



12/18/2018

Blytheville Sewer Department
Mr. Thomas Jones
P.O. Box 1784
Blytheville, AR 72316

Ref: Analytical Testing
Report Number: 18-331-0190
Project: Bioassay-West WWTP QTR 4

Dear Mr. Thomas Jones:

This WET (Whole Effluent Toxicity) test demonstrated significant toxicity that did not comply with the WET limit in your permit for the species, *Ceriodaphnia dubia*. Immediately follow all instructions in your permit for additional monitoring in response to non-compliance with a WET limit. Additional monitoring will be used to confirm the continuing presence of toxicity in your effluent and the need for further regulatory requirements. Passing follow-up tests will regain compliance with your WET limit.

Results: *Ceriodaphnia dubia* NOEL < 32 % CV = 58.56 %
 Fathead Minnow NOEL = 100 % CV = 23.80 %

Permit Limit: Critical Dilution = 100%

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 (v.1.9.1.4). CETIS created by Tidepool Scientific Software

Respectfully,

Blake Andres
Lab Supervisor

CETIS Test Evaluation Report

Report Date: 18 Dec-18 15:30 (1 of 1)
Test Code: 18-331-0190 cd | 05-5805-8349

Facility: Blytheville Sewer - West Plant	Test Name: Ceriodaphnia 7-d Survival and Reproduction Test
Sample Site:	Organism: Ceriodaphnia dubia (Water Flea)
Sample Code: 18-331-0190	Protocol: EPA/821/R-02-013 (2002)
Sample Date: 26 Nov-18 08:30	Start Date: 27 Nov-18 14:25
Sample Age: 30h (1.3 °C)	End Date: 04 Dec-18 14:55
Project: WET Quarterly Compliance Test (4Q)	Duration: 7d 1h Organism Age: <24
Permittee: Blytheville Sewer Department	Laboratory: Waypoint Analytical Tennessee , LLC.
Address: PO Box 1784 Blytheville, AR 72316	Address: 2790 Whitten Road Memphis, TN 38133
Contact: Mr. Thomas Jones	Contact: Ms. Blake Andres, Lab Supervisor
Phone: 870-763-4961	Phone: 901-271-5200, 901-213-2440(fax)
Email: tdjblyww@gmail.com	Email: sandres@waypointanalytical.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
7d Survival Rate	NOEL/LOEL	100/>100	98.99	Passes IWC	Fisher Exact/Bonferroni-Holm Test
Reproduction	NOEL/LOEL	<32/32	98.99	Fails IWC	Wilcoxon/Bonferroni Adj Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	15.33	15	>>	Yes	Passes Acceptability Criteria

Reproduction Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	9	15.33	13.09	17.57	0	20	2.034	6.103	39.80%	0.0%
32		10	9.3	8.127	10.47	5	14	1.012	3.199	34.40%	39.35%
42		10	6.6	4.852	8.348	0	12	1.507	4.766	72.21%	56.96%
56		10	7.3	6.384	8.216	3	12	0.7895	2.497	34.20%	52.39%
75		10	5	4.022	5.978	3	12	0.8433	2.667	53.33%	67.39%
100		10	3.2	2.513	3.887	0	6	0.5925	1.874	58.56%	79.13%

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1	1	1	1	1	0	0	0.00%	0.0%
32		10	1	1	1	1	1	0	0	0.00%	0.0%
42		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	10.0%
56		10	1	1	1	1	1	0	0	0.00%	0.0%
75		10	1	1	1	1	1	0	0	0.00%	0.0%
100		10	0.7	0.5228	0.8772	0	1	0.1528	0.483	69.01%	30.0%

CETIS Summary Report

Report Date: 18 Dec-18 15:30 (p 1 of 2)
 Test Code: 18-331-0190 cd | 05-5805-8349

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 01-1875-7936	Test Type: Reproduction-Survival (7d)	Analyst: Ava Marie Davis
Start Date: 27 Nov-18 14:25	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 04 Dec-18 14:55	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 1h	Source: In-House Culture	Age: <24

Sample ID: 20-3943-0851	Code: 18-331-0190	Client: Blytheville Sewer Department
Sample Date: 26 Nov-18 08:30	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)
Receipt Date: 26 Nov-18 11:30	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 30h (1.3 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	18-331-0190	27 Nov-18 09:05	28 Nov-18 11:30	29 Nov-18 00:00	1.3
2	18-331-0190	29 Nov-18 09:00	30 Nov-18 13:15	01 Dec-18 00:00	1.8

