

08/06/2021

Pine Bluff Wastewater Utility
Mr. Vincent Miles
900 Island Harbour Marina Rd.
Pine Bluff, AR 71602

Ref: Analytical Testing
Report Number: 21-201-0390
Client Project Description: Bioassay
Quarterly - 3
AR0033316

Dear Permittee:

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 = 12 %	CV = 39.38 %	PMSD = 46.9 %
	Fathead Minnow NOEL = 12 %	CV = 9.370 %	PMSD = 17.6 %

Permit Limit: Critical Dilution = 9 %
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 Smith
Lab Supervisor

CETIS Test Evaluation Report

Report Date: 06 Aug-21 16:49 (1 of 1)
Test Code: 21-201-0390-cd | 11-4537-5427

Facility: Pine Bluff Wastewater Utility
Sample Site:
Sample Code: 21-201-0390
Sample Date: 19 Jul-21 08:45
Sample Age: 31h (1.1 °C)
Project: WET Quarterly Compliance Test (3Q)

Permittee: Pine Bluff Wastewater Utility
Address: 1520 South Ohio Street
 Pine Bluff, AR 71601-6055

Contact: Mr. Vincent Miles
Phone: 870-535-6603
Email: Vincent@pbwastewater.com

Test Name: Ceriodaphnia 7-d Survival and Reproduction Test
Organism: Ceriodaphnia dubia (Water Flea)
Protocol: EPA/821/R-02-013 (2002)
Start Date: 20 Jul-21 15:50
End Date: 26 Jul-21 14:43
Duration: 5d 23h **Organism Age:** <24

Laboratory: Waypoint Analytical Tennessee , LLC.
Address: 2790 Whitten Road
 Memphis, TN 38133

Contact: Mrs. Blake Smith, Lab Supervisor
Phone: 901-271-5200, 901-213-2440(fax)
Email: Bsmith@wpacorp.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
Reproduction	NOEL/LOEL	12/>12	8.99	Passes IWC	Dunnett Multiple Comparison Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
6d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	24	15	>>	Yes	Passes Acceptability Criteria

6d 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%
4		10	1	1	1	1	1	0	0	0.00%	0.0%
5		10	1	1	1	1	1	0	0	0.00%	0.0%
7		10	1	1	1	1	1	0	0	0.00%	0.0%
9		10	1	1	1	1	1	0	0	0.00%	0.0%
12		10	0.7	0.5228	0.8772	0	1	0.1528	0.483	69.01%	30.0%

Reproduction Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	24	20.53	27.47	10	35	2.989	9.452	39.38%	0.0%
4		10	25.4	21.61	29.19	10	42	3.263	10.32	40.63%	-5.83%
5		10	24.8	21.2	28.4	13	39	3.101	9.807	39.54%	-3.33%
7		10	30.3	27.65	32.95	13	37	2.285	7.227	23.85%	-26.25%
9		10	28.1	24.59	31.61	15	41	3.024	9.562	34.03%	-17.08%
12		10	21.8	15.55	28.05	0	48	5.387	17.03	78.14%	9.17%

CETIS Summary Report

Report Date: 06 Aug-21 16:50 (p 1 of 2)
Test Code: 21-201-0390-cd | 11-4537-5427

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 12-8246-4756 **Test Type:** Reproduction-Survival (7d) **Analyst:** Ivey E. Wilkinson
Start Date: 20 Jul-21 15:50 **Protocol:** EPA/821/R-02-013 (2002) **Diluent:** 20% DMW
Ending Date: 26 Jul-21 14:43 **Species:** Ceriodaphnia dubia **Brine:** Not Applicable
Duration: 5d 23h **Source:** In-House Culture **Age:** <24

Sample ID: 16-6468-4283 **Code:** 21-201-0390 **Client:** Pine Bluff Wastewater Utility
Sample Date: 19 Jul-21 08:45 **Material:** POTW Effluent **Project:** WET Quarterly Compliance Test (3Q)
Receipt Date: 20 Jul-21 08:50 **Source:** Pine Bluff Wastewater Utility (AR0033316)
Sample Age: 31h (1.1 °C) **Station:**

