

11/10/2023

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

Ref: Analytical Testing
Report Number: 23-297-0390
Client Project Description: Bioassay
AR0021211
Bi-annual 2

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 = 30.16 %	PMSD = 31.3 %
	Fathead minnow	NOEL = 99 %	CV = 19.91 %	PMSD = 29.6 %

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 Nov-23 16:28 (p 1 of 2)
Test Code/ID: 23-297-0390-cd / 18-0135-3809

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 19-9164-4460	Test Type: Reproduction-Survival (7d)	Analyst: Lauren N. Richardson
Start Date: 24 Oct-23 12:36	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 30 Oct-23 13:38	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 1h	Taxon:	Source: In-House Culture Age: <24
Sample ID: 04-3860-2819	Code: 23-297-0390	Project: WET Compliance Re-test
Sample Date: 23 Oct-23 07:20	Material: POTW Effluent	Source: Mountain Home WWTP (AR0021211)
Receipt Date: 24 Oct-23 10:15	CAS (PC):	Station: Outfall 001
Sample Age: 29h (2.1 °C)	Client: Mountain Home WWTP	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-297-0390	25 Oct-23 07:20	26 Oct-23	26 Oct-23	0.8
2	23-297-0390	26 Oct-23 07:20	27 Oct-23 08:30	28 Oct-23 00:00	0.7

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	TU	S
00-3234-4384	6d Survival Rate	Fisher Exact/Bonferroni-Holm Test		99	>99	---	---	1	1
10-9814-3003	Reproduction	Dunnett Multiple Comparison Test		99	>99	---	31.3%	1	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
00-3234-4384	6d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
10-9814-3003	Reproduction	Control Resp	21.2	15	<<	Yes	Passes Criteria
10-9814-3003	Reproduction	PMSD	0.3134	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	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
31		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%
74		10	0.9000	0.6738	1.1260	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
99		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	21.2	17.31	25.09	13	28	1.718	5.432	25.62%	0.00%
31		10	26.7	21.82	31.58	13	35	2.155	6.816	25.53%	-25.94%
42		10	30.1	27.13	33.07	21	37	1.312	4.149	13.78%	-41.98%
56		10	26.2	21.59	30.81	14	35	2.037	6.443	24.59%	-23.58%
74		10	28.6	22.69	34.51	12	38	2.613	8.262	28.89%	-34.91%
99		10	23.4	18.35	28.45	11	32	2.232	7.058	30.16%	-10.38%

CETIS Summary Report

Report Date: 03 Nov-23 16:28 (p 2 of 2)
 Test Code/ID: 23-297-0390-cd / 18-0135-3809

Ceriodaphnia 7-d Survival and Reproduction Test							Waypoint Analytical Tennessee , LLC.				
6d Survival Rate Detail							MD5: C411AA792BE13296ACC4BD7DFE44FAD3				
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
31		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
74		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
99		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Reproduction Detail							MD5: 6DEA7C47AA1D47D08E175F46217B6D4B				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	16	28	27	19	25	13	25	25	19	15
31		13	28	35	20	33	29	27	34	23	25
42		37	32	31	31	32	29	32	27	29	21
56		35	25	32	22	14	27	24	23	25	35
74		38	32	32	35	35	28	18	24	32	12
99		29	22	25	13	24	11	32	28	20	30
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	1/1	1/1	1/1	1/1	1/1	1/1
31		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
74		1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1
99		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Measurement Report

Report Date: 03 Nov-23 16:28 (p 1 of 3)
Test Code/ID: 23-297-0390-cd / 18-0135-3809

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee , LLC.

Batch ID: 19-9164-4460	Test Type: Reproduction-Survival (7d)	Analyst: Lauren N. Richardson
Start Date: 24 Oct-23 12:36	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 30 Oct-23 13:38	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 1h	Taxon:	Source: In-House Culture Age: <24
Sample ID: 04-3860-2819	Code: 23-297-0390	Project: WET Compliance Re-test
Sample Date: 23 Oct-23 07:20	Material: POTW Effluent	Source: Mountain Home WWTP (AR0021211)
Receipt Date: 24 Oct-23 10:15	CAS (PC):	Station: Outfall 001
Sample Age: 29h (2.1 °C)	Client: Mountain Home WWTP	

CETIS Measurement Report

Report Date: 03 Nov-23 16:28 (p 2 of 3)
Test Code/ID: 23-297-0390-cd / 18-0135-3809

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	186.2	190.3	189.2	190.2	186.7	187.4	192
99		736.4	756.3	785.7	749.6	773	774	764.7
Final Dissolved Oxygen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7
0	L	8.8	9.5	10.7	8.6	8.6	8.5	---
31		8.9	9.5	10.7	8.6	8.4	9	---
42		9	9.8	10.7	8.7	8.6	9.1	---
56		9	9.8	10.6	8.8	8.7	9.1	---
74		9	9.9	10.6	8.8	8.7	9	---
99		9.2	9.9	10.5	8.8	8.6	9.1	---
Initial Dissolved Oxygen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7
0	L	7	8.6	9	9.1	8.5	8	8.2
31		7.1	8.9	9.2	9	8.4	8.1	8.5
42		7.2	9	9.1	9.1	8.3	8	8.2
56		7.3	9	9.1	9.3	8.4	7.4	8
74		7.3	9.2	9.3	9.3	8.4	7.4	8.2
99		7.4	9.3	9.3	9.6	8.4	7.4	8
Final pH-Units								
Conc-%	Code	1	2	3	4	5	6	7
0	L	8.6	8.7	8.5	8.5	8.4	8.2	---
31		8.5	8.7	8.5	8.4	8.4	8.4	---
42		8.6	8.7	8.5	8.4	8.5	8.4	---
56		8.6	8.7	8.5	8.5	8.5	8.4	---
74		8.3	8.7	8.6	8.6	8.5	8.5	---
99		8.6	8.8	8.6	8.6	8.6	8.5	---
Initial pH-Units								
Conc-%	Code	1	2	3	4	5	6	7
0	L	8	8.5	8.4	8.2	8.4	8.1	7.5
31		8	8	8.1	8	8.3	8.2	7.8
42		7.9	7.9	8.1	8	8.2	8	7.8
56		7.9	7.9	8.1	7.9	8	8	7.8
74		7.9	7.8	8.1	7.9	7.9	7.9	7.8
99		7.9	7.9	8	7.8	7.8	7.9	7.8
Final Temperature-°C								
Conc-%	Code	1	2	3	4	5	6	7
0	L	25	25.2	24.8	24.6	24.6	25.1	---
31		25	25.1	25.3	24.6	24.5	25	---
42		25.1	25.2	25.3	24.4	24.4	25.1	---
56		25.1	25.1	25.4	24.4	24.4	24.9	---
74		25	25.1	25.4	24.4	24.5	24.9	---
99		25	25.2	25.4	24.4	24.6	25	---