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
19-0816-0203	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	> 100	n/a	1	n/a
08-4421-4530	Reproduction	Wilcoxon/Bonferroni Adj Test	< 32	32	n/a	>3.125	27.0%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
19-0816-0203	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
08-4421-4530	Reproduction	Control Resp	15.33	15	>>	Yes	Passes Acceptability Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
32		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
42		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
56		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		10	0.7000	0.3544	1.0000	0.0000	1.0000	0.1528	0.4830	69.01%	30.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	9	15.33	10.64	20.02	0	20	2.034	6.103	39.80%	0.00%
32		10	9.3	7.012	11.59	5	14	1.012	3.199	34.40%	39.35%
42		10	6.6	3.191	10.01	0	12	1.507	4.766	72.21%	56.96%
56		10	7.3	5.514	9.086	3	12	0.7895	2.497	34.20%	52.39%
75		10	5	3.092	6.908	3	12	0.8433	2.667	53.33%	67.39%
100		10	3.2	1.86	4.54	0	6	0.5925	1.874	58.56%	79.13%

CETIS Summary Report

Report Date: 18 Dec-18 15:30 (p 2 of 2)
Test Code: 18-331-0190 cd | 05-5805-8349

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
42		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000
56		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
75		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	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000	1.0000

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	19	15	17	15	0	15		20	17	20
32		13	6	14	12	5	10	10	9	9	5
42		7	12	0	10	11	8	9	9	0	0
56		7	9	12	8	7	7	8	4	3	8
75		3	6	4	5	3	5	5	4	3	12
100		0	3	1	3	4	3	3	3	6	6

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
32		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
42		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1
56		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
75		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	0/1	1/1	0/1	1/1	0/1	1/1	1/1

CETIS Measurement Report

Report Date: 18 Dec-18 15:30 (p 1 of 3)
Test Code: 18-331-0190 cd | 05-5805-8349

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 01-1875-7936	Test Type: Reproduction-Survival (7d)	Analyst: Ava Marie Davis
Start Date: 27 Nov-18 14:25	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 04 Dec-18 14:55	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 1h	Source: In-House Culture	Age: <24

Sample ID: 20-3943-0851	Code: 18-331-0190	Client: Blytheville Sewer Department
Sample Date: 26 Nov-18 08:30	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)
Receipt Date: 26 Nov-18 11:30	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 30h (1.3 °C)	Station:	

CETIS Measurement Report

Report Date: 18 Dec-18 15:30 (p 2 of 3)
Test Code: 18-331-0190 cd | 05-5805-8349

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
32								
42								
56								
75								
100		0	0	0	0	0	0	0

Conductivity-µS/cm

Conc-%	Code	1	2	3	4	5	6	7
0	L	156.6	144.7	162.5	163.9	159.9	160	162
32								
42								
56								
75								
100		400	379	427	417	411	409	414

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.9	8.5	7.7	8.2	8.8	7.9	8.8
32		8.6	8.2	6.1	8.2	8.6	7.9	8.8
42		8.6	8.3	6.1	8.2	8.5	8.1	7.5
56		8.5	8.3	5.9	8.2	8.4	8.1	5.7
75		8.5	8.7	6.4	7.9	8.2	8	5.7
100		8.4	8.5	6.3	7.9	8.4	8	5.8

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.4	7.8	8.9	8.2	8	9.5	8.3
32		8.4	8.1	8.9	8.2	8.2	9.5	8.4
42		8.5	8.2	8.8	8.3	8.3	9.6	8.4
56		8.9	8.2	8.9	8.3	8.4	9.5	8.3
75		8.8	8.1	8.7	8.3	8.6	9.5	8.4
100		8.6	8.2	8.5	8.2	8.7	9.3	8.3

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.2	7.8	8	7.8	8	8	8
32		8.3	8	7.7	7.9	8.1	8	7.7
42		8.3	8	7.7	8	8.1	8	7.7
56		8.3	8.1	7.7	8	8.1	8	7.6
75		8.3	8.1	7.7	8	8.1	8	7.6
100		8.3	8.2	7.7	8	8.1	8	7.6