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	21-201-0390	21 Jul-21 08:50	22 Jul-21 08:30	22 Jul-21 00:00	2.7
2	21-201-0390	23 Jul-21 08:45	24 Jul-21 08:30	24 Jul-21 00:00	1.6

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
10-1997-5057	6d Survival Rate	Fisher Exact/Bonferroni-Holm Test	12	> 12	n/a	8.333	n/a
14-6843-4409	Reproduction	Dunnett Multiple Comparison Test	12	> 12	n/a	8.333	46.9%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
10-1997-5057	6d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
14-6843-4409	Reproduction	Control Resp	24	15	>>	Yes	Passes Acceptability 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%
4		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
7		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
9		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
12		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	10	24	17.24	30.76	10	35	2.989	9.452	39.38%	0.00%
4		10	25.4	18.02	32.78	10	42	3.263	10.32	40.63%	-5.83%
5		10	24.8	17.78	31.82	13	39	3.101	9.807	39.54%	-3.33%
7		10	30.3	25.13	35.47	13	37	2.285	7.227	23.85%	-26.25%
9		10	28.1	21.26	34.94	15	41	3.024	9.562	34.03%	-17.08%
12		10	21.8	9.614	33.99	0	48	5.387	17.03	78.14%	9.17%

CETIS Summary Report

Report Date: 06 Aug-21 16:50 (p 2 of 2)
Test Code: 21-201-0390-cd | 11-4537-5427

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee , LLC.

6d 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
4		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12		0.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	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	18	34	35	25	35	10	30	24	12	17
4		13	31	31	23	42	24	30	35	15	10
5		15	25	39	16	33	24	31	37	15	13
7		25	29	29	37	37	36	34	32	31	13
9		15	35	36	20	34	28	41	20	36	16
12		0	35	48	28	31	0	0	29	32	15

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
4		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
7		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
9		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12		0/1	1/1	1/1	1/1	1/1	0/1	0/1	1/1	1/1	1/1

CETIS Measurement Report

Report Date: 06 Aug-21 16:50 (p 1 of 3)
Test Code: 21-201-0390-cd | 11-4537-5427

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee , LLC.

Batch ID: 12-8246-4756	Test Type: Reproduction-Survival (7d)	Analyst: Ivey E. Wilkinson
Start Date: 20 Jul-21 15:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 26 Jul-21 14:43	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 5d 23h	Source: In-House Culture	Age: <24

Sample ID: 16-6468-4283	Code: 21-201-0390	Client: Pine Bluff Wastewater Utility
Sample Date: 19 Jul-21 08:45	Material: POTW Effluent	Project: WET Quarterly Compliance Test (3Q)
Receipt Date: 20 Jul-21 08:50	Source: Pine Bluff Wastewater Utility (AR0033316)	
Sample Age: 31h (1.1 °C)	Station:	

CETIS Measurement Report

Report Date: 06 Aug-21 16:50 (p 2 of 3)
Test Code: 21-201-0390-cd | 11-4537-5427

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
4								
5								
7								
9								
12		0	0	0	0	0	0	0

Conductivity-µS/cm

Conc-%	Code	1	2	3	4	5	6	7
0	L	182.4	178.4	167.2	177.3	177.4	177.1	176.6
4								
5								
7								
9								
12		572	574.3	552.9	571.6	560.1	562.3	568.1

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.9	9.2	9.3	10.5	10	9.1	
4		8.9	9.2	9.2	11	10	9.2	
5		9	9.4	9.1	11.2	10.1	9.4	
7		9	9.4	9.2	11.3	10.1	9.6	
9		9.1	9.4	9.1	11.4	10.2	9.6	
12		9.2	9.3	9.2	11.4	10.2	9.6	

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8	8.5	7.8	8.4	8.8	8.5	8.9
4		8	8.5	7.9	8.7	8.9	8.6	8.8
5		8.1	8.6	8.1	8.7	9	8.7	8.7
7		8.2	8.7	8.2	8.8	9	8.8	8.7
9		8.3	8.6	8.2	8.9	8.9	8.8	8.7
12		8.4	8.7	8.2	8.8	8.9	8.8	8.7

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.9	8.4	7.9	8.4	7.5	7.3	
4		7.9	8.4	7.9	8.4	8.6	8.3	
5		8	8.5	8	8.5	8.6	8.4	
7		8	8.5	8.1	8.5	8.6	8.4	
9		8.1	8.5	8.1	8.5	8.6	8.5	
12		8.2	8.5	8.2	8.5	8.7	8.5	