CETIS Measurement Report

Report Date: 03 Nov-23 16:28 (p 3 of 3)
Test Code/ID: 23-297-0390-cd / 18-0135-3809

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	24.1	23.5	23.7	23.9	24.2	24.4	24.3
31		24.2	25.3	24	24	24.4	24.5	24.1
42		24.2	26.2	24.2	23.9	24.2	24.5	24.5
56		24.1	27.2	24.4	23.6	24.2	24.4	24.4
74		24.2	27.6	25	23.4	24.2	24.4	24.3
99		24.2	28	25.3	23.5	24.2	24.4	24.1

CETIS Summary Report

Report Date: 03 Nov-23 16:27 (p 1 of 2)
Test Code/ID: 23-297-0390-fh / 05-5587-1644

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 17-6610-4995	Test Type: Growth-Survival (7d)	Analyst: Ivey E. Moffett
Start Date: 24 Oct-23 12:28	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 31 Oct-23 13:46	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon:	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 04-3860-2819	Code: 23-297-0390	Project: WET Compliance Re-test
Sample Date: 23 Oct-23 07:20	Material: POTW Effluent	Source: Mountain Home WWTP (AR0021211)
Receipt Date: 24 Oct-23 10:15	CAS (PC):	Station: Outfall 001
Sample Age: 29h (2.1 °C)	Client: Mountain Home WWTP	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-297-0390	25 Oct-23 07:20	26 Oct-23	26 Oct-23	0.8
2	23-297-0390	26 Oct-23 07:20	27 Oct-23 08:30	28 Oct-23 00:00	0.7

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	TU	S
14-8979-7106	7d Survival Rate	Dunnett Multiple Comparison Test		99	>99	---	13.4%	1	1
07-3203-9427	Mean Dry Weight-mg	Dunnett Multiple Comparison Test		99	>99	---	29.6%	1	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
14-8979-7106	7d Survival Rate	Control Resp	0.975	0.8	<<	Yes	Passes Criteria
07-3203-9427	Mean Dry Weight-mg	Control Resp	0.535	0.25	<<	Yes	Passes Criteria
07-3203-9427	Mean Dry Weight-mg	PMSD	0.2959	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	0.9750	0.9056	1.0440	0.8750	1.0000	0.0250	0.0559	5.73%	0.00%
31		5	0.9333	0.8099	1.0570	0.7778	1.0000	0.0444	0.0994	10.65%	4.27%
42		5	0.8528	0.7217	0.9839	0.7500	1.0000	0.0472	0.1056	12.38%	12.54%
56		5	0.9278	0.8456	1.0100	0.8750	1.0000	0.0296	0.0662	7.13%	4.84%
74		5	0.8750	0.7653	0.9847	0.7500	1.0000	0.0395	0.0884	10.10%	10.26%
99		5	0.8750	0.7198	1.0300	0.7500	1.0000	0.0559	0.1250	14.29%	10.26%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.535	0.4027	0.6673	0.3889	0.6875	0.04765	0.1065	19.91%	0.00%
31		5	0.5919	0.4177	0.7662	0.4556	0.7625	0.06276	0.1403	23.71%	-10.64%
42		5	0.5578	0.4202	0.6953	0.3889	0.6375	0.04954	0.1108	19.86%	-4.26%
56		5	0.58	0.5014	0.6586	0.5125	0.65	0.0283	0.06327	10.91%	-8.41%
74		5	0.6	0.5069	0.6931	0.525	0.725	0.03354	0.075	12.50%	-12.15%
99		5	0.6375	0.4882	0.7868	0.475	0.7625	0.05376	0.1202	18.86%	-19.16%

CETIS Summary Report

Report Date: 03 Nov-23 16:27 (p 2 of 2)
Test Code/ID: 23-297-0390-fh / 05-5587-1644

Fathead Minnow 7-d Larval Survival and Growth Test						Waypoint Analytical Tennessee , LLC.
7d Survival Rate Detail						MD5: DFEFA5DD8F8871D3EBE412254506ED40
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	1.0000	1.0000	1.0000	1.0000	0.8750
31		0.8889	1.0000	1.0000	1.0000	0.7778
42		0.8889	0.7500	0.8750	0.7500	1.0000
56		1.0000	0.8750	0.8889	1.0000	0.8750
74		0.7500	0.8750	0.8750	1.0000	0.8750
99		0.8750	1.0000	0.7500	0.7500	1.0000
Mean Dry Weight-mg Detail						MD5: 618510BD2AD9A1F5B6EF025EE7E736DA
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.3889	0.55	0.6875	0.5111	0.5375
31		0.4556	0.7625	0.5625	0.7125	0.4667
42		0.3889	0.6375	0.6375	0.625	0.5
56		0.5556	0.5375	0.6444	0.5125	0.65
74		0.575	0.525	0.6	0.725	0.575
99		0.7375	0.65	0.475	0.5625	0.7625
7d Survival Rate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	9/9	8/8	8/8	9/9	7/8
31		8/9	8/8	8/8	8/8	7/9
42		8/9	6/8	7/8	6/8	8/8
56		9/9	7/8	8/9	8/8	7/8
74		6/8	7/8	7/8	8/8	7/8
99		7/8	8/8	6/8	6/8	8/8

CETIS Measurement Report

Report Date: 03 Nov-23 16:27 (p 1 of 3)
Test Code/ID: 23-297-0390-fh / 05-5587-1644

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee , LLC.