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.9	8	7.8	7.7	7.9	8.1	7.7
32		7.8	8	7.7	7.7	7.8	7.9	7.7
42		7.8	7.9	7.7	7.7	7.7	7.9	7.6
56		7.8	7.9	7.7	7.6	7.7	7.8	7.6
75		7.7	7.9	7.7	7.6	7.6	7.7	7.6
100		7.7	7.8	7.6	7.5	7.6	7.6	7.5

CETIS Measurement Report

Report Date: 18 Dec-18 15:30 (p 3 of 3)
Test Code: 18-331-0190 cd | 05-5805-8349

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Final Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	25	25	25	25	25	25	25
32		25	25	25	25	25	25	25
42		25	25	25	25	25	25	25
56		25	25	25	25	25	25	25
75		25	25	25	25	25	25	25
100		25	25	25	25	25	25	25

Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	25	25	25	25	25	25	25
32		25	25	25	25	25	25	25
42		25	25	25	25	25	25	25
56		25	25	25	25	25	25	25
75		25	25	25	25	25	25	25
100		25	25	25	25	25	25	25

CETIS Test Evaluation Report

Report Date: 18 Dec-18 15:30 (1 of 1)
Test Code: 18-331-0190 fh | 16-6691-2636

Facility: Blytheville Sewer - West Plant	Test Name: Fathead Minnow 7-d Larval Survival and Growth Test
Sample Site:	Organism: Pimephales promelas (Fathead Minnow)
Sample Code: 18-331-0190	Protocol: EPA/821/R-02-013 (2002)
Sample Date: 26 Nov-18 08:30	Start Date: 27 Nov-18 13:14
Sample Age: 29h (1.3 °C)	End Date: 04 Dec-18 12:21
Project: WET Quarterly Compliance Test (4Q)	Duration: 6d 23h Organism Age: <24
Permittee: Blytheville Sewer Department	Laboratory: Waypoint Analytical Tennessee , LLC.
Address: PO Box 1784 Blytheville, AR 72316	Address: 2790 Whitten Road Memphis, TN 38133
Contact: Mr. Thomas Jones	Contact: Ms. Blake Andres, Lab Supervisor
Phone: 870-763-4961	Phone: 901-271-5200, 901-213-2440(fax)
Email: tdjblyww@gmail.com	Email: sandres@waypointanalytical.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
7d Survival Rate	NOEL/LOEL	100/>100	98.99	Passes IWC	Dunnett Multiple Comparison Test
Mean Dry Weight-mg	NOEL/LOEL	100/>100	98.99	Passes IWC	Dunnett Multiple Comparison Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
7d Survival Rate	Control Resp	0.825	0.8	>>	Yes	Passes Acceptability Criteria
Mean Dry Weight-mg	Control Resp	0.28	0.25	>>	Yes	Passes Acceptability Criteria

Mean Dry Weight-mg Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.28	0.2579	0.3021	0.225	0.3625	0.02698	0.06034	21.55%	0.0%
32		5	0.61	0.5902	0.6298	0.5625	0.7	0.02417	0.05406	8.86%	-117.9%
42		5	0.585	0.5418	0.6282	0.5	0.7625	0.05265	0.1177	20.12%	-108.9%
56		5	0.5125	0.4424	0.5826	0.225	0.75	0.08551	0.1912	37.31%	-83.04%
75		5	0.525	0.5042	0.5458	0.4625	0.6	0.02531	0.0566	10.78%	-87.5%
100		5	0.56	0.5111	0.6089	0.3625	0.7375	0.05961	0.1333	23.80%	-100.0%

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.825	0.7635	0.8865	0.625	1	0.075	0.1677	20.33%	0.0%
32		5	0.875	0.8426	0.9074	0.75	1	0.03953	0.08839	10.10%	-6.06%
42		5	0.875	0.8291	0.9209	0.75	1	0.0559	0.125	14.29%	-6.06%
56		5	0.75	0.6527	0.8473	0.375	1	0.1186	0.2652	35.36%	9.09%
75		5	0.8	0.7749	0.8251	0.75	0.875	0.03062	0.06847	8.56%	3.03%
100		5	0.85	0.7902	0.9098	0.625	1	0.07289	0.163	19.17%	-3.03%

CETIS Summary Report

Report Date: 18 Dec-18 15:31 (p 1 of 2)
 Test Code: 18-331-0190 fh | 16-6691-2636

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 21-3854-8199	Test Type: Growth-Survival (7d)	Analyst: Melissa Renee Alfonso
Start Date: 27 Nov-18 13:14	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 04 Dec-18 12:21	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 23h	Source: Aquatic Biosystems, CO	Age: <24

