

05/06/2021

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

Ref: Analytical Testing
Report Number: 21-110-0393
Client Project Description: Bioassay
Quarterly - 2
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 = 37.49 %	PMSD = 45.0 %
	Fathead Minnow NOEL = 12 %	CV = 17.11 %	PMSD = 19.0 %

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 Andres
Lab Supervisor

CETIS Test Evaluation Report

Report Date: 06 May-21 11:34 (1 of 1)
Test Code: 21-110-0393 cd | 16-0030-8444

Facility: Pine Bluff Wastewater Utility
Sample Site:
Sample Code: 21-110-0393
Sample Date: 19 Apr-21 08:45
Sample Age: 29h (2.3 °C)
Project: WET Quarterly Compliance Test (2Q)

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 Apr-21 13:21
End Date: 27 Apr-21 15:20
Duration: 7d 2h **Organism Age:** <24

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

Contact: Ms. Blake Andres, Lab Supervisor
Phone: 901-271-5200, 901-213-2440(fax)
Email: sandres@waypointanalytical.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
7d Survival Rate	NOEL/LOEL	12/>12	8.99	Passes IWC	Fisher Exact/Bonferroni-Holm Test
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	
7d Survival Rate	Control Resp	0.9	0.8	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	21.2	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	10	21.2	18.31	24.09	0	27	2.494	7.885	37.19%	0.0%
4		10	24.2	21.87	26.53	16	36	2.01	6.356	26.26%	-14.15%
5		10	16.4	11.84	20.96	0	32	3.931	12.43	75.79%	22.64%
7		10	25.4	21.97	28.83	16	46	2.956	9.348	36.80%	-19.81%
9		10	23.5	20.27	26.73	17	47	2.786	8.81	37.49%	-10.85%
12		10	17.5	13.86	21.14	0	35	3.142	9.936	56.78%	17.45%

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	0.0%
4		10	1	1	1	1	1	0	0	0.00%	-11.11%
5		10	1	1	1	1	1	0	0	0.00%	-11.11%
7		10	1	1	1	1	1	0	0	0.00%	-11.11%
9		10	1	1	1	1	1	0	0	0.00%	-11.11%
12		10	1	1	1	1	1	0	0	0.00%	-11.11%

CETIS Summary Report

Report Date: 06 May-21 11:35 (p 1 of 2)
 Test Code: 21-110-0393 cd | 16-0030-8444

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 01-2949-4873	Test Type: Reproduction-Survival (7d)	Analyst: Chase M. Featherston
Start Date: 20 Apr-21 13:21	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 27 Apr-21 15:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 2h	Source: In-House Culture	Age: <24
Sample ID: 07-5522-3745	Code: 21-110-0393	Client: Pine Bluff Wastewater Utility
Sample Date: 19 Apr-21 08:45	Material: POTW Effluent	Project: WET Quarterly Compliance Test (2Q)
Receipt Date: 20 Apr-21 10:30	Source: Pine Bluff Wastewater Utility (AR0033316)	
Sample Age: 29h (2.3 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	21-110-0393	21 Apr-21 08:45	22 Apr-21 08:15	22 Apr-21 00:00	0.8
2	21-110-0393	23 Apr-21 08:45	23 Apr-21 11:34	24 Apr-21 00:00	2

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
20-2037-2809	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	12	> 12	n/a	8.333	n/a
10-8187-9804	Reproduction	Dunnett Multiple Comparison Test	12	> 12	n/a	8.333	45.0%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
20-2037-2809	7d Survival Rate	Control Resp	0.9	0.8	>>	Yes	Passes Acceptability Criteria
10-8187-9804	Reproduction	Control Resp	21.2	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	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
4		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
7		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
9		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
12		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	21.2	15.56	26.84	0	27	2.494	7.885	37.19%	0.00%
4		10	24.2	19.65	28.75	16	36	2.01	6.356	26.26%	-14.15%
5		10	16.4	7.509	25.29	0	32	3.931	12.43	75.79%	22.64%
7		10	25.4	18.71	32.09	16	46	2.956	9.348	36.80%	-19.81%
9		10	23.5	17.2	29.8	17	47	2.786	8.81	37.49%	-10.85%
12		10	17.5	10.39	24.61	0	35	3.142	9.936	56.78%	17.45%

CETIS Summary Report

Report Date: 06 May-21 11:35 (p 2 of 2)
Test Code: 21-110-0393 cd | 16-0030-8444

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	0.0000	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		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	25	26	23	23	23	0	26	27	20	19
4		20	36	16	27	21	27	16	27	30	22
5		19	19	10	22	32	31	1	0	2	28
7		24	23	16	20	22	37	16	46	24	26
9		22	26	23	18	47	22	19	17	24	17
12		13	0	14	35	21	19	9	14	29	21

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	0/1	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		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: 06 May-21 11:35 (p 1 of 3)
Test Code: 21-110-0393 cd | 16-0030-8444

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 01-2949-4873	Test Type: Reproduction-Survival (7d)	Analyst: Chase M. Featherston
Start Date: 20 Apr-21 13:21	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 27 Apr-21 15:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 2h	Source: In-House Culture	Age: <24

Sample ID: 07-5522-3745	Code: 21-110-0393	Client: Pine Bluff Wastewater Utility
Sample Date: 19 Apr-21 08:45	Material: POTW Effluent	Project: WET Quarterly Compliance Test (2Q)
Receipt Date: 20 Apr-21 10:30	Source: Pine Bluff Wastewater Utility (AR0033316)	
Sample Age: 29h (2.3 °C)	Station:	

CETIS Measurement Report

Report Date: 06 May-21 11:35 (p 2 of 3)
Test Code: 21-110-0393 cd | 16-0030-8444

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	166.8	158.6	152.7	151.9	157.2	157.6	167.6
4								
5								
7								
9								
12		502	465	438	353	269	277	476

Final Dissolved Oxygen-mg/L

Conc.-%	Code	1	2	3	4	5	6	7
0	L	8.7	8.5	8.9	8.6	8.4	8.6	8.8
4		8.7	8.4	9	8.7	8.4	8.6	9
5		8.6	8.4	9.1	8.7	8.5	8.6	9.1
7		8.6	8.4	9.1	8.9	8.4	8.6	9.2
9		8.6	8.3	9.2	9	8.4	8.6	9.2
12		8.6	8.4	9.3	9	8.4	8.6	9.2

