

02/28/2019

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

Ref: Analytical Testing
Report Number: 19-043-0191
Project: Bioassay-West WWTP QTR 1

Dear Mr. Thomas Jones:

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: *Ceriodaphnia dubia* NOEL = 100 % CV = 38.80 %
Fathead Minnow NOEL = 100 % CV = 20.20 %

Permit Limit: Critical Dilution = 100%
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 (v.1.9.1.4). CETIS created by Tidepool Scientific Software

Respectfully,



Blake Andres
Lab Supervisor

CETIS Test Evaluation Report

Report Date: 28 Feb-19 15:13 (1 of 1)
Test Code: 19-043-0191 cd | 19-8830-0583

Facility: Blytheville Sewer - West Plant	Test Name: Ceriodaphnia 7-d Survival and Reproduction Test
Sample Site:	Organism: Ceriodaphnia dubia (Water Flea)
Sample Code: 19-043-0191	Protocol: EPA/821/R-02-013 (2002)
Sample Date: 11 Feb-19 08:00	Start Date: 12 Feb-19 15:10
Sample Age: 31h (1 °C)	End Date: 19 Feb-19 15:35
Project: WET Quarterly Compliance Test (1Q)	Duration: 7d 0h 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	100/>100	98.99	Passes IWC	Steel Many-One Rank Sum Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
7d Survival Rate	Control Resp	0.8	0.8	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	15.1	15	>>	Yes	Passes Acceptability Criteria

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	0.8	0.6453	0.9547	0	1	0.1333	0.4216	52.70%	0.0%
32		10	1	1	1	1	1	0	0	0.00%	-25.0%
42		10	0.8	0.6453	0.9547	0	1	0.1333	0.4216	52.70%	0.0%
56		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	-12.5%
75		10	1	1	1	1	1	0	0	0.00%	-25.0%
100		10	1	1	1	1	1	0	0	0.00%	-25.0%

Reproduction Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	15.1	12.95	17.25	3	20	1.853	5.859	38.80%	0.0%
32		10	27.9	25.06	30.74	18	39	2.452	7.752	27.79%	-84.77%
42		10	25.4	21.31	29.49	3	35	3.522	11.14	43.85%	-68.21%
56		10	26.2	23.72	28.68	13	37	2.139	6.763	25.81%	-73.51%
75		10	28.2	24.84	31.56	13	40	2.898	9.163	32.49%	-86.75%
100		10	30.7	28.94	32.46	18	36	1.521	4.809	15.66%	-103.3%

CETIS Summary Report

Report Date: 28 Feb-19 15:13 (p 1 of 2)
 Test Code: 19-043-0191 cd | 19-8830-0583

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 21-1137-1007	Test Type: Reproduction-Survival (7d)	Analyst: Ivey Elizabeth Wilkinson
Start Date: 12 Feb-19 15:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 19 Feb-19 15:35	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: Aquatic Biosystems, CO	Age: <24
Sample ID: 08-8263-1348	Code: 19-043-0191	Client: Blytheville Sewer Department
Sample Date: 11 Feb-19 08:00	Material: POTW Effluent	Project: WET Quarterly Compliance Test (1Q)
Receipt Date: 12 Feb-19 13:00	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 31h (1 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	19-043-0191	12 Feb-19 08:00	12 Feb-19 13:00	14 Feb-19 00:00	1.1
2	19-043-0191	13 Feb-19 07:30	13 Feb-19 13:15	16 Feb-19 00:00	1.9