Batch ID: 17-6610-4995	Test Type: Growth-Survival (7d)	Analyst: Ivey E. Moffett
Start Date: 24 Oct-23 12:28	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 31 Oct-23 13:46	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon:	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 04-3860-2819	Code: 23-297-0390	Project: WET Compliance Re-test
Sample Date: 23 Oct-23 07:20	Material: POTW Effluent	Source: Mountain Home WWTP (AR0021211)
Receipt Date: 24 Oct-23 10:15	CAS (PC):	Station: Outfall 001
Sample Age: 29h (2.1 °C)	Client: Mountain Home WWTP	

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Report Date: 03 Nov-23 16:27 (p 2 of 3)
Test Code/ID: 23-297-0390-fh / 05-5587-1644

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	186.2	190.3	189.2	190.2	186.7	187.4	192
99		736.4	756.3	785.7	749.6	773	774	764.7
Final Dissolved Oxygen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7
0	L	6.6	7.1	7.4	7.8	8	7.7	7.5
31		6.4	6.8	7.2	7.5	7.6	7.5	7.5
42		6.2	6.6	7.2	7.3	7.2	7.3	7.4
56		6.1	6.6	7.2	7.1	7.1	7	6.9
74		6	6.5	7.1	7	6.9	7	6.9
99		5.9	6.6	6.6	7.2	6.8	6.5	7
Initial Dissolved Oxygen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7
0	L	7	8.6	9	9.1	8.5	8	8.2
31		7.1	8.9	9.2	9	8.4	8.1	8.5
42		7.2	9	9.1	9.1	8.3	8	8.2
56		7.3	9	9.1	9.3	8.4	7.4	8
74		7.3	9.2	9.3	9.3	8.4	7.4	8.2
99		7.4	9.3	9.3	9.6	8.4	7.4	8
Final pH-Units								
Conc-%	Code	1	2	3	4	5	6	7
0	L	7.6	7.6	7.7	7.7	7.4	8	7.8
31		7.7	7.6	7.7	7.6	7.5	7.6	7.6
42		7.7	7.6	7.8	7.7	7.6	7.6	7.6
56		7.7	7.7	7.9	7.7	7.7	7.6	7.7
74		7.8	7.9	7.9	7.8	7.7	7.6	7.7
99		7.8	7.9	7.9	7.8	7.6	7.6	7.7
Initial pH-Units								
Conc-%	Code	1	2	3	4	5	6	7
0	L	8	8.5	8.4	8.2	8.4	8.1	7.5
31		8	8	8.1	8	8.3	8.2	7.8
42		7.9	7.9	8.1	8	8.2	8	7.8
56		7.9	7.9	8.1	7.9	8	8	7.8
74		7.9	7.8	8.1	7.9	7.9	7.9	7.8
99		7.9	7.9	8	7.8	7.8	7.9	7.8
Final Temperature-°C								
Conc-%	Code	1	2	3	4	5	6	7
0	L	25	24.8	25.1	24.7	24.6	24.8	24.6
31		24.8	25	25.1	24.8	24.7	24.9	24.7
42		24.9	24.9	25	25	24.6	25	24.6
56		24.9	25	24.9	24.8	24.4	25	24.6
74		25	24.9	25	24.6	24.6	24.8	24.5
99		24.9	24.9	25.1	24.7	24.5	24.8	24.7

CETIS Measurement Report

Report Date: 03 Nov-23 16:27 (p 3 of 3)
Test Code/ID: 23-297-0390-fh / 05-5587-1644

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	24.1	23.5	23.7	23.9	24.2	24.4	24.3
31		24.2	25.3	24	24	24.4	24.5	24.1
42		24.2	26.2	24.2	23.9	24.2	24.5	24.5
56		24.1	27.2	24.4	23.6	24.2	24.4	24.4
74		24.2	27.6	25	23.4	24.2	24.4	24.3
99		24.2	28	25.3	23.5	24.2	24.4	24.1

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 8206469
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 Number : **23-297-0390**

REPORT OF ANALYSIS

Report Date : 11/10/2023

Received : 10/24/2023

Lab No : **91810**

Sample ID : **Outfall 001 - Composite 1**

Matrix: **Aqueous**

Sampled: **10/23/2023 7:20**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	176	mg/L	1	1	11/06/23 09:20	RDP	2320B-2011
Calcium	40.9	mg/L	0.100	1	10/30/23 22:21	JTR	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	205	mg/L	0.100	1	10/30/23 22:21		EPA-200.7
Magnesium	25.1	mg/L	0.100	1	10/30/23 22:21	JTR	EPA-200.7

Lab No : **91811**

Sample ID : **Outfall 001 - Composite 2**

Matrix: **Aqueous**

Sampled: **10/25/2023 7:20**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	172	mg/L	1	1	11/08/23 09:50	AMS	2320B-2011
Calcium	43.3	mg/L	0.100	1	10/30/23 22:26	JTR	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	218	mg/L	0.100	1	10/30/23 22:26		EPA-200.7
Magnesium	26.7	mg/L	0.100	1	10/30/23 22:26	JTR	EPA-200.7