Initial Dissolved Oxygen-mg/L

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

Final pH-Units

Conc.-%	Code	1	2	3	4	5	6	7
0	L	7.6	7.6	7.9	8	8	7.9	7.9
4		7.6	7.6	7.9	7.9	8.2	7.9	7.9
5		7.6	7.6	7.9	8	8.2	7.9	7.9
7		7.6	7.6	7.9	8	8.1	7.9	8
9		7.6	7.6	7.9	7.9	8.1	7.9	7.9
12		7.6	7.6	8	8	8	7.9	7.9

Initial pH-Units

Conc.-%	Code	1	2	3	4	5	6	7
0	L	7.7	7.4	7.4	7.4	7.4	7.5	7.6
4		7.6	7.4	7.4	7.4	7.4	7.4	7.6
5		7.6	7.4	7.4	7.4	7.4	7.4	7.5
7		7.6	7.3	7.4	7.4	7.4	7.4	7.5
9		7.6	7.3	7.4	7.4	7.4	7.4	7.5
12		7.6	7.3	7.3	7.4	7.5	7.4	7.5

CETIS Measurement Report

Report Date: 06 May-21 11:35 (p 3 of 3)
Test Code: 21-110-0393 cd | 16-0030-8444

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	25.5	25.7	25.3	25.6	25.4	25.5	25.8
4		25.4	25.6	25.4	25.6	25.4	25.5	25.7
5		25.3	25.6	25.2	25.5	25.4	25.5	25.8
7		25.4	25.6	25.2	25.6	25.4	25.5	25.9
9		25.4	25.7	25.3	25.6	25.3	25.5	25.8
12		25.4	25.6	25.3	25.6	25.4	25.5	25.7

Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	23.7	24.5	23.6	23.7	24.2	24.3	24.1
4		23.4	25.2	24.4	23.8	24.3	24.4	23.9
5		23.6	25.1	24.3	23.9	24.3	24.4	23.7
7		23.8	25	24.2	24	24.4	24.5	23.8
9		23.8	24.9	24	24.4	24.6	24.5	23.7
12		23.9	24.9	24.1	24.6	24.6	24.8	23.8

CETIS Test Evaluation Report

Report Date: 06 May-21 11:37 (1 of 1)
Test Code: 21-110-0393 fh | 02-0124-1947

Facility: Pine Bluff Wastewater Utility
Sample Site:
Sample Code: 21-110-0393
Sample Date: 19 Apr-21 08:45
Sample Age: 28h (2.3 °C)
Project: WET Quarterly Compliance Test (2Q)

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 Apr-21 12:55
End Date: 27 Apr-21 14:50
Duration: 7d 2h **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: Ms. Blake Andres, Lab Supervisor
Phone: 901-271-5200, 901-213-2440(fax)
Email: sandres@waypointanalytical.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	Dunnett Multiple Comparison 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
Mean Dry Weight-mg	Control Resp	0.6425	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	1	1	1	1	1	0	0	0.00%	0.0%
4		5	1	1	1	1	1	0	0	0.00%	0.0%
5		5	1	1	1	1	1	0	0	0.00%	0.0%
7		5	0.95	0.9249	0.9751	0.875	1	0.03062	0.06847	7.21%	5.0%
9		5	0.975	0.9545	0.9955	0.875	1	0.025	0.0559	5.73%	2.5%
12		5	1	1	1	1	1	0	0	0.00%	0.0%

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	0.6425	0.6022	0.6828	0.5	0.7875	0.04915	0.1099	17.11%	0.0%
4		5	0.7075	0.6896	0.7254	0.625	0.75	0.02187	0.04889	6.91%	-10.12%
5		5	0.715	0.6863	0.7437	0.6375	0.8375	0.035	0.07826	10.95%	-11.28%
7		5	0.67	0.6568	0.6832	0.6375	0.725	0.01611	0.03601	5.38%	-4.28%
9		5	0.6875	0.6498	0.7252	0.6125	0.8625	0.04593	0.1027	14.94%	-7.0%
12		5	0.72	0.6881	0.7519	0.575	0.8	0.03885	0.08687	12.07%	-12.06%

CETIS Summary Report

Report Date: 06 May-21 11:37 (p 1 of 2)
 Test Code: 21-110-0393 fh | 02-0124-1947

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 18-2952-6219 Test Type: Growth-Survival (7d) Analyst: Chase M. Featherston
 Start Date: 20 Apr-21 12:55 Protocol: EPA/821/R-02-013 (2002) Diluent: 20% DMW
 Ending Date: 27 Apr-21 14:50 Species: Pimephales promelas Brine: Not Applicable
 Duration: 7d 2h Source: Aquatic Biosystems, CO Age: <24

Sample ID: 07-5522-3745 Code: 21-110-0393 Client: Pine Bluff Wastewater Utility
 Sample Date: 19 Apr-21 08:45 Material: POTW Effluent Project: WET Quarterly Compliance Test (2Q)
 Receipt Date: 20 Apr-21 10:30 Source: Pine Bluff Wastewater Utility (AR0033316)
 Sample Age: 28h (2.3 °C) Station:

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	21-110-0393	21 Apr-21 08:45	22 Apr-21 08:15	22 Apr-21 00:00	0.8
2	21-110-0393	23 Apr-21 08:45	23 Apr-21 11:34	24 Apr-21 00:00	2

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
07-5105-7395	7d Survival Rate	Steel Many-One Rank Sum Test	12	> 12	n/a	8.333	6.46%
19-3935-4014	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	12	> 12	n/a	8.333	19.0%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
07-5105-7395	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
19-3935-4014	Mean Dry Weight-mg	Control Resp	0.6425	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	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
4		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
7		5	0.9500	0.8650	1.0000	0.8750	1.0000	0.0306	0.0685	7.21%	5.00%
9		5	0.9750	0.9056	1.0000	0.8750	1.0000	0.0250	0.0559	5.73%	2.50%
12		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.6425	0.506	0.779	0.5	0.7875	0.04915	0.1099	17.11%	0.00%
4		5	0.7075	0.6468	0.7682	0.625	0.75	0.02187	0.04889	6.91%	-10.12%
5		5	0.715	0.6178	0.8122	0.6375	0.8375	0.035	0.07826	10.95%	-11.28%
7		5	0.67	0.6253	0.7147	0.6375	0.725	0.01611	0.03601	5.38%	-4.28%
9		5	0.6875	0.56	0.815	0.6125	0.8625	0.04593	0.1027	14.94%	-7.00%
12		5	0.72	0.6121	0.8279	0.575	0.8	0.03885	0.08687	12.07%	-12.06%