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.4	7.7	8.1	7.7	7.7	7.9	8
4		7.4	7.8	8.1	7.7	7.7	8	8
5		7.4	7.8	8.2	7.7	7.7	8	8.1
7		7.5	7.8	8.2	7.7	7.7	8.1	8.1
9		7.4	7.8	8.2	7.7	7.8	8.1	8.1
12		7.4	7.8	8.2	7.7	7.8	8.2	8.1

CETIS Measurement Report

Report Date: 06 Aug-21 16:50 (p 3 of 3)
Test Code: 21-201-0390-cd | 11-4537-5427

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	25.1	25.2	25.1	25.2	25.5	25.6	
4		25.1	25.2	25.2	25.3	25.6	25.8	
5		25.1	25.1	25.1	25.7	25.4	25.4	
7		25	25.1	25	25.8	25.6	25.7	
9		25.1	25.2	25	25.8	25.5	25.6	
12		25	25.2	25.1	25.8	25.7	25.7	

Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	23.8	23.9	23.7	23.8	24	24.4	24.2
4		23.9	23.8	23.9	24.3	24	24.8	24.8
5		23.9	23.9	23.9	24.3	24.1	24.8	24.9
7		24	24	24.1	24.3	24.1	25	25
9		24.2	24	24.1	24.4	24.3	25.1	25.5
12		24.4	24.1	24.4	24.4	24.5	25.3	25.6

CETIS Test Evaluation Report

Report Date: 06 Aug-21 16:50 (1 of 1)
Test Code: 21-201-0390-fh | 11-3398-2336

Facility: Pine Bluff Wastewater Utility
Sample Site:
Sample Code: 21-201-0390
Sample Date: 19 Jul-21 08:45
Sample Age: 31h (1.1 °C)
Project: WET Quarterly Compliance Test (3Q)

Test Name: Fathead Minnow 7-d Larval Survival and Growth Test
Organism: Pimephales promelas (Fathead Minnow)
Protocol: EPA/821/R-02-013 (2002)
Start Date: 20 Jul-21 15:58
End Date: 27 Jul-21 15:22
Duration: 6d 23h **Organism Age:** <24

Permittee: Pine Bluff Wastewater Utility
Address: 1520 South Ohio Street
 Pine Bluff, AR 71601-6055

Laboratory: Waypoint Analytical Tennessee , LLC.
Address: 2790 Whitten Road
 Memphis, TN 38133

Contact: Mr. Vincent Miles
Phone: 870-535-6603
Email: Vincent@pbwastewater.com

Contact: Mrs. Blake Smith, Lab Supervisor
Phone: 901-271-5200, 901-213-2440(fax)
Email: Bsmith@wpcorp.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
7d Survival Rate	NOEL/LOEL	12/>12	8.99	Passes IWC	Steel Many-One Rank Sum Test
Mean Dry Weight-mg	NOEL/LOEL	12/>12	8.99	Passes IWC	Dunnnett Multiple Comparison Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
7d Survival Rate	Control Resp	0.975	0.8	>>	Yes	Passes Acceptability Criteria
Mean Dry Weight-mg	Control Resp	0.6725	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	0.6725	0.6582	0.6868	0.6125	0.7125	0.01741	0.03893	5.79%	0.0%
4		5	0.6775	0.6367	0.7183	0.55	0.825	0.04975	0.1112	16.42%	-0.74%
5		5	0.7125	0.691	0.734	0.6625	0.7875	0.02622	0.05863	8.23%	-5.95%
7		5	0.7525	0.7138	0.7912	0.65	0.8875	0.04717	0.1055	14.02%	-11.9%
9		5	0.715	0.6904	0.7396	0.65	0.8	0.02995	0.06697	9.37%	-6.32%
12		5	0.7575	0.7323	0.7827	0.6875	0.8625	0.03077	0.06881	9.08%	-12.64%