Sample ID: 20-3943-0851	Code: 18-331-0190	Client: Blytheville Sewer Department
Sample Date: 26 Nov-18 08:30	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)
Receipt Date: 26 Nov-18 11:30	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 29h (1.3 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	18-331-0190	27 Nov-18 09:05	28 Nov-18 11:30	29 Nov-18 00:00	1.3
2	18-331-0190	29 Nov-18 09:00	30 Nov-18 13:15	01 Dec-18 00:00	1.8

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
16-9990-9862	7d Survival Rate	Dunnett Multiple Comparison Test	100	> 100	n/a	1	31.0%
06-6336-8652	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	100	> 100	n/a	1	60.8%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
16-9990-9862	7d Survival Rate	Control Resp	0.825	0.8	>>	Yes	Passes Acceptability Criteria
06-6336-8652	Mean Dry Weight-mg	Control Resp	0.28	0.25	>>	Yes	Passes Acceptability Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.8250	0.6168	1.0000	0.6250	1.0000	0.0750	0.1677	20.33%	0.00%
32		5	0.8750	0.7653	0.9847	0.7500	1.0000	0.0395	0.0884	10.10%	-6.06%
42		5	0.8750	0.7198	1.0000	0.7500	1.0000	0.0559	0.1250	14.29%	-6.06%
56		5	0.7500	0.4208	1.0000	0.3750	1.0000	0.1186	0.2652	35.36%	9.09%
75		5	0.8000	0.7150	0.8850	0.7500	0.8750	0.0306	0.0685	8.56%	3.03%
100		5	0.8500	0.6476	1.0000	0.6250	1.0000	0.0729	0.1630	19.17%	-3.03%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.28	0.2051	0.3549	0.225	0.3625	0.02698	0.06034	21.55%	0.00%
32		5	0.61	0.5429	0.6771	0.5625	0.7	0.02417	0.05406	8.86%	-117.86%
42		5	0.585	0.4388	0.7312	0.5	0.7625	0.05265	0.1177	20.12%	-108.93%
56		5	0.5125	0.2751	0.7499	0.225	0.75	0.08551	0.1912	37.31%	-83.04%
75		5	0.525	0.4547	0.5953	0.4625	0.6	0.02531	0.0566	10.78%	-87.50%
100		5	0.56	0.3945	0.7255	0.3625	0.7375	0.05961	0.1333	23.80%	-100.00%

CETIS Summary Report

Report Date: 18 Dec-18 15:31 (p 2 of 2)
Test Code: 18-331-0190 fh | 16-6691-2636

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.6250	0.7500	1.0000	1.0000	0.7500
32		0.8750	1.0000	0.8750	0.7500	0.8750
42		1.0000	1.0000	0.8750	0.7500	0.7500
56		0.7500	0.3750	0.6250	1.0000	1.0000
75		0.7500	0.8750	0.8750	0.7500	0.7500
100		0.7500	0.8750	0.6250	1.0000	1.0000

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.2375	0.225	0.3625	0.25	0.325
32		0.6125	0.575	0.7	0.5625	0.6
42		0.7625	0.5125	0.5	0.5	0.65
56		0.525	0.225	0.475	0.5875	0.75
75		0.4625	0.55	0.6	0.475	0.5375
100		0.55	0.575	0.3625	0.575	0.7375

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	5/8	6/8	8/8	8/8	6/8
32		7/8	8/8	7/8	6/8	7/8
42		8/8	8/8	7/8	6/8	6/8
56		6/8	3/8	5/8	8/8	8/8
75		6/8	7/8	7/8	6/8	6/8
100		6/8	7/8	5/8	8/8	8/8

CETIS Measurement Report

Report Date: 18 Dec-18 15:31 (p 1 of 3)
Test Code: 18-331-0190 fh | 16-6691-2636

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 21-3854-8199	Test Type: Growth-Survival (7d)	Analyst: Melissa Renee Alfonso
Start Date: 27 Nov-18 13:14	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 04 Dec-18 12:21	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 23h	Source: Aquatic Biosystems, CO	Age: <24

Sample ID: 20-3943-0851	Code: 18-331-0190	Client: Blytheville Sewer Department
Sample Date: 26 Nov-18 08:30	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)
Receipt Date: 26 Nov-18 11:30	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 29h (1.3 °C)	Station:	