CETIS Summary Report

Report Date: 06 May-21 11:37 (p 2 of 2)
Test Code: 21-110-0393 fh | 02-0124-1947

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

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.5	0.575	0.7875	0.6875	0.6625
4		0.7125	0.7125	0.625	0.7375	0.75
5		0.7375	0.6625	0.6375	0.7	0.8375
7		0.6875	0.65	0.65	0.725	0.6375
9		0.6125	0.6125	0.675	0.8625	0.675
12		0.575	0.7625	0.75	0.8	0.7125

7d Survival Rate Binomials

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

CETIS Measurement Report

Report Date: 06 May-21 11:37 (p 1 of 3)
Test Code: 21-110-0393 fh | 02-0124-1947

Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 18-2952-6219	Test Type: Growth-Survival (7d)	Analyst: Chase M. Featherston
Start Date: 20 Apr-21 12:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 27 Apr-21 14:50	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 2h	Source: Aquatic Biosystems, CO	Age: <24

Sample ID: 07-5522-3745	Code: 21-110-0393	Client: Pine Bluff Wastewater Utility
Sample Date: 19 Apr-21 08:45	Material: POTW Effluent	Project: WET Quarterly Compliance Test (2Q)
Receipt Date: 20 Apr-21 10:30	Source: Pine Bluff Wastewater Utility (AR0033316)	
Sample Age: 28h (2.3 °C)	Station:	

CETIS Measurement Report

Report Date: 06 May-21 11:37 (p 2 of 3)
Test Code: 21-110-0393 fh | 02-0124-1947

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	166.8	158.6	152.7	151.9	157.2	157.6	167.6
4								
5								
7								
9								
12		502	465	438	353	269	277	476

Final Dissolved Oxygen-mg/L

Conc.-%	Code	1	2	3	4	5	6	7
0	L	7.4	8	7.7	7.9	8	6.5	7.7
4		7.3	7.7	7.4	7.9	8.1	6.6	7.5
5		7.3	7.6	7.3	7.8	8	6.3	7.4
7		7.4	7.6	7.3	7.9	8.1	6.4	7.8
9		7.5	7.4	7.1	7.8	8	6.8	7.8
12		7.6	7.3	7.1	7.7	8	6.9	7.6

Initial Dissolved Oxygen-mg/L

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

Final pH-Units

Conc.-%	Code	1	2	3	4	5	6	7
0	L	7	7.3	7.2	7.4	7.6	6.9	7.3
4		7.1	7.1	7	7.4	7.7	7	7.2
5		7.1	7.14	6.9	7.3	7.4	6.9	7.2
7		7.1	7.1	6.9	7.3	7.7	7	7.3
9		7.4	7.1	6.9	7.2	7.4	6.9	7.3
12		7.1	7.1	6.9	7.3	7.7	7.1	7.3

Initial pH-Units

Conc.-%	Code	1	2	3	4	5	6	7
0	L	7.7	7.4	7.4	7.4	7.4	7.5	7.6
4		7.6	7.4	7.4	7.4	7.4	7.4	7.6
5		7.6	7.4	7.4	7.4	7.4	7.4	7.5
7		7.6	7.3	7.4	7.4	7.4	7.4	7.5
9		7.6	7.3	7.4	7.4	7.4	7.4	7.5
12		7.6	7.3	7.3	7.4	7.5	7.4	7.5

CETIS Measurement Report

Report Date: 06 May-21 11:37 (p 3 of 3)
Test Code: 21-110-0393 fh | 02-0124-1947

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	25.3	25.5	25.2	24.9	24.4	24.9	24.8
4		25.2	25.2	25	24.6	24.6	24.7	24.8
5		25.1	25	25.1	24.7	24.5	24.8	24.7
7		25.2	25.1	25.3	24.6	24.6	24.7	24.7
9		25.2	25.4	25	24.7	24.7	24.7	24.8
12		25.3	25.5	25.5	24.6	24.8	24.7	24.9

Initial Temperature-°C

Conc.-%	Code	1	2	3	4	5	6	7
0	L	23.7	24.5	23.6	23.7	24.2	24.3	24.1
4		23.4	25.2	24.4	23.8	24.3	24.4	23.9
5		23.6	25.1	24.3	23.9	24.3	24.4	23.7
7		23.8	25	24.2	24	24.4	24.5	23.8
9		23.8	24.9	24	24.4	24.6	24.5	23.7
12		23.9	24.9	24.1	24.6	24.6	24.8	23.8

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 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
 - 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 6161557
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

03326

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

Project Bioassay
 Information :

Report Number : **21-110-0393**

REPORT OF ANALYSIS

Report Date : 05/06/2021

Received : 04/20/2021

Lab No : **87253**

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

Matrix: **Aqueous**

Sampled: **4/19/2021 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	142	mg/L	1	1	04/28/21 09:52	JAE	2320B-2011
Calcium	10.8	mg/L	0.500	1	04/30/21 06:40	JTR	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	37.9	mg/L	0.100	1	04/30/21 06:40		EPA-200.7
Magnesium	2.65	mg/L	0.100	1	04/30/21 06:40	JTR	EPA-200.7

Lab No : **88883**

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

Matrix: **Aqueous**

Sampled: **4/21/2021 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	115	mg/L	1	1	04/28/21 09:52	JAE	2320B-2011
Calcium	10.6	mg/L	0.500	1	04/30/21 06:45	JTR	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	37.3	mg/L	0.100	1	04/30/21 06:45		EPA-200.7
Magnesium	2.62	mg/L	0.100	1	04/30/21 06:45	JTR	EPA-200.7

Lab No : **90502**

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

Matrix: **Aqueous**

Sampled: **4/22/2021 8:45**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	107	mg/L	1	1	04/27/21 09:30	CXB	2320B-2011
Calcium	10.9	mg/L	0.500	1	04/30/21 06:56	JTR	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	38.2	mg/L	0.100	1	04/30/21 06:56		EPA-200.7
Magnesium	2.66	mg/L	0.100	1	04/30/21 06:56	JTR	EPA-200.7