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.975	0.9545	0.9955	0.875	1	0.025	0.0559	5.73%	0.0%
4		5	0.95	0.909	0.991	0.75	1	0.05	0.1118	11.77%	2.56%
5		5	0.95	0.909	0.991	0.75	1	0.05	0.1118	11.77%	2.56%
7		5	0.95	0.9249	0.9751	0.875	1	0.03062	0.06847	7.21%	2.56%
9		5	0.975	0.9545	0.9955	0.875	1	0.025	0.0559	5.73%	0.0%
12		5	0.925	0.8999	0.9501	0.875	1	0.03062	0.06847	7.40%	5.13%

CETIS Summary Report

Report Date: 06 Aug-21 16:50 (p 1 of 2)
 Test Code: 21-201-0390-fh | 11-3398-2336

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 09-1964-3089	Test Type: Growth-Survival (7d)	Analyst: Ivey E. Wilkinson
Start Date: 20 Jul-21 15:58	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 27 Jul-21 15:22	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 23h	Source: Aquatic Biosystems, CO	Age: <24
Sample ID: 16-6468-4283	Code: 21-201-0390	Client: Pine Bluff Wastewater Utility
Sample Date: 19 Jul-21 08:45	Material: POTW Effluent	Project: WET Quarterly Compliance Test (3Q)
Receipt Date: 20 Jul-21 08:50	Source: Pine Bluff Wastewater Utility (AR0033316)	
Sample Age: 31h (1.1 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	21-201-0390	21 Jul-21 08:50	22 Jul-21 08:30	22 Jul-21 00:00	2.7
2	21-201-0390	23 Jul-21 08:45	24 Jul-21 08:30	24 Jul-21 00:00	1.6

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
17-8806-9034	7d Survival Rate	Steel Many-One Rank Sum Test	12	> 12	n/a	8.333	12.0%
12-6983-3404	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	12	> 12	n/a	8.333	17.6%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
17-8806-9034	7d Survival Rate	Control Resp	0.975	0.8	>>	Yes	Passes Acceptability Criteria
12-6983-3404	Mean Dry Weight-mg	Control Resp	0.6725	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	0.9750	0.9056	1.0000	0.8750	1.0000	0.0250	0.0559	5.73%	0.00%
4		5	0.9500	0.8112	1.0000	0.7500	1.0000	0.0500	0.1118	11.77%	2.56%
5		5	0.9500	0.8112	1.0000	0.7500	1.0000	0.0500	0.1118	11.77%	2.56%
7		5	0.9500	0.8650	1.0000	0.8750	1.0000	0.0306	0.0685	7.21%	2.56%
9		5	0.9750	0.9056	1.0000	0.8750	1.0000	0.0250	0.0559	5.73%	0.00%
12		5	0.9250	0.8400	1.0000	0.8750	1.0000	0.0306	0.0685	7.40%	5.13%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.6725	0.6242	0.7208	0.6125	0.7125	0.01741	0.03893	5.79%	0.00%
4		5	0.6775	0.5394	0.8156	0.55	0.825	0.04975	0.1112	16.42%	-0.74%
5		5	0.7125	0.6397	0.7853	0.6625	0.7875	0.02622	0.05863	8.23%	-5.95%
7		5	0.7525	0.6215	0.8835	0.65	0.8875	0.04717	0.1055	14.02%	-11.90%
9		5	0.715	0.6319	0.7981	0.65	0.8	0.02995	0.06697	9.37%	-6.32%
12		5	0.7575	0.6721	0.8429	0.6875	0.8625	0.03077	0.06881	9.08%	-12.64%

CETIS Summary Report

Report Date: 06 Aug-21 16:50 (p 2 of 2)
Test Code: 21-201-0390-fh | 11-3398-2336

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	1.0000
4		1.0000	1.0000	1.0000	0.7500	1.0000
5		0.7500	1.0000	1.0000	1.0000	1.0000
7		1.0000	1.0000	0.8750	1.0000	0.8750
9		0.8750	1.0000	1.0000	1.0000	1.0000
12		0.8750	1.0000	1.0000	0.8750	0.8750

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.7	0.675	0.6125	0.6625	0.7125
4		0.75	0.6625	0.6	0.55	0.825
5		0.6625	0.6875	0.7875	0.6625	0.7625
7		0.75	0.65	0.65	0.8875	0.825
9		0.65	0.8	0.65	0.7125	0.7625
12		0.8625	0.7875	0.725	0.725	0.6875