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
11-8642-0391	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	> 100	n/a	1	n/a
21-0886-9502	Reproduction	Steel Many-One Rank Sum Test	100	> 100	n/a	1	53.3%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
11-8642-0391	7d Survival Rate	Control Resp	0.8	0.8	>>	Yes	Passes Acceptability Criteria
21-0886-9502	Reproduction	Control Resp	15.1	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	0.8000	0.4984	1.0000	0.0000	1.0000	0.1333	0.4216	52.70%	0.00%
32		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-25.00%
42		10	0.8000	0.4984	1.0000	0.0000	1.0000	0.1333	0.4216	52.70%	0.00%
56		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	-12.50%
75		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-25.00%
100		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-25.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	15.1	10.91	19.29	3	20	1.853	5.859	38.80%	0.00%
32		10	27.9	22.35	33.45	18	39	2.452	7.752	27.79%	-84.77%
42		10	25.4	17.43	33.37	3	35	3.522	11.14	43.85%	-68.21%
56		10	26.2	21.36	31.04	13	37	2.139	6.763	25.81%	-73.51%
75		10	28.2	21.65	34.75	13	40	2.898	9.163	32.49%	-86.75%
100		10	30.7	27.26	34.14	18	36	1.521	4.809	15.66%	-103.31%

CETIS Summary Report

Report Date: 28 Feb-19 15:13 (p 2 of 2)
Test Code: 19-043-0191 cd | 19-8830-0583

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	0.0000	1.0000	1.0000	0.0000	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	0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
56		1.0000	1.0000	1.0000	1.0000	0.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	14	7	15	18	3	20	19	20	20	15
32		28	31	33	36	24	33	18	39	19	18
42		35	32	26	12	33	30	33	3	34	16
56		20	29	22	31	13	25	29	37	25	31
75		14	35	33	38	28	26	40	30	25	13
100		30	18	30	32	33	33	33	31	36	31

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	0/1	1/1	1/1	0/1	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	0/1	1/1	1/1	1/1	0/1	1/1	1/1
56		1/1	1/1	1/1	1/1	0/1	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	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Measurement Report

Report Date: 28 Feb-19 15:13 (p 1 of 3)
Test Code: 19-043-0191 cd | 19-8830-0583

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 21-1137-1007	Test Type: Reproduction-Survival (7d)	Analyst: Ivey Elizabeth Wilkinson
Start Date: 12 Feb-19 15:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 19 Feb-19 15:35	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 0h	Source: Aquatic Biosystems, CO	Age: <24

Sample ID: 08-8263-1348	Code: 19-043-0191	Client: Blytheville Sewer Department
Sample Date: 11 Feb-19 08:00	Material: POTW Effluent	Project: WET Quarterly Compliance Test (1Q)
Receipt Date: 12 Feb-19 13:00	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 31h (1 °C)	Station:	

CETIS Measurement Report

Report Date: 28 Feb-19 15:13 (p 2 of 3)
Test Code: 19-043-0191 cd | 19-8830-0583

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	163.2	149.1	157.3	157	164.7	159.2	160.9
32								
42								
56								
75								
100		226	272	154.4	155.7	172.9	201	354

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	9.6	8.9	9.7	8.9	8.8	8	8.8
32		9.3	8.9	9.5	9	8.8	8.3	9
42		9.3	8.9	9.4	9.1	8.9	8.4	9
56		9.2	8.7	9.3	9.2	9	8.5	9
75		9.2	8.5	9.2	9.3	9.1	8.4	9.1
100		9.2	8.5	9.1	9.3	9.1	8.3	9.1

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.6	8.7	8.9	8.8	8.7	8.8	8.3
32		8.8	8.9	8.9	8.9	8.8	8.8	8.3
42		8.9	9	8.9	8.7	8.8	8.7	8.4
56		8.9	9.1	8.9	8.6	8.7	8.7	8.4
75		9	9.2	9	8.5	8.6	8.6	8.3
100		9	9.3	9	8.5	8.6	8.6	8.2

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.8	8	8	8	8	7.4	7.6
32		7.7	7.9	8	8	7.9	7.6	7.6
42		7.7	8	8	7.9	7.9	7.6	7.7
56		7.8	8	8	7.9	8	7.7	7.7
75		7.8	8	8	7.9	8.1	7.8	7.7
100		7.8	8	8	7.9	8.1	7.8	7.8