**Qualifiers/
Definitions**

DF Dilution Factor
 MQL Method Quantitation Limit

L Limit Exceeded



Kit ID: 152941
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 48885
Site Name QTR 2 A - Bioassay - 04/18-19/2021	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
4/18/21	0845	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
4/18/21	0845	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
4/18/21	0845	Outfall 001 - Composite 1	Aqueous	C	2	Plastic - Quart	NONE	Chronic CD/FH

21-110-0393
 03326
 Pine Bluff Wastewater Utility
 Bioassay
 04-20-2021
 10:33:08

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice Y/N	Custody Seals Y/N	Lab Comments	Isqiah Solomon					
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
Blank/Cooler Temp 23799 SHT			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time

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Sumner Lamson 4/20/21 10:30



#2

Kit ID: 152942
Initiated By: Sydney Andres
Initiated Date: 2/9/2021
Project Comment Pine Bluff Bioassay

CHAIN-OF-CUSTODY



Pine Bluff Wastewater Utility
 Bioassay / 4/20/21

21-110-0393
 03326
 04-20-2021
 10:33:08

Company Name Pine Bluff Wastewater Utility	Company Number 03326	Client Project Manager/Contact Pine Bluff Wastewater Utility	Purchase Order Number 48885
Site Name QTR 2 B - Bioassay - 04/20-21/2021	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
4/20/21	0845	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
4/20/21	0845	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
4/20/21	0845	Outfall 001 - Composite 2	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	Nayarad 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
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time

0.8 T/dl mw

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Makar... 4/22/2021



#3

Kit ID: 152943
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 48885
Site Name QTR 2 C - Bioassay - 04/22-23/2021	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input checked="" 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
4/22	0845	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	alkalinity
4/22	0845	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
4/22	0845	Outfall 001 - Composite 3	Aqueous	C	3	Plastic - Quart	NONE	Chronic CD/FH

21-110-0393
 03326
 04-20-2021
 10:33:08
 Pine Bluff Wastewater Utility
 Bioassay / 4/20/21/4/22/21

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice Y/N	Custody Seals Y/N	Lab Comments	Najarad Jasper					
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
Blank/Cooler Temp 2.0 T100 mw			Stacy J. Compton		4/23	1134		
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	04/23/2021	

Sample ID: Pine Bluff Date/Time Start: 4/20/2021 13:21 Analyst: CF

Report # 21-110-0393 Date/Time End: 4/27/2021 15:20 Analyst: IW

Data Entered By: 5/5/21 IW Data Reviewed By: POA 5/16/21
 date / initial 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	% Coeff
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	70AYS ✓
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	
	4	2	5	0	4	0	0	0	0	0	0	11	10	1.1	
	5	8	11	0	4	9	x	9	3	2	3	49	10	4.9	
	6	0	0	13	15	14	x	17	14	7	6	86	10	8.6	
	7	15	10	10	0	0	x	0	10	11	10	66	10	6.6	
Replicate Totals	----	25	26	23	23	23	0	26	27	20	19	Avg. Yng/ adult=	21.20	37.19	
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	0	0	3	0	0	0	0	6	9	10	0.9	
	4	2	6	3	6	0	3	0	0	3	0	23	10	2.3	
	5	3	7	4	5	3	9	3	11	9	3	57	10	5.7	
	6	9	22	9	12	14	14	2	16	0	13	111	10	11.1	
	7	6	1	0	4	1	1	11	0	18	0	42	10	4.2	
Replicate Totals	----	20	36	16	27	21	27	16	27	30	22	Avg. Yng/ adult=	24.20	26.26	
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	0	0	0	0	0	0	0	0	0	10	0.0	
	4	2	5	0	2	0	4	0	0	0	4	17	10	1.7	
	5	3	3	2	7	6	11	1	0	2	8	43	10	4.3	
	6	14	11	8	0	13	15	0	0	0	13	74	10	7.4	
	7	0	0	0	13	13	1	0	0	0	3	30	10	3.0	
Replicate Totals	----	19	19	10	22	32	31	1	0	2	28	Avg. Yng/ adult=	16.40	75.79	
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	4	0	0	0	0	5	0	0	9	10	0.9	
	4	5	6	0	5	0	6	2	1	4	0	29	10	2.9	
	5	6	2	4	4	5	4	6	8	10	5	54	10	5.4	
	6	12	15	7	11	15	27	8	17	9	21	142	10	14.2	
	7	1	0	1	0	2	0	0	15	1	0	20	10	2.0	
Replicate Totals	----	24	23	16	20	22	37	16	46	24	26	Avg. Yng/ adult=	25.40	36.80	
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	0	0	0	0	4	0	0	0	0	0	4	10	0.4	
	4	3	5	0	0	0	5	4	0	4	0	21	10	2.1	
	5	2	8	4	4	5	4	5	4	5	3	44	10	4.4	
	6	16	13	8	14	22	13	0	13	13	14	126	10	12.6	
	7	1	0	11	0	16	0	10	0	2	0	40	10	4.0	
Replicate Totals	----	22	26	23	18	47	22	19	17	24	17	Avg. Yng/ adult=	23.50	37.49	
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	8	0	0	0	0	0	8	10	0.8	
	4	4	0	0	4	0	0	3	0	6	6	23	10	2.3	
	5	2	0	4	13	5	3	3	7	9	2	48	10	4.8	
	6	7	0	10	0	7	11	3	5	14	13	70	10	7.0	
	7	0	0	0	18	1	5	0	2	0	0	26	10	2.6	
Replicate Totals	----	13	0	14	35	21	19	9	14	29	21	Avg. Yng/ adult=	17.50	56.78	

Parameters for control acceptability:

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

#'s represent the number of young per live organism.
 X represents death of the organism.
 M represents a missing organism.