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	9/9	8/8	8/8	7/8	8/8
4		8/8	8/8	8/8	6/8	8/8
5		6/8	8/8	8/8	8/8	8/8
7		8/8	8/8	7/8	8/8	7/8
9		7/8	8/8	8/8	8/8	8/8
12		7/8	8/8	8/8	7/8	7/8

CETIS Measurement Report

Report Date: 06 Aug-21 16:50 (p 1 of 3)
Test Code: 21-201-0390-fh | 11-3398-2336

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 09-1964-3089	Test Type: Growth-Survival (7d)	Analyst: Ivey E. Wilkinson
Start Date: 20 Jul-21 15:58	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 27 Jul-21 15:22	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 23h	Source: Aquatic Biosystems, CO	Age: <24

Sample ID: 16-6468-4283	Code: 21-201-0390	Client: Pine Bluff Wastewater Utility
Sample Date: 19 Jul-21 08:45	Material: POTW Effluent	Project: WET Quarterly Compliance Test (3Q)
Receipt Date: 20 Jul-21 08:50	Source: Pine Bluff Wastewater Utility (AR0033316)	
Sample Age: 31h (1.1 °C)	Station:	

CETIS Measurement Report

Report Date: 06 Aug-21 16:50 (p 2 of 3)
Test Code: 21-201-0390-fh | 11-3398-2336

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
4								
5								
7								
9								
12		0	0	0	0	0	0	0

Conductivity-µS/cm

Conc-%	Code	1	2	3	4	5	6	7
0	L	182.4	178.4	167.2	177.3	177.4	177.1	176.6
4								
5								
7								
9								
12		572	574.3	552.9	571.6	560.1	562.3	568.1

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	6.9	9.4	7.1	7.5	6.1	5.8	7.1
4		6.8	6.3	6.9	7.3	6.2	5.9	6.8
5		7.1	6.4	6.8	7.2	6.7	5.9	7.1
7		7.8	6.3	6.7	7.5	6.9	5.9	7.1
9		7.8	6.4	7.3	7.6	7.1	7	7.5
12		8	6.5	7.5	8.1	7.6	7.3	8

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8	8.5	7.8	8.4	8.8	8.5	8.9
4		8	8.5	7.9	8.7	8.9	8.6	8.8
5		8.1	8.6	8.1	8.7	9	8.7	8.7
7		8.2	8.7	8.2	8.8	9	8.8	8.7
9		8.3	8.6	8.2	8.9	8.9	8.8	8.7
12		8.4	8.7	8.2	8.8	8.9	8.8	8.7

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.2	6.9	7.2	7	7	7.4	7.4
4		7.2	7	7.2	7.1	7.2	7.5	7.4
5		7.6	7.1	7.2	7.2	7.3	7.5	7.5
7		7.7	7.2	7.2	7.4	7.3	7.5	7.6
9		7.7	7.3	7.4	7.4	7.5	7.7	7.7
12		7.8	7.4	7.5	7.6	7.7	7.9	8

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.4	7.7	8.1	7.7	7.7	7.9	8
4		7.4	7.8	8.1	7.7	7.7	8	8
5		7.4	7.8	8.2	7.7	7.7	8	8.1
7		7.5	7.8	8.2	7.7	7.7	8.1	8.1
9		7.4	7.8	8.2	7.7	7.8	8.1	8.1
12		7.4	7.8	8.2	7.7	7.8	8.2	8.1

CETIS Measurement Report

Report Date: 06 Aug-21 16:50 (p 3 of 3)
Test Code: 21-201-0390-fh | 11-3398-2336

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	24.9	24.4	24.5	24.7	25.1	25	25.2
4		24.9	24.9	24.5	24.6	24.9	24.9	24.9
5		24.9	24.8	24.7	24.6	25.1	25.1	24.8
7		24.9	24.6	24.6	24.8	25.1	25.1	25
9		24.9	24.8	24.6	24.8	25.1	25	25.1
12		25	24.8	24.5	24.8	25.2	24.7	25.2

Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	23.8	23.9	23.7	23.8	24	24.4	24.2
4		23.9	23.8	23.9	24.3	24	24.8	24.8
5		23.9	23.9	23.9	24.3	24.1	24.8	24.9
7		24	24	24.1	24.3	24.1	25	25
9		24.2	24	24.1	24.4	24.3	25.1	25.5
12		24.4	24.1	24.4	24.4	24.5	25.3	25.6

Additional Toxicity Test Information

1. Methods/Instrumentation used in chemical analysis:
 - Dissolved oxygen, DM 4: (SM 4500-O G-2011)
 - pH, PH 21: (SM 4500-H + B-2011)
 - Temperature, T 83
 - 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 6156984
 - Sodium Chloride is used as the reference toxicity chemical for invertebrate species
 - Current chemical ID: CS 6161555
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

03326
 Pine Bluff Wastewater Utility
 Mr. Ken Johnson
 900 Island Harbour Marina Rd.
 Pine Bluff , AR 71602

Project Bioassay
 Information :

Report Number : **21-201-0390**

REPORT OF ANALYSIS

Report Date : 08/06/2021

Received : 07/20/2021

Lab No : **89207**
 Sample ID : **Outfall 001 - Composite 1**

Matrix: **Aqueous**
 Sampled: **7/19/2021 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	137	mg/L	1	1	07/27/21 09:42	JAE	2320B-2011
Calcium	15.5	mg/L	0.500	1	07/30/21 02:48	TJS	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	50.4	mg/L	0.100	1	07/30/21 02:48		EPA-200.7
Magnesium	2.84	mg/L	0.100	1	07/30/21 02:48	TJS	EPA-200.7

Lab No : **89208**
 Sample ID : **Outfall 001 - Composite 2**

Matrix: **Aqueous**
 Sampled: **7/21/2021 8:50**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	127	mg/L	1	1	07/27/21 09:42	JAE	2320B-2011
Calcium	15.8	mg/L	0.500	1	07/30/21 02:53	TJS	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	51.4	mg/L	0.100	1	07/30/21 02:53		EPA-200.7
Magnesium	2.89	mg/L	0.100	1	07/30/21 02:53	TJS	EPA-200.7

Lab No : **89209**
 Sample ID : **Outfall 001 - Composite 3**

Matrix: **Aqueous**
 Sampled: **7/22/2021 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	118	mg/L	1	1	07/27/21 09:42	JAE	2320B-2011
Calcium	15.8	mg/L	0.500	1	07/30/21 02:58	TJS	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	51.4	mg/L	0.100	1	07/30/21 02:58		EPA-200.7
Magnesium	2.89	mg/L	0.100	1	07/30/21 02:58	TJS	EPA-200.7

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



#1

Kit ID:	152944
Initiated By:	Sydney Andres
Initiated Date:	2/9/2021
Project Comment	Pine Bluff Bioassay

CHAIN-OF-CUSTODY

21-201-0390
 03326
 07-20-2021
 10:07:41

Pine Bluff Wastewater Utility
 Bioassay

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Pine Bluff Wastewater Utility	03326	Pine Bluff Wastewater Utility	49468
Site Name	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment
QTR 3 A - Bioassay - 07/18-19/2021			<input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
Pine Bluff - Bioassay	(870) 535-0821	vincent@pbwastewater.com	

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
7/18/21	0845	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
7/18/21	0845	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
7/18/21	0845	Outfall 001 - Composite 1	Aqueous	C	2	Plastic - Quart	NONE	Chronic CD/FH

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments				
Ice	Custody Seals	Lab Comments	Najarad Jasper					
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
Blank/ Cooler Temp			Page 16 of 20 M. Kallaveen 7/20/21 0850					



#2

Kit ID:	152945
Initiated By:	Sydney Andres
Initiated Date:	2/9/2021
Project Comment	Pine Bluff Bioassay

CHAIN-OF-CUSTODY

Company Name Pine Bluff Wastewater Utility		Company Number 03326		Client Project Manager/Contact Pine Bluff Wastewater Utility		Purchase Order Number 49468		
Site Name QTR 3 B - Bioassay - 07/20-21/2021		Project Number		<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed		Method of Shipment <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other		
LIMS Project ID Pine Bluff - Bioassay		Project Manager Phone # (870) 535-0821		Project Manager Email vincent@pbwastewater.com		Site/Facility ID #		
Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
7/20/21	0850	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
7/20/21	0850	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
7/20/21	0850	Outfall 001 - Composite 2	Aqueous	C	2	Plastic - Quart	NONE	Chronic CD/FH


 21-201-0390
 03326
 Pine Bluff Wastewater Utility
 Bioassay
 07-20-2021
 10:07:41

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments								
Ice	Custody Seals	Lab Comments	Amber Faucette										
(Y/N)	(Y/N)		Relinquished by: (SIGNATURE)						Date	Time	Received by: (SIGNATURE)	Date	Time
			Relinquished by: (SIGNATURE)						Date	Time	Received by: (SIGNATURE)	Date	Time
Blank/Cooler Temp 2.77102 mew			Relinquished by: (SIGNATURE)						Date	Time	Received by: (SIGNATURE)	Date	Time

[Handwritten signature] 7/20/21 0830



Kit ID:	152946
Initiated By:	Sydney Andres
Initiated Date:	2/9/2021
Project Comment	Pine Bluff Bioassay

CHAIN-OF-CUSTODY

Company Name Pine Bluff Wastewater Utility	Company Number 03326	Client Project Manager/Contact Pine Bluff Wastewater Utility	Purchase Order Number 49468
Site Name QTR 3 C - Bioassay - 07/22-23/2021	Project Number	<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Pine Bluff - Bioassay	Project Manager Phone # (870) 535-0821	Project Manager Email vincent@pbwastewater.com	Site/Facility ID #

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
7/22/21	0845	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
7/22/21	0845	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
7/22/21	0845	Outfall 001 - Composite 3	Aqueous	C	3	Plastic - Quart	NONE	Chronic CD/FH


 21-201-0390
 03326
 Pine Bluff Wastewater Utility
 Bioassay / 7/20/21/7/22/21
 07-20-2021
 10:07:41

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments					
Ice Y/N	Custody Seals Y/N	Lab Comments Blank/Cooler Temp 1.1L T100 84H	Amber Faucette						
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time	
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time	
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time	

Page 18 of 20

Summer Harrison
 7/24/21 08:30

NAME: Pine Bluff Wastewater Utility
 ADDRESS:

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

PERMIT NUMBER
 AR0033316

DISCHARGE NUMBER

MONITORING PERIOD

YEAR	MONTH	DAY	TO	YEAR	MONTH	DAY
2021						

PARAMETER	QUANTITY OR LOADING	QUALITY OR CONCENTRATION		NO EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		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	*****	*****	12	(23)	
	PERMIT REQUIREMENT				PER-CENT	

NOEL LETHAL STATRE 7-DAY CHR PIMEPHALES TOP6C 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	12	(23)	
	PERMIT REQUIREMENT				PER-CENT	

NAME: Pine Bluff Wastewater Utility
 ADDRESS:

0
0

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

PERMIT NUMBER
AR0033316

DISCHARGE NUMBER
0

FACILITY:
 LOCATION:
 ATTN:

MONITORING PERIOD

YEAR	MONTH	DAY	TO	YEAR	MONTH	DAY
2021	0	0		0	0	0

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

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

COEF OF VAR STATRE 7DAY CHR CERIODAPHNIA TQP3B 1 0 0 EFFLUENT GROSS VALUE	***** ***** *****	*****	*****	*****	*****	*****	39.4	*****	(23) PER-CENT
--	-------------------------	-------	-------	-------	-------	-------	------	-------	------------------

COEF OF VAR STATRE 7DAY CHR PIMEPHALES TQP6C 1 0 0 EFFLUENT GROSS VALUE	***** ***** *****	*****	*****	*****	*****	*****	9.37	*****	(23) PER-CENT
--	-------------------------	-------	-------	-------	-------	-------	------	-------	------------------

WHOLE EFFLUENT TOXICITY 22414 S 0 0	***** ***** *****	*****	*****	*****	*****	*****	12	*****	(23) PER-CENT
--	-------------------------	-------	-------	-------	-------	-------	----	-------	------------------

WHOLE EFFLUENT TOXICITY 22414 1 0 0 EFFLUENT GROSS VALUE	***** ***** *****	*****	*****	*****	*****	*****	12	*****	(23) PER-CENT
--	-------------------------	-------	-------	-------	-------	-------	----	-------	------------------