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.6	7.5	7.9	7.8	7.6	7.9	7.7
32		7.4	7.3	7.7	7.6	7.5	7.9	7.5
42		7.3	7.3	7.6	7.5	7.5	7.8	7.4
56		7.3	7.3	7.5	7.3	7.4	7.8	7.4
75		7.3	7.2	7.4	7.3	7.4	7.7	7.4
100		7.1	7.2	7.3	7.1	7.4	7.6	7.2

CETIS Measurement Report

Report Date: 28 Feb-19 15:13 (p 3 of 3)
Test Code: 19-043-0191 cd | 19-8830-0583

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: 28 Feb-19 15:13 (1 of 1)
Test Code: 19-043-0191 fh | 10-1489-3051

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: 19-043-0191	Protocol: EPA/821/R-02-013 (2002)
Sample Date: 11 Feb-19 08:00	Start Date: 12 Feb-19 14:45
Sample Age: 31h (1 °C)	End Date: 19 Feb-19 10:55
Project: WET Quarterly Compliance Test (1Q)	Duration: 6d 20h 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	0.95	0.8	>>	Yes	Passes Acceptability Criteria
Mean Dry Weight-mg	Control Resp	0.6825	0.25	>>	Yes	Passes Acceptability Criteria

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.95	0.9249	0.9751	0.875	1	0.03062	0.06847	7.21%	0.0%
32		5	0.8	0.7305	0.8695	0.5	1	0.08478	0.1896	23.70%	15.79%
42		5	0.75	0.6938	0.8062	0.5	0.875	0.06847	0.1531	20.41%	21.05%
56		5	0.925	0.884	0.966	0.75	1	0.05	0.1118	12.09%	2.63%
75		5	0.75	0.6642	0.8358	0.5	1	0.1046	0.2339	31.18%	21.05%
100		5	0.8	0.7305	0.8695	0.5	1	0.08478	0.1896	23.70%	15.79%

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	0.6825	0.6438	0.7212	0.5625	0.85	0.0472	0.1055	15.46%	0.0%
32		5	0.735	0.6868	0.7832	0.575	0.9375	0.05882	0.1315	17.89%	-7.69%
42		5	0.7125	0.6601	0.7649	0.4875	0.85	0.06386	0.1428	20.04%	-4.4%
56		5	0.835	0.7688	0.9012	0.6375	0.975	0.08066	0.1804	21.60%	-22.34%
75		5	0.6525	0.6007	0.7043	0.4625	0.825	0.06317	0.1413	21.65%	4.4%
100		5	0.6525	0.6041	0.7008	0.5	0.85	0.05895	0.1318	20.20%	4.4%

CETIS Summary Report

Report Date: 28 Feb-19 15:14 (p 1 of 2)
 Test Code: 19-043-0191 fh | 10-1489-3051

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 16-9784-8714	Test Type: Growth-Survival (7d)	Analyst: Ivey Elizabeth Wilkinson
Start Date: 12 Feb-19 14:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 19 Feb-19 10:55	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 20h	Source: Aquatic Biosystems, CO	Age: <24
Sample ID: 08-8263-1348	Code: 19-043-0191	Client: Blytheville Sewer Department
Sample Date: 11 Feb-19 08:00	Material: POTW Effluent	Project: WET Quarterly Compliance Test (1Q)
Receipt Date: 12 Feb-19 13:00	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 31h (1 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	19-043-0191	12 Feb-19 08:00	12 Feb-19 13:00	14 Feb-19 00:00	1.1
2	19-043-0191	13 Feb-19 07:30	13 Feb-19 13:15	16 Feb-19 00:00	1.9