Sample ID:

REP	Control	32	42	56	75	100
A	25	20	19	24	22	13
B	26	36	19	23	26	0
C	23	16	10	16	23	14
D	23	27	22	20	18	35
E	23	21	32	22	47	21
F	0	27	31	37	22	19
G	26	16	1	16	19	9
H	27	27	0	46	17	14
I	20	30	2	24	24	29
J	19	22	28	26	17	21
%CV	37.2	26.3	75.8	36.8	37.5	56.8

Sample ID: Pine Bluff Date/Time Start: 4/20/2021 12:55 Analyst: CF

Report # 21-110-0393 Date/Time End: 4/27/21 14:50 Analyst: IW

Data Entered By: 5/5/21 IW Data Reviewed By: BA 5/6/21
 date / initial date / initial

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

Conch % EFF	REP	DAY								Proportion Survival	Avg. Dry Wt. surviving org (mg)	Avg. Dry Wt. original org (mg)	initial weight	final weight
		0	1	2	3	4	5	6	7					
Control	A	8	8	8	8	8	8	8	8	1.00	0.500	0.500	29.6968	29.7008
	B	8	8	8	8	8	8	8	8	1.00	0.575	0.575	24.6942	24.6988
	C	8	8	8	8	8	8	8	8	1.00	0.788	0.788	33.6389	33.6452
	D	8	8	8	8	8	8	8	8	1.00	0.687	0.687	35.3735	35.3790
	E	8	8	8	8	8	8	8	8	1.00	0.663	0.663	30.5693	30.5746

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.6425 Survival % COEF = 0.00

Mean average weight (surviving organisms) mg = 0.6425 Growth % COEF = 17.11

32	A	8	8	8	8	8	8	8	8	1.00	0.713	0.713	33.7970	33.8027
	B	8	8	8	8	8	8	8	8	1.00	0.713	0.713	27.2438	27.2495
	C	8	8	8	8	8	8	8	8	1.00	0.625	0.625	26.2890	26.2940
	D	8	8	8	8	8	8	8	8	1.00	0.738	0.738	31.2080	31.2139
	E	8	8	8	8	8	8	8	8	1.00	0.750	0.750	29.4461	29.4521

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.7075 Survival % COEF = 0.00

Growth % COEF = 6.91

42	A	8	8	8	8	8	8	8	8	1.00	0.738	0.738	28.7309	28.7368
	B	8	8	8	8	8	8	8	8	1.00	0.662	0.662	32.3955	32.4008
	C	8	8	8	8	8	8	8	8	1.00	0.637	0.637	25.4188	25.4239
	D	8	8	8	8	8	8	8	8	1.00	0.700	0.700	31.1020	31.1076
	E	8	8	8	8	8	8	8	8	1.00	0.838	0.838	31.4488	31.4555

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.7150 Survival % COEF = 0.00

Growth % COEF = 10.95

56	A	8	8	8	8	8	8	8	8	1.00	0.687	0.687	31.4324	31.4379
	B	8	8	8	8	8	8	8	8	1.00	0.650	0.650	29.5410	29.5462
	C	8	8	8	8	8	8	7	7	0.88	0.650	0.650	29.0090	29.0142
	D	8	8	8	8	8	8	8	8	1.00	0.725	0.725	28.0116	28.0174
	E	8	8	7	7	7	7	7	7	0.88	0.637	0.637	27.5962	27.6013

Mean proportion survival = 0.95

Mean average weight (original organisms) mg = 0.6700 Survival % COEF = 7.21

Growth % COEF = 5.37

75	A	8	8	8	8	8	8	8	8	1.00	0.613	0.613	25.4351	25.4400
	B	8	8	8	8	8	8	8	8	1.00	0.612	0.612	28.8804	28.8853
	C	8	8	8	8	8	8	8	8	1.00	0.675	0.675	27.5263	27.5317
	D	8	8	8	8	8	8	8	8	1.00	0.862	0.862	29.7377	29.7446
	E	8	8	8	7	7	7	7	7	0.88	0.675	0.675	23.2806	23.2860

Mean proportion survival = 0.98

Mean average weight (original organisms) mg = 0.6875 Survival % COEF = 5.73

Growth % COEF = 14.94

100	A	8	8	8	8	8	8	8	8	1.00	0.575	0.575	31.5347	31.5393
	B	8	8	8	8	8	8	8	8	1.00	0.762	0.762	28.9360	28.9421
	C	8	8	8	8	8	8	8	8	1.00	0.750	0.750	31.2807	31.2867
	D	8	8	8	8	8	8	8	8	1.00	0.800	0.800	23.5146	23.5210
	E	8	8	8	8	8	8	8	8	1.00	0.713	0.713	25.8422	25.8479

Mean proportion survival = 1.00

Mean average weight (original organisms) mg = 0.7200 Survival % COEF = 0.00

Growth % COEF = 12.07

Parameters for control acceptability:

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

Sample ID:

SURVIVAL

# org	CONC	A	B	C	D	E	24HR	48HR	7DAY	%CV
Control	100	100	100	100	100	100	100	100	100	0.00
8	32	100	100	100	100	100	100	100	100	0.00
8	42	100	100	100	100	100	100	100	100	0.00
8	56	100	100	88	100	88	100	98	95	7.21
8	75	100	100	100	100	88	100	100	98	5.73
8	100	100	100	100	100	100	100	100	100	0.00

GROWTH

CONC	A	B	C	D	E	MEAN	%CV
Control	0.500	0.575	0.788	0.687	0.663	0.6425	17.11
32	0.713	0.713	0.625	0.738	0.750	0.7075	6.91
42	0.738	0.662	0.637	0.700	0.838	0.7150	10.95
56	0.687	0.650	0.650	0.725	0.637	0.6700	5.37
75	0.613	0.612	0.675	0.862	0.675	0.6875	14.94
100	0.575	0.762	0.750	0.800	0.713	0.7200	12.07

25.4
28.9
27.5
29.7
23.3

SAMPLE ID: Pine Bluff

Report Number: 21-110-0393

Date test started: 4/20/21

		DAY 1	2	3	4	5	6	7
INITIAL READINGS	pH CTRL	7.7	7.4	7.4	7.4	7.4	7.5	7.6
	Initial R							
	1	7.0	7.4	7.4	7.4	7.4	7.4	7.0
	2	7.0	7.4	7.4	7.4	7.4	7.4	7.5
	3	7.6	7.3	7.4	7.4	7.4	7.4	7.5
	4	7.6	7.3	7.4	7.4	7.4	7.4	7.5
	5	7.6	7.3	7.3	7.4	7.5	7.4	7.5
	DO CTRL	8.4	8.2	8.4	8.1	8.2	7.9	8.1
	Initial (mg/L) R							
	1	8.3	8.2	8.5	8.2	8.3	7.8	8.1
	2	8.4	8.2	8.5	8.2	8.3	7.9	8.2
	3	8.4	8.3	8.5	8.2	8.4	7.8	8.2
	4	8.4	8.2	8.5	8.3	8.4	8.0	8.2
	5	8.5	8.1	8.4	8.3	8.4	7.9	8.3
	Temp CTRL	23.7	24.5	23.6	23.7	24.2	24.3	24.1
Initial (°C) R								
1	23.4	25.2	24.4	23.8	24.3	24.4	23.9	
2	23.6	25.1	24.3	23.9	24.3	24.4	23.7	
3	23.8	25.0	24.2	24.0	24.4	24.5	23.8	
4	23.8	24.9	24.0	24.4	24.6	24.5	23.7	
5	23.9	24.9	24.1	24.6	24.6	24.8	23.8	
ANALYST:	W	CF	CF	W	W	W	W	
DATE:	4/20/21	4/21/21	4/22/21	4/23/21	4/24/21	4/25/21	4/26/21	