CETIS Measurement Report

Report Date: 18 Dec-18 15:31 (p 2 of 3)
Test Code: 18-331-0190 fh | 16-6691-2636

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
32								
42								
56								
75								
100		0	0	0	0	0	0	0

Conductivity-µS/cm

Conc-%	Code	1	2	3	4	5	6	7
0	L	156.6	144.7	162.5	163.9	159.9	160	162
32								
42								
56								
75								
100		400	379	427	417	411	409	414

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	6	6.4	6.4	5.9	6.8	5.4	6.2
32		5.2	4.8	5.8	4.8	6.4	5.4	5.5
42		5.3	4.8	5.3	5.6	6.1	6.9	6.3
56		5.7	4.3	5.3	5	6.1	5.5	7
75		5.7	4.5	5.3	5	6.2	6.4	5.6
100		4.8	4.7	4.7	5	6.3	5.5	5.7

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.4	7.8	8.9	8.2	8	9.5	8.3
32		8.4	8.1	8.9	8.2	8.2	9.5	8.4
42		8.5	8.2	8.8	8.3	8.3	9.6	8.4
56		8.9	8.2	8.9	8.3	8.4	9.5	8.3
75		8.8	8.1	8.7	8.3	8.6	9.5	8.4
100		8.6	8.2	8.5	8.2	8.7	9.3	8.3

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.7	7.6	7.7	7.5	7.6	7.5	7.2
32		7.6	7.5	7.6	7.5	7.6	7.5	7.2
42		7.6	7.4	7.5	7.5	7.6	7.5	7.3
56		7.6	7.4	7.6	7.6	7.6	7.4	7.3
75		7.7	7.4	7.6	7.6	7.6	7.6	7.2
100		7.6	7.5	7.6	7.6	7.6	7.6	7.3

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.9	8	7.8	7.7	7.9	8.1	7.7
32		7.8	8	7.7	7.7	7.8	7.9	7.7
42		7.8	7.9	7.7	7.7	7.7	7.9	7.6
56		7.8	7.9	7.7	7.6	7.7	7.8	7.6
75		7.7	7.9	7.7	7.6	7.6	7.7	7.6
100		7.7	7.8	7.6	7.5	7.6	7.6	7.5

CETIS Measurement Report

Report Date: 18 Dec-18 15:31 (p 3 of 3)
Test Code: 18-331-0190 fh | 16-6691-2636

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Final Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	25	25	25	25	25	25	25
32		25	25	25	25	25	25	25
42		25	25	25	25	25	25	25
56		25	25	25	25	25	25	25
75		25	25	25	25	25	25	25
100		25	25	25	25	25	25	25

Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	25	25	25	25	25	25	25
32		25	25	25	25	25	25	25
42		25	25	25	25	25	25	25
56		25	25	25	25	25	25	25
75		25	25	25	25	25	25	25
100		25	25	25	25	25	25	25

Additional Toxicity Test Information

1. Methods/Instrumentation used in chemical analysis:
 - Dissolved oxygen, DM 4: (SM 4500-O G-2011)
 - pH, PM 1: (SM 4500-H + B-2011)
 - Temperature, PM 1: (SM 2550 B-2011)
 - Conductivity, C 1: (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
 - Temperature: Average: 25 °C Range: 25± 1°C
 - Incubator ID: BIO Thermometer ID: 120554
 - Light Cycle: 16 hours light/ 8 hours dark
 - Light intensity: 50-100 foot-candles, average
 - Control Water: Dilute mineral water made with 20 % Perrier in Nanopure
 - Dilution Water: Laboratory control water
 - 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 6150834
 - Sodium Chloride is used as the reference toxicity chemical for invertebrate species
 - Current chemical ID: CS6152160
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

03316
 Blytheville Sewer Department
 Mr. Gary Carr
 4834 County Rd. 639
 Blytheville , AR 72315

Project Bioassay - West WWTP
 Information :

Report Date : 12/18/2018

Report Number : **18-331-0190**

REPORT OF ANALYSIS

Received : 11/27/2018

Lab No : **92040**
 Sample ID : **Outfall 001 - Composite 1**

Matrix: **Aqueous**
 Sampled: **11/26/2018 8:30**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	108	mg/L	1	1	12/07/18 10:15	TKM	2320B-2011
Calcium	20.8	mg/L	0.500	1	12/04/18 21:34	BKN	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	72.0	mg/L	0.100	1	12/04/18 21:34		EPA-200.7
Magnesium	4.86	mg/L	0.100	1	12/04/18 21:34	BKN	EPA-200.7

Lab No : **92382**
 Sample ID : **Outfall 001 - Composite 2**

Matrix: **Aqueous**
 Sampled: **11/27/2018 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	110	mg/L	1	1	12/07/18 10:15	TKM	2320B-2011
Calcium	21.0	mg/L	0.500	1	12/04/18 21:50	BKN	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	73.0	mg/L	0.100	1	12/04/18 21:50		EPA-200.7
Magnesium	4.99	mg/L	0.100	1	12/04/18 21:50	BKN	EPA-200.7

Lab No : **93084**
 Sample ID : **Outfall 001 - Composite 3**

Matrix: **Aqueous**
 Sampled: **11/29/2018 9:05**


Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	93	mg/L	1	1	12/07/18 10:15	TKM	2320B-2011
Calcium	20.5	mg/L	0.500	1	12/04/18 21:55	BKN	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	70.7	mg/L	0.100	1	12/04/18 21:55		EPA-200.7
Magnesium	4.73	mg/L	0.100	1	12/04/18 21:55	BKN	EPA-200.7

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit



Kit ID:	0000105587
Initiated By:	Sydney Andres
Initiated Date:	10/23/2018
Project Comment	

CHAIN-OF-CUSTODY



18-331-0190
 03316
 11-27-2018
 11:48:32

Blytheville Sewer Department
 Bioassav - West WWTP

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Blytheville Sewer Department	03316	Mr. Thomas Jones	
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
Kit QTR 4 A - WEST Bioassay - 11/25-26/2018			
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
Blytheville Sewer - Bioassay	(870) 763-4961	cityofblytheville@att.net	

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
11-26-18	8:35 AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
11-26-18	8:35 AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
11-26-18	8:30 AM	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	Derrick Allen				
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
				11-26-18 10:00	Felangan	11/26/18 1000	
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
1.3			Felangan	11/26/18 1130	Felangan	11/26/18 1130	



2

Kit ID: 0000105588
Initiated By: Sydney Andres
Initiated Date: 10/23/2018
Project Comment

CHAIN-OF-CUSTODY

18-331-0190
 03316
 11-27-2018
 11:48:32

Blytheville Sewer Department
Bioassay - West WWTP

Company Name Blytheville Sewer Department	Company Number 03316	Client Project Manager/Contact MR. GARY CARR Mr. Thomas Jones	Purchase Order Number
Site Name Kit QTR 4 B - WEST Bioassay - 11/27-28/2018	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 checked="" type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Blytheville Sewer - Bioassay	Project Manager Phone # (870) 763-4961	Project Manager Email cityofblytheville@att.net	Site/Facility ID #

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
11-27-18	9:00am	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
11-27-18	9:00am	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
11-27-18	9:05am	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 Y/N	Custody Seals Y/N	Lab Comments	<i>Derrick Allen</i>	Date	Time	Received by: (SIGNATURE)	Date	Time
			<i>Daniel Ah</i>	11-27-18	10:00	<i>Felungis</i>	11/28/18	945
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			<i>Felungis</i>	11/28/18	1130	<i>Felungis</i>	11/28/18	1130

Blank/Cooler Temp
 1.3 ^{CF} #
 45



3

CHAIN-OF-CUSTODY

Kit ID:	0000105589
Initiated By:	Sydney Andres
Initiated Date:	10/23/2018
Project Comment	



Blytheville Sewer Department
 Bioassay - West WWTP / 11/26/18/11/28/18

18-331-0190
 03316
 11-27-2018
 11:48:32

Company Name Blytheville Sewer Department	Company Number 03316	Client Project Manager/Contact Mr. Thomas Jones	Purchase Order Number
Site Name Kit QTR 4 C - WEST Bioassay - 11/29-30/2018	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 checked="" type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Blytheville Sewer - Bioassay	Project Manager Phone # (870) 763-4961	Project Manager Email cityofblytheville@att.net	Site/Facility ID #

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
11-29-18	9:05AM	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
11-29-18	9:05AM	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
11-29-18	9:00AM	Outfall 001 - Composite 3	Aqueous	C	3	Plastic - Gallon	NONE	chronic CD/FH

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

1.8 39