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
13-9478-0667	7d Survival Rate	Dunnett Multiple Comparison Test	100	> 100	n/a	1	23.7%
16-7437-4520	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	100	> 100	n/a	1	30.8%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
13-9478-0667	7d Survival Rate	Control Resp	0.95	0.8	>>	Yes	Passes Acceptability Criteria
16-7437-4520	Mean Dry Weight-mg	Control Resp	0.6825	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	0.9500	0.8650	1.0000	0.8750	1.0000	0.0306	0.0685	7.21%	0.00%
32		5	0.8000	0.5646	1.0000	0.5000	1.0000	0.0848	0.1896	23.70%	15.79%
42		5	0.7500	0.5599	0.9401	0.5000	0.8750	0.0685	0.1531	20.41%	21.05%
56		5	0.9250	0.7862	1.0000	0.7500	1.0000	0.0500	0.1118	12.09%	2.63%
75		5	0.7500	0.4596	1.0000	0.5000	1.0000	0.1046	0.2339	31.18%	21.05%
100		5	0.8000	0.5646	1.0000	0.5000	1.0000	0.0848	0.1896	23.70%	15.79%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.6825	0.5514	0.8136	0.5625	0.85	0.0472	0.1055	15.46%	0.00%
32		5	0.735	0.5717	0.8983	0.575	0.9375	0.05882	0.1315	17.89%	-7.69%
42		5	0.7125	0.5352	0.8898	0.4875	0.85	0.06386	0.1428	20.04%	-4.40%
56		5	0.835	0.611	1.059	0.6375	0.975	0.08066	0.1804	21.60%	-22.34%
75		5	0.6525	0.4771	0.8279	0.4625	0.825	0.06317	0.1413	21.65%	4.40%
100		5	0.6525	0.4888	0.8162	0.5	0.85	0.05895	0.1318	20.20%	4.40%

CETIS Summary Report

Report Date: 28 Feb-19 15:14 (p 2 of 2)
Test Code: 19-043-0191 fh | 10-1489-3051

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	1.0000	1.0000	1.0000	0.8750	0.8750
32		0.8750	1.0000	0.7500	0.5000	0.8750
42		0.7500	0.8750	0.5000	0.7500	0.8750
56		0.8750	1.0000	0.7500	1.0000	1.0000
75		0.8750	0.5000	0.8750	0.5000	1.0000
100		1.0000	0.5000	0.8750	0.7500	0.8750

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.6375	0.675	0.85	0.6875	0.5625
32		0.6875	0.9375	0.725	0.575	0.75
42		0.6625	0.775	0.4875	0.85	0.7875
56		0.6375	0.975	0.6375	0.9625	0.9625
75		0.7125	0.5625	0.7	0.4625	0.825
100		0.85	0.5	0.6875	0.575	0.65

7d Survival Rate Binomials

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

CETIS Measurement Report

Report Date: 28 Feb-19 15:13 (p 1 of 3)
Test Code: 19-043-0191 fh | 10-1489-3051

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 16-9784-8714	Test Type: Growth-Survival (7d)	Analyst: Ivey Elizabeth Wilkinson
Start Date: 12 Feb-19 14:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 19 Feb-19 10:55	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 20h	Source: Aquatic Biosystems, CO	Age: <24

Sample ID: 08-8263-1348	Code: 19-043-0191	Client: Blytheville Sewer Department
Sample Date: 11 Feb-19 08:00	Material: POTW Effluent	Project: WET Quarterly Compliance Test (1Q)
Receipt Date: 12 Feb-19 13:00	Source: Blytheville Sewer - West Plant (AR0022560)	
Sample Age: 31h (1 °C)	Station:	

CETIS Measurement Report

Report Date: 28 Feb-19 15:14 (p 2 of 3)
Test Code: 19-043-0191 fh | 10-1489-3051

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	163.2	149.1	157.3	157	164.7	159.2	160.9
32								
42								
56								
75								
100		226	272	154.4	155.7	172.9	201	354

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.7	7.6	8.1	8	8.1	7	8
32		8.4	6.8	8.1	8	8.1	6.8	7.4
42		8.4	6.8	8.1	8	8	6.8	7.5
56		8.3	6.4	7.2	7.6	7.9	6.7	7.1
75		8.1	6.4	7.2	7.6	7.9	6.7	7
100		8.2	6.2	6.8	7.4	7.9	6.7	6.8

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.6	8.7	8.9	8.8	8.7	8.8	8.3
32		8.8	8.9	8.9	8.9	8.8	8.8	8.3
42		8.9	9	8.9	8.7	8.8	8.7	8.4
56		8.9	9.1	8.9	8.6	8.7	8.7	8.4
75		9	9.2	9	8.5	8.6	8.6	8.3
100		9	9.3	9	8.5	8.6	8.6	8.2

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.2	7.6	7.3	7.4	7.5	7.2	7.2
32		7.2	7.5	7.3	7.4	7.5	7.2	7.2
42		7.3	7.5	7.2	7.3	7.4	7.2	7.3
56		7.3	7.5	7.2	7.3	7.4	7.3	7.4
75		7.2	7.5	7.2	7.3	7.4	7.3	7.4
100		7.2	7.5	7.1	7.3	7.3	7.3	7.5

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.6	7.5	7.9	7.8	7.6	7.9	7.7
32		7.4	7.3	7.7	7.6	7.5	7.9	7.5
42		7.3	7.3	7.6	7.5	7.5	7.8	7.4
56		7.3	7.3	7.5	7.3	7.4	7.8	7.4
75		7.3	7.2	7.4	7.3	7.4	7.7	7.4
100		7.1	7.2	7.3	7.1	7.4	7.6	7.2

CETIS Measurement Report

Report Date: 28 Feb-19 15:14 (p 3 of 3)
Test Code: 19-043-0191 fh | 10-1489-3051

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: CS6153098
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.
 - Sample filtered with 60-micron mesh to remove indigenous organisms.
 - Sefar Nitex 30-60/35 mesh. Lot 2512750103

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

Project Bioassay - West WWTP
 Information :

Report Number : **19-043-0191**

REPORT OF ANALYSIS

Report Date : 02/28/2019

Received : 02/12/2019

Lab No : **93362**
 Sample ID : **Outfall 001 - Composite 1**

Matrix: **Aqueous**
 Sampled: **2/11/2019 8:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	81	mg/L	1	1	02/19/19 09:45	CJH	2320B-2011
Calcium	31.1	mg/L	0.500	1	02/19/19 06:48	KKM	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	109	mg/L	0.100	1	02/19/19 06:48		EPA-200.7
Magnesium	7.64	mg/L	0.100	1	02/19/19 06:48	KKM	EPA-200.7

Lab No : **93363**
 Sample ID : **Outfall 001 - Composite 2**

Matrix: **Aqueous**
 Sampled: **2/12/2019 8:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	56	mg/L	1	1	02/19/19 09:45	CJH	2320B-2011
Calcium	16.0	mg/L	0.500	1	02/19/19 06:53	KKM	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	54.1	mg/L	0.100	1	02/19/19 06:53		EPA-200.7
Magnesium	3.43	mg/L	0.100	1	02/19/19 06:53	KKM	EPA-200.7

Lab No : **93911**
 Sample ID : **Outfall 001 - Composite 3**

Matrix: **Aqueous**
 Sampled: **2/13/2019 7:30**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	45	mg/L	1	1	02/19/19 09:45	CJH	2320B-2011
Calcium	16.1	mg/L	0.500	1	02/19/19 07:04	KKM	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	52.5	mg/L	0.100	1	02/19/19 07:04		EPA-200.7
Magnesium	2.98	mg/L	0.100	1	02/19/19 07:04	KKM	EPA-200.7

**Qualifiers/
 Definitions**

DF

Dilution Factor

MQL

Method Quantitation Limit



①

Kit ID:	0000109345
Initiated By:	Sydney Andres
Initiated Date:	1/4/2019
Project Comment	

CHAIN-OF-CUSTODY



Blytheville Sewer Department
 Bioassay - West WWTP

19-043-0191
 03316
 02-12-2019
 13:09:10

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 1 A - WEST Bioassay - 02/03-04/2019			
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
2-11-19	8:00AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
2-11-19	8:00AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
2-11-19	8:00AM	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	GARY CAER					
Y/N	Seals		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
	Y/N		Relinquished by: (SIGNATURE)					
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
T ₃₆ 1.0°C				2-12-19	1300		2-12-19	1300



2

Kit ID:	0000109346
Initiated By:	Sydney Andres
Initiated Date:	1/4/2019
Project Comment	