		DAY 1	2	3	4	5	6	7
CERIODAPHNIA DUBIA READINGS	pH - CD CTRL	7.6	7.6	7.9	8.0	8.0	7.9	7.9
	After 24 hrs. R							
	1	7.6	7.6	7.9	7.9	8.2	7.9	7.9
	2	7.6	7.6	7.9	8.0	8.2	7.9	7.9
	3	7.6	7.6	7.9	8.0	8.1	7.9	8.0
	4	7.6	7.6	7.9	7.9	8.1	7.9	7.9
	5	7.6	7.6	8.0	8.0	8.0	7.9	7.9
	DO - CD CTRL	8.7	8.5	8.9	8.6	8.4	8.6	8.8
	After 24 hrs. R							
	1	8.7	8.4	9.0	8.7	8.4	8.6	9.0
	2	8.6	8.4	9.1	8.7	8.5	8.6	9.1
	3	8.6	8.4	9.1	8.9	8.4	8.6	9.2
	4	8.6	8.3	9.2	9.0	8.4	8.6	9.2
	5	8.6	8.4	9.3	9.0	8.4	8.6	9.2
	Temp CTRL	25.5	25.7	25.3	25.6	25.4	25.5	25.8
After 24 hrs (°C) R								
1	25.4	25.6	25.4	25.6	25.4	25.5	25.7	
2	25.3	25.6	25.2	25.5	25.4	25.5	25.8	
3	25.4	25.6	25.2	25.6	25.4	25.5	25.9	
4	25.4	25.7	25.3	25.6	25.3	25.5	25.8	
5	25.4	25.6	25.3	25.6	25.4	25.5	25.7	
ANALYST:	CF	CF	W	W	W	CF	W	
DATE:	4/21/21	4/22/21	4/23/21	4/24/21	4/25/21	4/26/21	4/27/21	

READINGS DATA SHEET FOR 7-DAY CHRONIC TESTING

SAMPLE ID: Pine Bluff

Report Number: 21-110-0393

Date test started: 4/20/21

DAY		1	2	3	4	5	6	7
FATHEAD MINNOW READINGS	pH - FH CTRL	7.0	7.3	7.2	7.4	7.6	6.9	7.3
	After 24 hrs. R							
	1	7.1	7.1	7.0	7.4	7.7	7.0	7.2
	2	7.1	7.1	6.9	7.3	7.4	6.9	7.2
	3	7.1	7.1	6.9	7.3	7.7	7.0	7.3
	4	7.1	7.1	6.9	7.2	7.4	6.9	7.3
	5	7.1	7.1	6.9	7.3	7.7	7.1	7.3
	DO - FH CTRL	7.4	8.0	7.7	7.9	8.0	6.5	7.7
	After 24 hrs. R							
	1	7.3	7.7	7.4	7.9	8.1	6.6	7.5
	2	7.3	7.6	7.3	7.8	8.0	6.3	7.4
	3	7.4	7.6	7.3	7.9	8.1	6.4	7.8
	4	7.5	7.4	7.1	7.8	8.0	6.8	7.8
	5	7.6	7.3	7.1	7.7	8.0	6.9	7.6
	Temp CTRL	25.3	25.5	25.2	24.9	24.4	24.9	24.8
	After 24 hrs (°C)R							
	1	25.2	25.2	25.0	24.6	24.6	24.7	24.8
	2	25.1	25.0	25.1	24.7	24.5	24.8	24.7
	3	25.2	25.1	25.3	24.6	24.6	24.7	24.7
	4	25.2	25.4	25.0	24.7	24.7	24.7	24.8
5	25.3	25.5	25.5	24.6	24.8	24.7	24.9	
ANALYST:	CF	lw	lw	lw	lw	lw	lw	
DATE:	4/21/21	4/22/21	4/23/21	4/24/21	4/25/21	4/26/21	4/27/21	

Conductivity (µS/cm)

INITIAL READINGS	Initial CTRL	166.8	158.6	152.7	151.9	157.2	157.6	167.6
	R							
	100%	502	465	438	353	269	277	476
	INITIAL :	CF	CF	lw	lw	lw	lw	lw
	DATE :	4/20/21	4/21/21	4/22/21	4/23/21	4/24/21	4/25/21	4/26/21

Total Residual Chlorine DL = 0.02mg/L

INITIAL READINGS	Initial CTRL	20.02		20.02		20.02	
	R						
	100%	20.02		20.02		20.02	
	INITIAL :	CF		lw		lw	
	DATE :	4/20/21		4/22/21		4/24/21	
	DPD Cl2 Reagent	21-Reag- 0250		21-Reag- 0250		21-Reag- 0250	

Comments / Observations:

