

P:\QC\Quality System - ETC\0 Forms\Bioassay Forms\BIO Batch Sheets\23 - 7 Day FH surv 5 rep AR



WAYPOINT ANALYTICAL, LLC.  
TEST TRACEABILITY RECORD  
7-DAY FATHEAD MINNOW

SAMPLE ID: Mountain Home REPORT # 23-073-0390

DATE START: 3/14/23 DATE END: 3/20<sup>21</sup>/23  
PS

FATHEAD MINNOW REFERENCE # 23-REAG- 1477

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	CONTROL WATER	BRINE SHRIMP	SAMPLE LAB ID:	
CHRONIC	3/14/23	UR	0	23-REAG- 1418	23-REAG- 1416	L98853	(Comp. 1)
	3/15/23	UR	1	23-REAG- 1450	23-REAG- 1446	L98853	
	3/16/23	UR	2	23-REAG- 1521	23-REAG- 1484	L98854	(Comp. 2)
	3/17/23	CF	3	23-REAG- 1523	23-REAG- 1520	L98854	
	3/18/23	Im	4	23-REAG- 1552	23-REAG- 1546	L98855	(Comp. 3)
	3/19/23	Im	5	23-REAG- 1567	23-REAG- 1562	L98855	
	3/20/23	CF	6	23-REAG- 1568	23-REAG- 1569	L98855	

COMMENTS: Fathead minnows are fed 0.15 mL Artemia Brine Shrimp x2 daily.  
Test conducted at 25 ±1 °C Incubator ID: BIO / Thermometer ID: 120554

ANALYST COMMENTS:

## FATHEAD MINNOW FINAL WEIGHT SHEET

SAMPLE ID: Mountain Home REPORT #: 23073-0390INITIAL WEIGHT DATE/TIME: 3/21/23 902ANALYST: BSDATE/TIME IN OVEN: 3/21/23 1637 TEMP (°C): 89ANALYST: lmDATE/TIME OUT OVEN: 3/22/23 802 TEMP (°C): 87ANALYST: lmFINAL WEIGHT DATE/TIME: 3/22/23 1430ANALYST: lm

Oven ID : 03

Thermometer ID: T49

Balance ID: B12

Temp Range : 50 - 105 °C

	REP ID	CRUC ID	INT WEIGHT (g)	FINAL WEIGHT (g)	# LARV	REMARKS
1	A	4K	31.2789	31.2871	8	
	B	Aid	29.6951	29.7019	8	
	C	Rose	27.4939	27.5018	8	
	D	gen	28.8824	28.8911	8	
	E	bra	31.5946	31.6041	9	
2	A	BS	34.5761	34.5831	8	
	B	Q	22.0124	22.0196	8	
	C	X9E	29.3943	29.4020	8	
	D	SKT	22.6708	22.6782	8	
	E	tina	28.4596	28.4677	8	
3	A	1413	28.8228	28.8306	8	
	B	fa	28.7296	28.7370	8	
	C	200	32.4011	32.4096	8	
	D	Lava	27.7498	27.7565	8	
	E	leave	33.6364	33.6444	8	
4	A	exit	33.9320	33.9401	7	
	B	Sia	29.5913	29.5988	8	
	C	Monk	26.0367	26.0425	8	
	D	Mew	27.3401	27.3479	8	
	E	C	27.5947	27.6020	8	
5	A	Luxer	31.9587	31.9660	8	
	B	DUH	26.7037	26.7111	8	
	C	323	25.6669	25.6745	8	
	D	COIN	35.3714	35.3782	8	
	E	579	30.1766	30.1853	8	
6	A	Lone	31.2342	31.2403	8	
	B	Pond	28.1518	28.1594	8	
	C	boob	24.6935	24.7013	8	
	D	Dee	27.9144	27.9218	7	
	E	pet	31.5527	31.5605	8	

Crucibles must be in the oven a minimum of 6 hours. Immediately after removal from the oven the crucibles must be allowed to cool in the dessicator a minimum of 2 hours.

## Comments/Observations:

P:\QC\Quality System - ETC\0 Forms\Bioassay Forms\BIO Batch Sheets\23 - 5 rep FH Weights