CHAIN-OF-CUSTODY



Blytheville Sewer Department
 Bioassay - West WWTP

19-043-0191
 03316
 02-12-2019
 13:09:10

Company Name Blytheville Sewer Department	Company Number 03316	Client Project Manager/Contact Mr. Thomas Jones	Purchase Order Number
Site Name Kit QTR 1 B - WEST Bioassay - 02/05-06/2019	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
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
2-12-19	8:00AM	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
2-12-19	8:00AM	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
2-12-19	8:00AM	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	GARY CARR					
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			Gary Carr	8:30AM 2-12-19	[Signature]	11:10 2-12-19		
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			[Signature]	1300 2/12/19	[Signature]	1300 2/12/19		
Blank/Cooler Temp								
T56 1.1°C								



CHAIN-OF-CUSTODY

Kit ID: 0000109347
Initiated By: Sydney Andres
Initiated Date: 1/4/2019
Project Comment



19-043-0191
 03316
 02-12-2019
 13:09:10

Blytheville Sewer Department
 Bioassay - West WWTP / 2/12/19

Company Name Blytheville Sewer Department	Company Number 03316	Client Project Manager/Contact Mr. Thomas Jones	Purchase Order Number
Site Name Kit QTR 1 C - WEST Bioassay - 01/07-08/2019	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
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
2-13-19	7:30 AM	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
2-13-19	7:30 AM	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
2-13-19	7:30 AM	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	GARY CARR Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)	Date	Time
Y/N	Y/N				8:00 AM	2-13-19	Feltinger	2/13/19	11:15
Blank/Cooler Temp			Relinquished by: (SIGNATURE)		Date	Time	Received by: (SIGNATURE)	Date	Time
1.9		Feltinger		2/13/19	13:15	Feltinger	2/13/19	13:15	

NAME: Blytheville WEST Sewer
 ADDRESS:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
 DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER	DISCHARGE NUMBER

FACILITY:
 LOCATION:
 ATTN:

MONITORING PERIOD

YEAR	MONTH	DAY	TO	YEAR	MONTH	DAY
2019						

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
P/F STATRE 7DAY CHR CERIODAPHNIA TGP3B 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****	(9A)		
	PERMIT REQUIREMENT							PASS=0 FAIL=1		
P/F STATRE 7DAY CHR PIMEPHALES PROMELAS TGP6C 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****	(9A)		
	PERMIT REQUIREMENT							PASS=0 FAIL=1		
LF P/F LETH STATRE 7-DAY CHR CERIODAPHNIA TLP3B 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****	(9A)		
	PERMIT REQUIREMENT							PASS=0 FAIL=1		
LF P/F LETH STATRE 7-DAY CHR PIMEPHALES TLP6C 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****	(9A)		
	PERMIT REQUIREMENT							PASS=0 FAIL=1		
NOEL LETHAL STATRE 7-DAY CHR CERIODAPHNIA TOP3B 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		
NOEL LETHAL STATRE 7-DAY CHR PIMEPHALES TOP6C 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		

NAME: Blytheville WEST Sewer
 ADDRESS:

0
0

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
 DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER	DISCHARGE NUMBER
0	0

MONITORING PERIOD

YEAR	MONTH	DAY	TO	YEAR	MONTH	DAY
2019	0	0		0	0	0

FACILITY:
 LOCATION:
 ATTN:

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
NOEL SUB-LTH STATRE 7DAY CHR CERIODAPHNIA TPP3B 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		

NOEL SUB-LTH STATRE 7DAY CHR PIMEPHALES TPP6C 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		

COEF OF VAR STATRE 7DAY CHR CERIODAPHNIA TQP3B 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	38.8	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		

COEF OF VAR STATRE 7DAY CHR PIMEPHALES TQP6C 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	*****	20.2	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		

WHOLE EFFLUENT TOXICITY 22414 S 0 0	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		

WHOLE EFFLUENT TOXICITY 22414 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****	(23)		
	PERMIT REQUIREMENT							PER-CENT		