Tests are maintained at 25 ± 1 °C
Incubator ID: BIO Thermometer ID: 120554

Meter	ID
pH	PH 21
Conductivity	C1
DO	DM4
Temp.	T83

Waypoint Analytical, LLC.
 CERIODAPHNIA SURVIVAL AND REPRODUCTION DATA

SAMPLE ID: Pine Bluff

TEST START - DATE/TIME: 4/20/21 1321 ANALYST: CF

REPORT #: 21-110-0393

TEST END - DATE/TIME: 4/27/21 1520 ANALYST: lw

ORGANISM REF#: 21-REAG-0017

RANDOMIZING KEY #: 33

ANALYST: CF

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	CF	4/21/21
	2	0	0	0	0	0	0	0	0	0	0	CF	4/22/21
	3	0	0	4	0	3	0	0	0	0	0	lw	4/23/21
	4	2	5	0	0	0	0	4	0	3	4	lw	4/24/21
	5	3	3	4	4	3	3	5	3	9	8	lw	4/25/21
	6	14	11	7	14	14	11	0	14	0	13	CF	4/26/21
	7	0	0	1	0	1	5	10	10	18	3	lw	4/27/21
CONC.	REPLICATE										INITIALS	DATE	
2	DAY	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	CF	
	2	0	0	0	0	0	0	0	0	0	0	CF	
	3	0	0	0	0	0	0	0	0	0	0	lw	
	4	3	5	0	2	0	6	0	0	0	6	lw	
	5	2	11	0	7	9	4	1	4	2	2	lw	
	6	16	0	13	0	14	27	0	13	7	13	CF	
	7	1	10	10	13	0	0	0	0	11	0	lw	
CONC.	REPLICATE										INITIALS	DATE	
3	DAY	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	CF	
	2	0	0	0	0	0	0	0	0	0	0	CF	
	3	0	0	0	0	4	0	0	0	0	0	lw	
	4	2	6	0	4	0	0	0	0	4	0	lw	
	5	3	7	2	13	5	0	9	11	10	5	lw	
	6	9	22	8	0	22	0	17	16	9	21	CF	
	7	0	1	0	18	16	1	0	0	1	0	lw	
CONC.	REPLICATE										INITIALS	DATE	
4	DAY	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	CF	
	2	0	0	0	0	0	0	0	0	0	0	CF	
	3	0	0	0	0	80	0	0	5	0	6	lw	
	4	5	5	0	4	0	4	3	1	6	0	lw	
	5	6	8	4	4	6	11	3	8	9	3	lw	
	6	12	13	10	15	13	15	3	17	14	13	CF	
	7	1	0	0	10	13	1	0	15	0	0	lw	
CONC.	REPLICATE										INITIALS	DATE	
5	DAY	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	CF	
	2	0	0	0	0	0	0	0	0	0	0	CF	
	3	0	0	0	0	8	0	0	0	0	0	lw	
	4	4	6	0	6	0	5	0	0	4	0	lw	
	5	2	2	4	5	5	4	3	7	5	3	lw	
	6	7	15	8	12	7	13	2	5	13	6	CF	
	7	0	0	11	4	1	0	11	2	2	10	lw	
CONC.	REPLICATE										INITIALS	DATE	
6	DAY	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	CF	
	2	0	0	0	0	0	0	0	0	0	0	CF	
	3	0	0	0	0	0	0	0	0	0	0	lw	
	4	2	0	0	5	0	0	2	0	0	0	lw	
	5	8	0	0	4	5	9	6	0	2	3	lw	
	6	0	0	0	11	15	14	8	0	0	14	CF	
	7	15	0	0	0	2	1	0	0	0	0	lw	

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

SAMPLE ID: Pine Bluff REPORT # 21-110-0393

DATE START: 4/20/21 DATE END: 4/27/21

CERIODAPHNIA DUBIA REFERENCE # 21-REAG- 0017

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	4/20/21	CF	0	21-REAG- 1790	21-REAG- 1569
	4/21/21	CF	1	21-REAG- 1790	21-REAG- 1569
	4/22/21	CF	2	21-REAG- 1790	21-REAG- 1792
	4/23/21	IW	3	21-REAG- 1790	21-REAG- 1792
	4/24/21	IW	4	21-REAG- 1790	21-REAG- 1792
	4/25/21	IW	5	21-REAG- 1790	21-REAG- 1792
	4/26/21	CF	6	21-REAG- 1790	21-REAG- 1792

	TEST DAY	CONTROL WATER	SAMPLE LAB ID
(Comp. 1)	0	21-REAG- 1849	L 87253
	1	21-REAG- 1851	↓
(Comp. 2)	2	21-REAG- 1866	L 88883
	3	21-REAG- 1885	↓
(Comp. 3)	4	21-REAG- 1897	L 90502
	5	21-REAG- 1908	↓
	6	21-REAG- 1915	↓

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: N/A

WAYPOINT ANALYTICAL, LLC.
 SAMPLE FILTERING RECORD
7-DAY CERIODAPHNIA DUBIA

SAMPLE ID: Pine Bluff REPORT # 21-110-0393

DATE START: 4/20/21 DATE END: 4/27/21

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	SAMPLE FILTERED	SAMPLE LAB ID:	REASON FILTERING
CHRONIC			0	YES / <u>NO</u>		DEBRIS / ORGANISMS
			1	YES / <u>NO</u>		DEBRIS / ORGANISMS
			2	YES / <u>NO</u>		DEBRIS / ORGANISMS
			3	YES / <u>NO</u>		DEBRIS / ORGANISMS
	<u>4/24/21</u>	<u>lw</u>	4	<u>YES</u> / NO	<u>L90507</u>	DEBRIS / <u>ORGANISMS</u> lots
	<u>4/25/21</u>	<u>lw</u>	5	<u>YES</u> / NO	<u>I</u>	DEBRIS / <u>ORGANISMS</u>
	<u>4/26/21</u>	<u>es</u>	6	<u>YES</u> / NO		DEBRIS / <u>ORGANISMS</u>

COMMENTS: Sefar Nitex 30-60/35 mesh. Lot 2512750103
 Samples should be filtered if it contains excess debris or indiginous organisms

ANALYST COMMENTS:

CERIODAPHNIA RANDOMIZATION TRANSLATION

RANDOMIZING KEY #:

33

REPORT #

21-110-0393

TEST CONCENTRATIONS:

1: Control

2:

4

3:

5

4:

7

5:

9

6:

12

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

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

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

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

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

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

TEST DATA SHEET FOR FATHEAD MINNOW SURVIVAL (7-DAY)