Lab No : **91812**

Sample ID : **Outfall 001 - Composite 3**

Matrix: **Aqueous**

Sampled: **10/26/2023 7:20**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	167	mg/L	1	1	11/09/23 10:30	DJJC	2320B-2011
Calcium	43.3	mg/L	0.100	1	10/30/23 22:32	JTR	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	218	mg/L	0.100	1	10/30/23 22:32		EPA-200.7
Magnesium	26.6	mg/L	0.100	1	10/30/23 22:32	JTR	EPA-200.7

Qualifiers/ Definitions

DF Dilution Factor
MQL Method Quantitation Limit

L Limit Exceeded



Kit ID:	218947
Initiated By:	Sydney Andres
Initiated Date:	9/13/2023
Project Comment	Mountain home bioassay

CHAIN-OF-CUSTODY

 Mountain Home WWTP Bioassay	23-297-0390 03314 10-24-2023 11:24:10
--	--

Company Name		Company Number		Client Project Manager/Contact		Purchase Order Number	
Mountain Home WWTP		03314		Mr. Terry Sanders		9910995	
Site Name		Project Number		☐ RUSH – Additional charges apply ☐ Special Detection Limits(s) Date Results Needed		Method of Shipment ☒ Fed Ex ☒ UPS ☐ USPS ☐ Courier ☐ Client Drop Off Other	
Bioassay - Bi-annual - 2 RT - A - 10/22-23/2023							
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
10-23-23	7:20 am	23-1778 Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
10-23-23	7:20 am	23-1778 Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
10-23-23	7:20 am	23-1778 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	Lab Comments	Timmy Corp					
Y/N	Seals		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
	Y/N		Terry Sander	10-23-23	2:00			
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
2.1 T137m								



Kit ID:	218948
Initiated By:	Sydney Andres
Initiated Date:	9/13/2023
Project Comment	Mountain Home bioassay

CHAIN-OF-CUSTODY

#2

Company Name		Company Number		Client Project Manager/Contact		Purchase Order Number	
Mountain Home WWTP		03314		Mr. Terry Sanders		9910835	
Site Name		Project Number		☐ RUSH – Additional charges apply ☐ Special Detection Limits(s) Date Results Needed		Method of Shipment	
Bioassay - Bi-annual - 2 RT - B - 10/24-25/2023						☒ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☐ 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
10-25-23	7:20am	23-1791 Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
10-25-23	7:20am	23-1791 Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
10-25-23	7:20am	23-1791 Outfall 001 - Composite 2	Aqueous	C	2	Plastic - Gallon	NONE	chronic CD/FH


 23-297-0390
 03314
 Mountain Home WWTP
 Bioassay / 10/24/23
 10-24-2023
 11:24:10

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	Timmy Corp				
(Y/N)	(Y/N)		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
			Relinquished by: (SIGNATURE)	10-25-23 2:30pm			
			Relinquished by: (SIGNATURE)				
Blank/Cooler Temp				Date Time	Received by: (SIGNATURE)	Date Time	
0.8°C T100AS							



Kit ID:	218949
Initiated By:	Sydney Andres
Initiated Date:	9/13/2023
Project Comment	Mountain Home bioassay

CHAIN-OF-CUSTODY

#3

Company Name Mountain Home WWTP		Company Number 03314		Client Project Manager/Contact Mr. Terry Sanders		Purchase Order Number 9910787	
Site Name Bioassay - Bi-annual - 2 RT - C - 10/26-27/2023		Project Number		☐ RUSH - Additional charges apply ☐ Special Detection Limits(s) Date Results Needed		Method of Shipment ☒ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☐ Client Drop Off Other	
LIMS Project ID Mountain Home - Bioassay		Project Manager Phone # (870) 425-6510		Project Manager Email tsanders@cityofmountainhome.com		Site/Facility ID #	

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
10-26-23	7:20am	23-1802 Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
10-26-23	7:20am	23-1802 Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
10-26-23	7:20am	23-1802 Outfall 001 - Composite 3	Aqueous	C	3	Plastic - Gallon	NONE	chronic CD/FH


 23-297-0390
 03314
 10-24-2023
 11:24:10
 Mountain Home WWTP
 Bioassay / 10/24/23

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments				
Ice	Custody	Lab Comments	Tummy Corp						
Y/N	Seals		Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)	Date	Time
	Y/N		Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)	Date	Time
Blank/Cooler Temp			Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)	Date	Time

0.77137AS

Page 16 of 26

10-26-23 1:45P

10/27/23 8:30

Sample ID: Mountain Home Date/Time Start: 10/24/2023 12:36 Analyst: LR

Report # 23-297-0390 Date/Time End: 10/30/2023 13:38 Analyst: IM

Data Entered By: 11/2/23 IM
date / initialData Reviewed By: BS 11/5/23
date / initial

Method 1002.0 - Ceriodaphnia dubia Survival and Reproduction Data

Conc. % EFF	Day #	1	2	3	4	5	6	7	8	9	10	Total live young	# live Adults	Young per Live adult	
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	0	1	3	4	4	0	2	0	0	0	14	10	1.4	
	4	6	3	2	1	0	6	2	1	1	2	24	10	2.4	
	5	7	8	8	6	8	6	8	9	5	2	67	10	6.7	
	6	3	16	14	8	13	1	13	15	13	11	107	10	10.7	
	7	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
Replicate Totals	---	16	28	27	19	25	13	25	25	19	15	Avg. Yng/ adult=	21.20	% Coeff 25.62	60 PA 15
32	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	0	0	2	0	5	6	3	2	3	0	21	10	2.1	
	4	0	0	0	0	0	0	0	1	0	0	1	10	0.1	
	5	10	10	11	4	7	9	5	12	6	9	83	10	8.3	
	6	3	18	22	16	21	14	19	19	14	16	162	10	16.2	
	7	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
Replicate Totals	---	13	28	35	20	33	29	27	34	23	25	Avg. Yng/ adult=	26.70	% Coeff 25.53	
42	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	0	0	2	0	4	0	2	2	1	0	11	10	1.1	
	4	6	2	1	3	0	4	1	0	1	0	18	10	1.8	
	5	14	10	8	11	5	8	9	11	7	2	85	10	8.5	
	6	17	20	20	17	23	17	20	14	20	19	187	10	18.7	
	7	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
Replicate Totals	---	37	32	31	31	32	29	32	27	29	21	Avg. Yng/ adult=	30.10	% Coeff 13.78	
56	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	0	0	3	0	5	3	1	1	0	2	15	10	1.5	
	4	6	1	2	0	2	1	2	3	1	0	18	10	1.8	
	5	12	5	12	8	5	4	6	4	6	11	73	10	7.3	
	6	17	19	15	14	2	19	15	15	18	22	156	10	15.6	
	7	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
Replicate Totals	---	35	25	32	22	14	27	24	23	25	35	Avg. Yng/ adult=	26.20	% Coeff 24.59	
75	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	1	1	0	0	2	0	4	0	2	0	10	10	1.0	
	4	6	4	7	6	1	0	0	0	0	4	28	10	2.8	
	5	12	11	9	11	8	15	14	8	9	5	102	10	10.2	
	6	19	16	16	18	24	13	X	16	21	3	146	10	14.6	
	7	0	0	0	0	0	0	X	0	0	0	0	10	0.0	
Replicate Totals	---	38	32	32	35	35	28	18	24	32	12	Avg. Yng/ adult=	28.60	% Coeff 28.89	
100	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	0	0	0	0	0	0	2	0	0	3	5	10	0.5	
	4	5	2	4	2	0	0	2	3	1	4	23	10	2.3	
	5	8	6	6	11	6	X	10	11	8	7	74	10	7.4	
	6	16	14	15	0	18	0	18	14	11	16	122	10	12.2	
	7	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
Replicate Totals	---	29	22	25	13	24	X	32	28	20	30	Avg. Yng/ adult=	23.4	% Coeff 41.79	

#s represent the number of young per live organism.

X represents death of the organism.

M represents a missing organism.

Parameters for control acceptability:

- the average number of live adults must be $\geq 80\%$
- the average number a young per live adult must be ≥ 15 .
- 60 % of the controls must produce 3 broods.
- the average number of young per live adult CV% must be $<40\%$

Sample ID: Mountain Home Date/Time Start: 10/24/2023 12:28 Analyst: IM

Report # 23-297-0390 Date/Time End: 10/31/23 13:46 Analyst: LR

Data Entered By: 11/2/23 IM Data Reviewed By: 11/3/23
date / initial date / initial

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

Conch % EFF	REP	0	1	2	3	4	5	6	7	Proportion Survival	Avg. Dry Wt. surviving org (mg)	Avg. Dry Wt. original org (mg)	initial weight	final weight
Control	A	9	9	9	9	9	9	9	9	1.00	0.389	0.389	1.1644	1.1679
	B	8	8	8	8	8	8	8	8	1.00	0.550	0.550	1.1742	1.1786
	C	8	8	8	8	8	8	8	8	1.00	0.688	0.688	1.1815	1.1870
	D	9	9	9	9	9	9	9	9	1.00	0.511	0.511	1.1661	1.1707
	E	8	7	7	7	7	7	7	7	0.88	0.614	0.537	1.1725	1.1768

Mean proportion survival = 0.98

Mean average weight (original organisms) mg = 0.5350

Survival % COEF = 5.73

Mean average weight (surviving organisms) mg = 0.5504

Growth % COEF = 19.91

32	A	9	9	9	9	9	9	9	8	0.89		0.456	1.1779	1.1820
	B	8	8	8	8	8	8	8	8	1.00		0.762	1.1808	1.1869
	C	8	8	8	8	8	8	8	8	1.00		0.562	1.1711	1.1756
	D	8	8	8	8	8	8	8	8	1.00		0.713	1.1708	1.1765
	E	9	9	9	9	9	9	8	7	0.78		0.467	1.1575	1.1617

Mean proportion survival = 0.93

Mean average weight (original organisms) mg = 0.5919

Survival % COEF = 10.65

Growth % COEF = 23.71

42	A	9	8	9	8	9	8	9	8	0.89		0.389	1.1568	1.1603
	B	8	8	8	7	7	6	6	6	0.75		0.637	1.1583	1.1634
	C	8	8	8	8	8	8	8	7	0.88		0.638	1.1502	1.1553
	D	8	8	8	8	8	7	7	6	0.75		0.625	1.1856	1.1906
	E	8	8	8	8	8	8	8	8	1.00		0.500	1.1800	1.1840

Mean proportion survival = 0.85

Mean average weight (original organisms) mg = 0.5578

Survival % COEF = 12.38

Growth % COEF = 19.86

56	A	9	9	9	9	9	9	9	9	1.00		0.556	1.1570	1.1620
	B	8	8	8	8	8	8	8	7	0.88		0.537	1.1780	1.1823
	C	9	8	9	8	8	8	8	8	0.89		0.644	1.1732	1.1790
	D	8	8	8	8	8	8	8	8	1.00		0.512	1.1874	1.1915
	E	8	8	8	8	8	8	7	7	0.88		0.650	1.1749	1.1801

Mean proportion survival = 0.93

Mean average weight (original organisms) mg = 0.5800

Survival % COEF = 7.13

Growth % COEF = 10.91

75	A	8	8	8	8	8	7	7	6	0.75		0.575	1.1702	1.1748
	B	8	8	8	8	8	8	7	7	0.88		0.525	1.1744	1.1786
	C	8	8	8	8	8	8	7	7	0.88		0.600	1.1639	1.1687
	D	8	8	8	8	8	8	8	8	1.00		0.725	1.1673	1.1731
	E	8	8	8	8	8	8	7	7	0.88		0.575	1.1707	1.1753

Mean proportion survival = 0.88

Mean average weight (original organisms) mg = 0.6000

Survival % COEF = 10.10

Growth % COEF = 12.50

100	A	8	8	8	7	7	7	7	7	0.88		0.738	1.1672	1.1731
	B	8	8	8	8	8	8	8	8	1.00		0.650	1.1849	1.1901
	C	8	8	8	8	8	8	8	6	0.75		0.475	1.1714	1.1752
	D	8	8	8	8	8	7	7	6	0.75		0.562	1.1717	1.1762
	E	8	8	8	8	8	8	8	8	1.00		0.762	1.1777	1.1838

Mean proportion survival = 0.88

Mean average weight (original organisms) mg = 0.6375

Survival % COEF = 14.29

Growth % COEF = 18.86

Parameters for control acceptability:

- the mean proportion survival must be $\geq 80\%$
- the mean average weight must be $\geq 0.250\text{mg}$
- the mean average weight CV% must be $<40\%$

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

1 of 2

SAMPLE ID: Mountain Home

Report Number: 23-297-0390

Date test started: 10/24/23

DAY		1	2	3	4	5	6	7
INITIAL READINGS	pH CTRL	8.0	8.5	8.4	8.2	8.4	8.1	7.5
	Initial R							
	1	8.0	8.0	8.1	8.0	8.3	8.2	7.8
	2	7.9	7.9	8.1	8.0	8.2	8.0	7.8
	3	7.9	7.9	8.1	7.9	8.0	8.0	7.8
	4	7.9	7.8	8.1	7.9	7.9	7.9	7.8
	5	7.9	7.9	8.0	7.8	7.8	7.9	7.8
	DO CTRL	9.0	8.1	9.0	9.1	8.5	8.0	8.2
	Initial (mg/L) R							
	1	7.1	8.9	9.2	9.0	8.4	8.1	8.5
	2	7.2	9.0	9.1	9.1	8.3	8.0	8.2
	3	7.3	9.0	9.1	9.3	8.4	7.4	8.0
	4	7.3	9.2	9.3	9.3	8.4	7.4	8.2
	5	7.4	9.3	9.3	9.1	8.4	7.4	8.0
	Temp CTRL	24.1	23.5	23.7	23.9	24.2	24.4	24.3
	Initial (°C) R							
	1	24.2	25.3	24.0	24.0	24.4	24.5	24.1
	2	24.2	26.2	24.2	23.9	24.2	24.5	24.5
	3	24.1	27.2	24.4	23.6	24.2	24.4	24.4
	4	24.2	27.0	25.0	23.4	24.2	24.4	24.3
	5	24.2	28.0	25.3	23.5	24.2	24.4	24.1
ANALYST: <u>UK</u>		<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>
DATE: <u>10/24/23</u>		<u>10/25/23</u>	<u>10/26/23</u>	<u>10/27/23</u>	<u>10/28/23</u>	<u>10/29/23</u>	<u>10/30/23</u>	

CERIODAPHNIA DUBIA READINGS	pH - CD CTRL	8.1	8.7	8.5	8.5	8.4	8.2	
	After 24 hrs. R							
	1	8.5	8.7	8.5	8.4	8.4	8.4	
	2	8.1	8.7	8.5	8.4	8.5	8.4	
	3	8.1	8.7	8.5	8.5	8.5	8.4	
	4	8.3	8.7	8.6	8.6	8.5	8.5	
	5	8.1	8.8	8.6	8.6	8.6	8.5	
	DO - CD CTRL	8.8	9.5	10.7	8.6	8.6	8.5	
	After 24 hrs. R							
	1	8.9	9.5	10.7	8.6	8.4	9.0	
	2	9.0	9.8	10.7	8.7	8.6	9.1	
	3	9.0	9.8	10.6	8.8	8.7	9.1	
	4	9.0	9.9	10.6	8.8	8.7	9.0	
	5	9.2	9.9	10.5	8.8	8.6	9.1	
	Temp CTRL	25.0	25.2	24.8	24.6	24.6	25.1	
	After 24 hrs (°C) R							
	1	25.0	25.1	25.3	24.6	24.5	25.0	
	2	25.1	25.2	25.3	24.4	24.4	25.1	
	3	25.1	25.1	25.4	24.4	24.4	24.9	
	4	25.0	25.1	25.4	24.4	24.5	24.9	
	5	25.0	25.2	25.4	24.4	24.6	25.0	
ANALYST: <u>UK</u>		<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>	
DATE: <u>10/25/23</u>		<u>10/26/23</u>	<u>10/27/23</u>	<u>10/28/23</u>	<u>10/29/23</u>	<u>10/30/23</u>		

READINGS DATA SHEET FOR 7-DAY CHRONIC TESTING

SAMPLE ID: Mountain HomeReport Number: 23-297-0390Date test started: 10/24/23

DAY		1	2	3	4	5	6	7
FATHEAD MINNOW READINGS	pH - FH CTRL	7.10	7.6	7.7	7.7	7.4	8.0	7.8
	After 24 hrs. R							
	1	7.67	7.6	7.7	7.6	7.5	7.6	7.6
	2	7.7	7.6	7.8	7.7	7.6	7.6	7.6
	3	7.7	7.7	7.9	7.7	7.7	7.6	7.7
	4	7.8	7.9	7.9	7.8	7.7	7.6	7.7
	5	7.8	7.9	7.9	7.8	7.6	7.6	7.7
	DO - FH CTRL	6.6	7.1	7.4	7.8	8.0	7.7	7.5
	After 24 hrs. R							
	1	6.4	6.8	7.2	7.5	7.6	7.5	7.5
	2	6.2	6.6	7.2	7.3	7.2	7.3	7.4
	3	6.1	6.6	7.2	7.1	7.1	7.0	6.9
	4	6.0	6.5	7.1	7.0	6.9	7.0	6.9
	5	5.9	6.6	6.6	7.2	6.8	6.5	7.0
	Temp CTRL	25.0	24.9	25.1	24.7	24.6	24.8	24.6
	After 24 hrs (°C)R							
	1	24.8	25.0	25.1	24.8	24.7	24.9	24.7
	2	24.9	24.9	25.0	25.0	24.6	25.0	24.6
	3	24.9	25.0	24.9	24.8	24.4	25.0	24.6
	4	25.0	24.9	25.0	24.6	24.6	24.8	24.5
	5	24.9	24.9	25.1	24.7	24.5	24.8	24.7
	ANALYST:	BS	1m	1m	UR	UR	UR	UR
	DATE:	10/25/23	10/26/23	10/27/23	10/28/23	10/29/23	10/30/23	10/31/23

Conductivity (µS/cm)

INITIAL READINGS	Initial CTRL	186.2	190.3	189.2	190.2	186.7	187.4	192.0
	R							
	100%	736.4	756.3	785.7	749.6	773.0	774.0	764.7
	INITIAL:	UR	BS	1m	UR	UR	UR	1m
	DATE:	10/24/23	10/25/23	10/26/23	10/27/23	10/28/23	10/29/23	10/30/23
	Total Residual Chlorine DL = 0.02mg/L							
	Initial CTRL	40.02		40.02		40.02		
	R							
	100%	40.02		40.02		40.02		
	INITIAL:	UR		1m		UR		
	DATE:	10/24/23		10/26/23		10/28/23		
	DPD Cl2 Reagent	23-Reag- 2820		23-Reag- 2820		23-Reag- 2820		

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: 10/24/23 1236

ANALYST: UR

REPORT #: 23-297-0390

TEST END - DATE/TIME: 10/30/23 1338

ANALYST: Im

ORGANISM REF#: 23-REAG-0012

RANDOMIZING KEY #: 30

ANALYST: UR

CONC.	REPLICATE										INITIALS	DATE
1	DAY	1	2	3	4	5	6	7	8	9	10	
	1	0	0	0	0	0	0	0	0	0	0	BS
	2	0	0	0	0	0	0	0	0	0	0	Im
	3	0	0	0	0	0	0	1	0	0	0	UR
	4	5	1	4	0	0	6	2	0	1	4	UR
	5	8	5	6	8	6	6	6	8	6	5	UR
	6	16	19	15	14	18	1	15	16	18	3	Im
	7											
2	DAY	1	2	3	4	5	6	7	8	9	10	INITIALS
	1	0	0	0	0	0	0	0	0	0	0	BS
	2	0	0	0	0	0	0	0	0	0	0	Im
	3	0	1	0	0	2	0	2	0	0	0	UR
	4	6	3	7	2	1	4	1	1	1	2	UR
	5	14	8	9	11	8	8	9	9	5	2	UR
	6	17	16	16	0	24	17	20	15	13	11	Im
	7											
3	DAY	1	2	3	4	5	6	7	8	9	10	INITIALS
	1	0	0	0	0	0	0	0	0	0	0	BS
	2	0	0	0	0	0	0	0	0	0	0	Im
	3	0	0	2	0	4	0	4	2	2	2	UR
	4	0	2	1	6	0	0	0	1	0	0	UR
	5	10	6	8	11	5	11	14	12	9	11	UR
	6	3	14	20	18	23	0	X	19	21	22	Im
	7											
4	DAY	1	2	3	4	5	6	7	8	9	10	INITIALS
	1	0	0	0	0	0	0	0	0	0	0	BS
	2	0	0	0	0	0	0	0	0	0	0	Im
	3	0	0	3	0	5	3	3	1	1	0	UR
	4	6	2	2	0	0	1	0	3	1	0	UR
	5	7	10	12	4	7	4	5	4	7	9	UR
	6	3	20	15	16	21	19	19	15	20	16	Im
	7											
5	DAY	1	2	3	4	5	6	7	8	9	10	INITIALS
	1	0	0	0	0	0	0	0	0	0	0	BS
	2	0	0	0	0	0	0	0	0	0	0	Im
	3	1	1	3	0	4	6	2	2	3	3	UR
	4	6	4	2	2	0	0	2	0	0	4	UR
	5	12	11	8	11	8	9	8	11	6	7	UR
	6	19	16	14	17	13	14	13	14	14	16	Im
	7											
6	DAY	1	2	3	4	5	6	7	8	9	10	INITIALS
	1	0	0	0	0	0	0	0	0	0	0	BS
	2	0	0	0	0	0	0	0	0	0	0	Im
	3	0	0	2	4	5	0	2	0	0	0	UR
	4	6	0	0	1	2	0	2	3	1	0	UR
	5	12	10	11	6	5	15	10	11	8	2	UR
	6	17	18	22	8	2	13	18	14	11	19	Im
	7											

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

SAMPLE ID: Mountain Home REPORT # 23-297-0390

DATE START: 10/24/23 DATE END: 10/30/23

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	10/24/23	UR	0	23-REAG-5784	23-REAG-5676
	10/25/23	PS	1	23-REAG-5784	23-REAG-5676
	10/26/23	Im	2	23-REAG-5784	23-REAG-5676
	10/27/23	UR	3	23-REAG-5784	23-REAG-5676
	10/28/23	UR	4	23-REAG-5784	23-REAG-5676
	10/29/23	UR	5	23-REAG-5784	23-REAG-5676
			6	23-REAG-	23-REAG-

	TEST DAY	CONTROL WATER	SAMPLE LAB ID
(Comp. 1)	0	23-REAG-5933	L91810
	1	23-REAG-5934	L91810
(Comp. 2)	2	23-REAG-5988	L91811
	3	23-REAG-6009	L91811
(Comp. 3)	4	23-REAG-6010	L91812
	5	23-REAG-6048	L91812
	6	23-REAG-	L91812

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: _____

WAYPOINT ANALYTICAL, LLC.
CERIODAPHNIA RANDOMIZATION TRANSLATION

RANDOMIZING KEY #: 30 REPORT # 23-297-0390
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	4	6	4	6	1	4	5	4	5

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

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

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

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

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

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

SAMPLE ID: Mountain Home REPORT #: 23-297-0390

TEST START - DATE/TIME: 10/24/23 1228 ANALYST: lm

TEST END - DATE/TIME : 10/31/23 1346 ANALYST: UR

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

CONC.		REP NO.	NO. OF SURVIVORS								REMARKS
			DAY								
			0	1	2	3	4	5	6	7	
1	56	A	8	9	9	9	9	9	9	9	
	42	B	8	9	9	9	9	9	9	8	
	C	C	8	9	9	9	9	9	9	9	
	99	D	8	8	8	7	7	7	7	7	
	31	E	8	9	8	9	9	9	9	8	
2	31	A	8	8	8	8	8	8	8	8	
	74	B	8	8	8	8	8	7	7	6	
	99	C	8	8	8	8	8	8	8	8	
	31	D	8	8	8	8	8	8	8	8	
	56	E	8	8	8	8	8	8	8	7	
3	74	A	8	8	8	8	8	8	7	7	
	C	B	8	8	8	8	8	8	8	8	
	74	C	8	8	8	8	8	8	7	7	
	42	D	8	8	8	7	7	6	6	6	
	99	E	8	8	8	8	8	8	8	6	
4	74	A	8	8	8	8	8	8	8	8	
	56	B	8	9	9	9	8	8	8	8	
	C	C	8	8	8	8	8	8	8	8	
	31	D	8	8	8	8	8	8	8	8	
	C	E	8	9	9	9	9	9	9	9	
5	56	A	8	8	8	8	8	8	8	8	
	42	B	8	8	8	8	8	8	8	7	
	99	C	8	8	8	8	8	7	7	6	
	42	D	8	8	8	8	8	7	7	6	
	99	E	8	8	8	8	8	8	8	8	
6	C	A	8	7	7	7	7	7	7	7	
	31	B	8	9	9	9	9	9	8	7	
	42	C	8	8	8	8	8	8	8	8	
	56	D	8	8	8	8	8	8	7	7	
	74	E	8	8	8	8	8	8	7	7	
INITIALS			lm	RS	lm	UR	UR	UR	lm	UR	
DATE			10/24/23	10/25/23	10/26/23	10/27/23	10/28/23	10/29/23	10/30/23	10/31/23	

ORGANISM REF#: 23-REAG-5941

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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 # 23-297-0390

DATE START: 10/24/23 DATE END: 10/31/23

FATHEAD MINNOW REFERENCE # 23-REAG-5941

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	CONTROL WATER	BRINE SHRIMP	SAMPLE LAB ID:	
CHRONIC	10/24/23	UR	0	23-REAG- 5933	23-REAG- 5890	L91810	(Comp. 1)
	10/25/23	BS	1	23-REAG- 5934	23-REAG- 5914	L91810	
	10/26/23	Im	2	23-REAG- 5988	23-REAG- 5965	L91811	(Comp. 2)
	10/27/23	UR	3	23-REAG- 6009	23-REAG- 5990	L91811	
	10/28/23	UR	4	23-REAG- 6010	23-REAG- 6011	L91812	(Comp. 3)
	10/29/23	UR	5	23-REAG- 6048	23-REAG- 6047	L91812	
	10/30/23	Im	6	23-REAG- 6056	23-REAG- 6052	L91812	

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 #: 23-297-0390INITIAL WEIGHT DATE/TIME: 10/31/23 1202ANALYST: URDATE/TIME IN OVEN: 10/31/23 1639 TEMP (°C): 78ANALYST: URDATE/TIME OUT OVEN: 11/1/23 810 TEMP (°C): 76ANALYST: lmFINAL WEIGHT DATE/TIME: 11/2/23 1543ANALYST: lm

Oven ID : 03

Thermometer ID: T49

Balance ID: B12

Temp Range : 50 - 105 °C

	REP ID	Pan ID	INT WEIGHT (g)	FINAL WEIGHT (g)	# LARV	REMARKS
1	A	1D	1.1570	1.1620	9	
	B	2D	1.1568	1.1603	8	
	C	3D	1.1644	1.1679	9	
	D	4D	1.1672	1.1731	7	
	E	5D	1.1779	1.1820	8	
2	A	6D	1.1808	1.1869	8	
	B	7D	1.1702	1.1748	6	
	C	8D	1.1849	1.1901	8	
	D	9D	1.1711	1.1756	8	
	E	10D	1.1780	1.1823	7	
3	A	11D	1.1744	1.1786	7	
	B	12D	1.1742	1.1786	8	
	C	13D	1.1639	1.1687	7	
	D	14D	1.1583	1.1634	6	
	E	15D	1.1714	1.1752	6	
4	A	16D	1.1673	1.1731	8	
	B	18D 17D	1.1732	1.1790	8	
	C	19D 18D	1.1815	1.1870	8	
	D	20D 19D	1.1708	1.1765	8	
	E	21D 20D	1.1661	1.1707	9	
5	A	22D 21D	1.1874	1.1915	8	
	B	23D 22D	1.1502	1.1553	7	
	C	24D 23D	1.1717	1.1762	6	
	D	25D 24D	1.1856	1.1906	6	
	E	26D 25D	1.1777	1.1838	8	
6	A	27D 26D	1.1725	1.1768	7	
	B	28D 27D	1.1576	1.1617	7	
	C	28D	1.1800	1.1840	8	
	D	29D	1.1749	1.1801	7	
	E	30D	1.1707	1.1753	7	

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Pans must be in the oven a minimum of 6 hours. Immediately after removal from the oven the pans 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 032223