SAMPLE ID: Pine Bluff

REPORT #: 21-110-0393

TEST START - DATE/TIME: 4/20/21 1255

ANALYST: CF

TEST END - DATE/TIME : 4/27/21 1450

ANALYST: lw

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	7 A	8	8	8	8	8	8	8	8	
	9 B	8	8	8	8	8	8	8	8	
	4 C	8	8	8	8	8	8	8	8	
	C D	8	8	8	8	8	8	8	8	
	5 E	8	8	8	8	8	8	8	8	
2	5 A	8	8	8	8	8	8	8	8	
	12 B	8	8	8	8	8	8	8	8	
	7 C	8	8	8	8	8	8	8	8	
	9 D	8	8	8	8	8	8	8	8	
	4 E	8	8	8	8	8	8	8	8	
3	12 A	8	8	8	8	8	8	8	8	
	4 B	8	8	8	8	8	8	8	8	
	C C	8	8	8	8	8	8	8	8	
	5 D	8	8	8	8	8	8	8	8	
	7 E	8	8	8	8	8	8	7	7	
4	12 A	8	8	8	8	8	8	8	8	
	9 B	8	8	8	8	8	8	8	8	
	12 C	8	8	8	8	8	8	8	8	
	7 D	8	8	8	8	8	8	8	8	
	C E	8	8	8	8	8	8	8	8	
5	12 A	8	8	8	8	8	8	8	8	
	C B	8	8	8	8	8	8	8	8	
	5 C	8	8	8	8	8	8	8	8	
	4 D	8	8	8	8	8	8	8	8	
	9 E	8	8	8	8	8	8	8	8	
6	C A	8	8	8	8	8	8	8	8	
	4 B	8	8	8	8	8	8	8	8	
	5 C	8	8	8	8	8	8	8	8	
	7 D	8	8	7	7	7	7	7	7	
	9 E	8	8	8	7	7	7	7	7	
INITIALS		CF	CF	CF	lw	lw	lw	CF	lw	
DATE		4/20/21	4/21/21	4/22/21	4/23/21	4/24/21	4/25/21	4/26/21	4/27/21	

ORGANISM REF#: 21-REAG- 1856

COMMENTS:

P:\QC\Quality System - ETC\0 Forms\Bioassay Forms\BIO BATCH SHEETS\21 - 7 Day FH surv 5 rep AR

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

SAMPLE ID: Pine Bluff REPORT # 21-110-0393

DATE START: 4/20/21 DATE END: 4/24/21

FATHEAD MINNOW REFERENCE # 21-REAG- 1856

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	CONTROL WATER	BRINE SHRIMP	SAMPLE LAB ID:	
CHRONIC	4/20/21	CF	0	21-REAG- 1849	21-REAG- 1837	87253	(Comp. 1)
	4/21/21	CF	1	21-REAG- 1851	21-REAG- 1848	↓	
	4/22/21	CF	2	21-REAG- 1866	21-REAG- 1864	88883	(Comp. 2)
	4/23/21	IW	3	21-REAG- 1885	21-REAG- 1884	↓	
	4/24/21	IW	4	21-REAG- 1897	21-REAG- 1898	L90502	(Comp. 3)
	4/25/21	IW	5	21-REAG- 1908	21-REAG- 1914	↓	
	4/26/21	CF	6	21-REAG- 1915	21-REAG- 1920	↓	

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:

WAYPOINT ANALYTICAL, LLC.
 SAMPLE FILTERING RECORD
7-DAY FATHEAD MINNOW

SAMPLE ID: Pine Bluff REPORT # 21-110-0390

DATE START: 4/20/21 DATE END: 4/21/21

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	SAMPLE FILTERED	SAMPLE LAB ID:	REASON FILTERING
CHRONIC			0	YES / <u>NO</u>		DEBRIS / ORGANISMS
			1	YES / <u>NO</u>		DEBRIS / ORGANISMS
			2	YES / <u>NO</u>		DEBRIS / ORGANISMS
			3	YES / <u>NO</u>		DEBRIS / ORGANISMS
	<u>4/24/21</u>	<u>lw</u>	4	<u>YES</u> / NO	<u>L90502</u>	DEBRIS / ORGANISMS
	<u>4/25/21</u>	<u>lw</u>	5	<u>YES</u> / NO	<u>0</u>	DEBRIS / ORGANISMS
	<u>4/26/21</u>	<u>CF</u>	6	<u>YES</u> / NO	<u>I</u>	DEBRIS / ORGANISMS

lots

COMMENTS: Sefar Nitex 30-60/35 mesh. Lot 2512750103
 Samples should be filtered if it contains excess debris or indiginous organisms

ANALYST COMMENTS:

FATHEAD MINNOW FINAL WEIGHT SHEET

SAMPLE ID: Pine Bluff

REPORT #: 21-110-0393

INITIAL WEIGHT DATE/TIME: 4/27/21 738

ANALYST: W

DATE/TIME IN OVEN: 4/27/21 1720 TEMP (°C): 81

ANALYST: W

DATE/TIME OUT OVEN: 4/28/21 837 TEMP (°C): 82

ANALYST: CF

FINAL WEIGHT DATE/TIME: 4/28/21 1646

ANALYST: CF

Oven ID : 03
Balance ID: B12

Thermometer ID: T49
Temp Range : 50 - 105 °C

	REP ID	CRUC ID	INT WEIGHT (g)	FINAL WEIGHT (g)	# LARV	REMARKS
1	A	Four	31.4324	31.4379	8	
	B	Ben	25.4351	25.4400	8	
	C	Ti	33.7970	33.8027	8	
	D	Aid	29.6968	29.7008	8	
	E	Fa	28.7309	28.7368	8	
2	A	So	32.3955	32.4008	8	
	B	Delta	31.5347	31.5393	8	
	C	Dory	29.5410	29.5462	8	
	D	La	28.8804	28.8853	8	
	E	Kong	27.2438	27.2495	8	
3	A	Shi	28.9360	28.9421	8	
	B	Phil	26.2890	26.2940	8	
	C	Bob	24.6942	24.6988	8	
	D	671	25.4188	25.4239	8	
	E	PD	29.0090	29.0142	7	
4	A	4K	31.2807	31.2867	8	
	B	Blake	27.5263	27.5317	8	
	C	47	23.5146	23.5210	8	
	D	SUN	28.0116	28.0174	8	
	E	leave	33.6389	33.6452	8	
5	A	Loi	25.8422	25.8479	8	
	B	Corn	35.3735	35.3790	8	
	C	Pawn	31.1020	31.1076	8	
	D	PCE	31.2080	31.2139	8	
	E	Valve	29.7377	29.7446	8	
6	A	xEl6	30.5693	30.5746	8	
	B	MDI	29.4461	29.4521	8	
	C	glen	31.4488	31.4555	8	
	D	C	27.5962	27.6013	7	
	E	89	23.2806	23.2860	7	

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

Comments/Observations: