

08/17/2020

Harrison Wastewater Treatment Plant  
Ms. Kathryn Catlin  
PO Box 1715  
Harrison, AR 72601

Ref: Analytical Testing  
Report Number: 20-210-0390  
Client Project Description: Bioassay QTR 3  
AR0034321

Dear Ms. Kathryn Catlin:

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

The results of this WET (Whole Effluent Toxicity) test are acceptable according to test review criteria for the species *Pimephales promelas*. 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 < 27 % CV = 102.31 %  
Fathead minnow NOEL = 84 % CV = 13.76 %

Permit Limit: Critical dilution = 84 %  
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:** 17 Aug-20 16:35 ( 1 of 1 )  
**Test Code:** 20-210-0390 cd | 20-3211-6046

<b>Facility:</b> Harrison Treatment Plant	<b>Test Name:</b> Ceriodaphnia 7-d Survival and Reproduction Test
<b>Sample Site:</b>	<b>Organism:</b> Ceriodaphnia dubia (Water Flea)
<b>Sample Code:</b> 20-210-0390	<b>Protocol:</b> EPA/821/R-02-013 (2002)
<b>Sample Date:</b> 27 Jul-20 09:00	<b>Start Date:</b> 28 Jul-20 10:01
<b>Sample Age:</b> 25h (0.8 °C)	<b>End Date:</b> 03 Aug-20 12:38
<b>Project:</b> WET Quarterly Compliance Test (3Q)	<b>Duration:</b> 6d 3h <b>Organism Age:</b> <24
<b>Permittee:</b> Harrison Treatment Plant	<b>Laboratory:</b> Waypoint Analytical Tennessee , LLC.
<b>Address:</b> PO Box 1715 Harrison, AR 72601	<b>Address:</b> 2790 Whitten Road Memphis, TN 38133
<b>Contact:</b> Ms. Kathryn Catlin	<b>Contact:</b> Ms. Blake Andres, Lab Supervisor
<b>Phone:</b> 870-741-5527	<b>Phone:</b> 901-271-5200, 901-213-2440(fax)
<b>Email:</b> kathryn.catlin@cityofharrison.com	<b>Email:</b> sandres@waypointanalytical.com

**Comments:**

**Chronic Toxicity Evaluation**

Endpoint	Criteria	Conc-%	IWC	Decision	Method
Reproduction	NOEL/LOEL	<27/27	83.99	Fails IWC	Steel Many-One Rank Sum Test

**Test Acceptability Criteria**

Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
			Lower	Upper		
6d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	20.6	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%
27		10	0.5	0.3067	0.6933	0	1	0.1667	0.527	105.40%	50.0%
35		10	0.6	0.4106	0.7894	0	1	0.1633	0.5164	86.07%	40.0%
47		10	0.5	0.3067	0.6933	0	1	0.1667	0.527	105.40%	50.0%
63		10	0.6	0.4106	0.7894	0	1	0.1633	0.5164	86.07%	40.0%
84		10	0.6	0.4106	0.7894	0	1	0.1633	0.5164	86.07%	40.0%

**Reproduction Data Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	20.6	17.84	23.36	10	35	2.377	7.516	36.48%	0.0%
27		10	6.9	2.99	10.81	0	28	3.371	10.66	154.50%	66.5%
35		10	8.3	4.881	11.72	0	25	2.948	9.322	112.30%	59.71%
47		10	3.5	1.857	5.143	0	11	1.416	4.478	128.00%	83.01%
63		10	6.1	3.634	8.566	0	16	2.126	6.724	110.20%	70.39%
84		10	5.7	3.561	7.839	0	14	1.844	5.832	102.30%	72.33%

# CETIS Summary Report

Report Date: 17 Aug-20 16:36 (p 1 of 2)  
 Test Code: 20-210-0390 cd | 20-3211-6046

## Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

<b>Batch ID:</b> 04-8972-3598	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Ivey E. Wilkinson
<b>Start Date:</b> 28 Jul-20 10:01	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 03 Aug-20 12:38	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 3h	<b>Source:</b> In-House Culture	<b>Age:</b> <24

<b>Sample ID:</b> 11-4520-6942	<b>Code:</b> 20-210-0390	<b>Client:</b> Harrison Treatment Plant
<b>Sample Date:</b> 27 Jul-20 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Receipt Date:</b> 28 Jul-20 08:00	<b>Source:</b> Harrison Treatment Plant (AR0034321)	
<b>Sample Age:</b> 25h (0.8 °C)	<b>Station:</b>	

### Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	20-210-0390	28 Jul-20 10:00	29 Jul-20 07:45	30 Jul-20 00:00	3.7
2	20-210-0390	30 Jul-20 10:00	31 Jul-20 08:10	01 Aug-20 00:00	1.7

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
00-0797-4855	6d Survival Rate	Fisher Exact/Bonferroni-Holm Test	84	> 84	n/a	1.19	n/a
10-6603-9018	Reproduction	Steel Many-One Rank Sum Test	< 27	27	n/a	>3.704	38.3%

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
00-0797-4855	6d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptability Criteria
10-6603-9018	Reproduction	Control Resp	20.6	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%
27		10	0.5000	0.1230	0.8770	0.0000	1.0000	0.1667	0.5270	105.41%	50.00%
35		10	0.6000	0.2306	0.9694	0.0000	1.0000	0.1633	0.5164	86.07%	40.00%
47		10	0.5000	0.1230	0.8770	0.0000	1.0000	0.1667	0.5270	105.41%	50.00%
63		10	0.6000	0.2306	0.9694	0.0000	1.0000	0.1633	0.5164	86.07%	40.00%
84		10	0.6000	0.2306	0.9694	0.0000	1.0000	0.1633	0.5164	86.07%	40.00%

### Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	20.6	15.22	25.98	10	35	2.377	7.516	36.48%	0.00%
27		10	6.9	-0.7264	14.53	0	28	3.371	10.66	154.51%	66.50%
35		10	8.3	1.631	14.97	0	25	2.948	9.322	112.31%	59.71%
47		10	3.5	0.2964	6.704	0	11	1.416	4.478	127.95%	83.01%
63		10	6.1	1.29	10.91	0	16	2.126	6.724	110.23%	70.39%
84		10	5.7	1.528	9.872	0	14	1.844	5.832	102.31%	72.33%

**CETIS Summary Report**

**Report Date:** 17 Aug-20 16:36 (p 2 of 2)  
**Test Code:** 20-210-0390 cd | 20-3211-6046

**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
27		1.0000	1.0000	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000
35		1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	0.0000	1.0000	0.0000	1.0000
47		1.0000	0.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	0.0000
63		1.0000	0.0000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.0000
84		1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000

**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	35	22	24	16	27	10	21	13	24	14
27		28	1	0	23	0	4	0	13	0	0
35		16	10	0	25	20	0	0	9	0	3
47		11	0	0	3	4	0	11	6	0	0
63		14	0	1	16	0	0	6	11	13	0
84		3	12	8	14	7	0	0	13	0	0

**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
27		1/1	1/1	0/1	1/1	0/1	1/1	0/1	1/1	0/1	0/1
35		1/1	1/1	0/1	1/1	1/1	0/1	0/1	1/1	0/1	1/1
47		1/1	0/1	0/1	1/1	1/1	0/1	1/1	1/1	0/1	0/1
63		1/1	0/1	1/1	1/1	0/1	0/1	1/1	1/1	1/1	0/1
84		1/1	1/1	1/1	1/1	1/1	0/1	0/1	1/1	0/1	0/1

# CETIS Measurement Report

Report Date: 17 Aug-20 16:36 (p 1 of 3)  
Test Code: 20-210-0390 cd | 20-3211-6046

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## Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

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<b>Batch ID:</b> 04-8972-3598	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Ivey E. Wilkinson
<b>Start Date:</b> 28 Jul-20 10:01	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 03 Aug-20 12:38	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 3h	<b>Source:</b> In-House Culture	<b>Age:</b> <24

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<b>Sample ID:</b> 11-4520-6942	<b>Code:</b> 20-210-0390	<b>Client:</b> Harrison Treatment Plant
<b>Sample Date:</b> 27 Jul-20 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Receipt Date:</b> 28 Jul-20 08:00	<b>Source:</b> Harrison Treatment Plant (AR0034321)	
<b>Sample Age:</b> 25h (0.8 °C)	<b>Station:</b>	

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**CETIS Measurement Report**

**Report Date:** 17 Aug-20 16:36 (p 2 of 3)  
**Test Code:** 20-210-0390 cd | 20-3211-6046

**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
27								
35								
47								
63								
84		0	0	0	0	0	0	0

**Conductivity-µS/cm**

Conc-%	Code	1	2	3	4	5	6	7
0	L	169.4	159	172.5	169.7	169.2	171.3	162.4
27								
35								
47								
63								
84		509	470	479	464	506	518	471

**Final Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.8	8.5	8	8.8	8.6	8.7	
27		8.9	8.5	8.1	8.6	8.6	8.6	
35		8.9	8.5	8.3	8.9	8.2	8.7	
47		8.9	8.5	8.3	9	8.3	8.6	
63		9	8.6	8.4	9.1	8.3	8.7	
84		8.8	8.5	8.5	9.1	8.4	8.7	

**Initial Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.2	8.7	8.2	8.7	8.1	8	8.7
27		8.5	8.8	8.3	8.6	8.6	8	8.6
35		8.6	9.1	8.3	8.6	8.6	7.9	8.2
47		8.9	9.3	8.4	8.8	8.7	7.9	8.2
63		8.9	9.4	8.4	8.8	8.8	8	8.2
84		9.1	9.3	8.4	8.7	8.8	8	8.2

**Final pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.6	7.8	7.5	7.9	7.8	7.7	
27		7.7	7.8	7.6	7.9	7.8	7.8	
35		7.7	7.8	7.7	7.9	7.8	7.8	
47		7.7	7.8	7.6	7.9	7.9	7.8	
63		7.7	7.9	7.6	7.9	7.8	7.8	
84		7.7	7.9	7.7	7.9	7.8	7.8	

**Initial pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.5	7	7.7	7.7	7.6	7.7	7.8
27		7.5	7.6	7.5	7.6	7.5	7.6	7.8
35		7.5	7.5	7.4	7.6	7.5	7.6	7.8
47		7.5	7.5	7.4	7.5	7.4	7.7	7.7
63		7.5	7.4	7.3	7.4	7.4	7.6	7.5
84		7.4	7.5	7.2	7.2	7.2	7.6	7.4

# CETIS Measurement Report

Report Date: 17 Aug-20 16:36 (p 3 of 3)  
Test Code: 20-210-0390 cd | 20-3211-6046

## 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	22.9	22.8	21.9	23.1	22.9	24	
27		22.8	22.7	21.9	22.9	23.1	24.1	
35		22.8	22.6	21.9	23	23.2	24.1	
47		22.8	22.8	21.9	23.1	23.3	24	
63		22.8	22.6	21.9	23	23	24	
84		22.7	22.6	21.9	23.1	23.1	24.1	

### Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	22.9	22.7	23.1	22.7	22.7	23	21.9
27		23.5	22.5	23.1	22.5	24.2	22.9	22.3
35		23.8	22.7	23.1	22.3	24.3	22.9	22.3
47		24.3	22.9	24.4	22.2	24.4	22.8	22.5
63		24.8	23.3	23.3	22.1	24.5	23	22.7
84		25.2	23.5	23.3	21.8	25	22.9	22.9

# CETIS Test Evaluation Report

**Report Date:** 17 Aug-20 16:36 ( 1 of 1 )  
**Test Code:** 20-210-0390 fh | 18-9310-7898

<b>Facility:</b> Harrison Treatment Plant	<b>Test Name:</b> Fathead Minnow 7-d Larval Survival and Growth Test
<b>Sample Site:</b>	<b>Organism:</b> Pimephales promelas (Fathead Minnow)
<b>Sample Code:</b> 20-210-0390	<b>Protocol:</b> EPA/821/R-02-013 (2002)
<b>Sample Date:</b> 27 Jul-20 09:00	<b>Start Date:</b> 28 Jul-20 10:00
<b>Sample Age:</b> 25h (0.8 °C)	<b>End Date:</b> 04 Aug-20 09:00
<b>Project:</b> WET Quarterly Compliance Test (3Q)	<b>Duration:</b> 6d 23h <b>Organism Age:</b> <24
<b>Permittee:</b> Harrison Treatment Plant	<b>Laboratory:</b> Waypoint Analytical Tennessee , LLC.
<b>Address:</b> PO Box 1715 Harrison, AR 72601	<b>Address:</b> 2790 Whitten Road Memphis, TN 38133
<b>Contact:</b> Ms. Kathryn Catlin	<b>Contact:</b> Ms. Blake Andres, Lab Supervisor
<b>Phone:</b> 870-741-5527	<b>Phone:</b> 901-271-5200, 901-213-2440(fax)
<b>Email:</b> kathryn.catlin@cityofharrison.com	<b>Email:</b> sandres@waypointanalytical.com

**Comments:**

**Chronic Toxicity Evaluation**

Endpoint	Criteria	Conc-%	IWC	Decision	Method
7d Survival Rate	NOEL/LOEL	84/>84	83.99	Passes IWC	Steel Many-One Rank Sum Test
Mean Dry Weight-mg	NOEL/LOEL	84/>84	83.99	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	0.465	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%
27		5	1	1	1	1	1	0	0	0.00%	-5.26%
35		5	0.9	0.8498	0.9502	0.75	1	0.06124	0.1369	15.21%	5.26%
47		5	0.95	0.9249	0.9751	0.875	1	0.03062	0.06847	7.21%	0.0%
63		5	0.95	0.9249	0.9751	0.875	1	0.03062	0.06847	7.21%	0.0%
84		5	0.975	0.9545	0.9955	0.875	1	0.025	0.0559	5.73%	-2.63%

**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	0.465	0.4415	0.4885	0.4125	0.575	0.02861	0.06398	13.76%	0.0%
27		5	0.52	0.506	0.534	0.475	0.5625	0.01705	0.03812	7.33%	-11.83%
35		5	0.4875	0.4587	0.5163	0.35	0.5375	0.03513	0.07856	16.12%	-4.84%
47		5	0.5925	0.5616	0.6234	0.5	0.7125	0.03762	0.08413	14.20%	-27.42%
63		5	0.645	0.6185	0.6715	0.55	0.7125	0.03226	0.07213	11.18%	-38.71%
84		5	0.565	0.5551	0.5749	0.5375	0.6	0.01212	0.0271	4.80%	-21.51%



# CETIS Summary Report

Report Date: 17 Aug-20 16:36 (p 1 of 2)  
 Test Code: 20-210-0390 fh | 18-9310-7898

## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 06-1171-1081      Test Type: Growth-Survival (7d)      Analyst: Ivey E. Wilkinson  
 Start Date: 28 Jul-20 10:00      Protocol: EPA/821/R-02-013 (2002)      Diluent: 20% DMW  
 Ending Date: 04 Aug-20 09:00      Species: Pimephales promelas      Brine: Not Applicable  
 Duration: 6d 23h      Source: Aquatic Biosystems, CO      Age: <24

Sample ID: 11-4520-6942      Code: 20-210-0390      Client: Harrison Treatment Plant  
 Sample Date: 27 Jul-20 09:00      Material: POTW Effluent      Project: WET Quarterly Compliance Test (3Q)  
 Receipt Date: 28 Jul-20 08:00      Source: Harrison Treatment Plant (AR0034321)  
 Sample Age: 25h (0.8 °C)      Station:

### Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	20-210-0390	28 Jul-20 10:00	29 Jul-20 07:45	30 Jul-20 00:00	3.7
2	20-210-0390	30 Jul-20 10:00	31 Jul-20 08:10	01 Aug-20 00:00	1.7

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
00-9258-5901	7d Survival Rate	Steel Many-One Rank Sum Test	84	> 84	n/a	1.19	11.9%
19-3703-6027	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	84	> 84	n/a	1.19	20.6%

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
00-9258-5901	7d Survival Rate	Control Resp	0.95	0.8	>>	Yes	Passes Acceptability Criteria
19-3703-6027	Mean Dry Weight-mg	Control Resp	0.465	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%
27		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-5.26%
35		5	0.9000	0.7300	1.0000	0.7500	1.0000	0.0612	0.1369	15.21%	5.26%
47		5	0.9500	0.8650	1.0000	0.8750	1.0000	0.0306	0.0685	7.21%	0.00%
63		5	0.9500	0.8650	1.0000	0.8750	1.0000	0.0306	0.0685	7.21%	0.00%
84		5	0.9750	0.9056	1.0000	0.8750	1.0000	0.0250	0.0559	5.73%	-2.63%

### Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.465	0.3856	0.5444	0.4125	0.575	0.02861	0.06398	13.76%	0.00%
27		5	0.52	0.4727	0.5673	0.475	0.5625	0.01705	0.03812	7.33%	-11.83%
35		5	0.4875	0.39	0.585	0.35	0.5375	0.03513	0.07856	16.12%	-4.84%
47		5	0.5925	0.488	0.697	0.5	0.7125	0.03762	0.08413	14.20%	-27.42%
63		5	0.645	0.5554	0.7346	0.55	0.7125	0.03226	0.07213	11.18%	-38.71%
84		5	0.565	0.5314	0.5986	0.5375	0.6	0.01212	0.0271	4.80%	-21.51%

# CETIS Summary Report

Report Date: 17 Aug-20 16:36 (p 2 of 2)  
Test Code: 20-210-0390 fh | 18-9310-7898

## 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
27		1.0000	1.0000	1.0000	1.0000	1.0000
35		0.7500	0.7500	1.0000	1.0000	1.0000
47		1.0000	0.8750	1.0000	0.8750	1.0000
63		0.8750	1.0000	1.0000	0.8750	1.0000
84		1.0000	0.8750	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	0.575	0.4625	0.4375	0.4125	0.4375
27		0.55	0.525	0.475	0.5625	0.4875
35		0.5125	0.35	0.5	0.5375	0.5375
47		0.6375	0.5375	0.575	0.5	0.7125
63		0.55	0.5875	0.7125	0.7	0.675
84		0.55	0.55	0.5875	0.6	0.5375

### 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
27		8/8	8/8	8/8	8/8	8/8
35		6/8	6/8	8/8	8/8	8/8
47		8/8	7/8	8/8	7/8	8/8
63		7/8	8/8	8/8	7/8	8/8
84		8/8	7/8	8/8	8/8	8/8

# CETIS Measurement Report

Report Date: 17 Aug-20 16:36 (p 1 of 3)  
Test Code: 20-210-0390 fh | 18-9310-7898

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## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical Tennessee, LLC.

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<b>Batch ID:</b> 06-1171-1081	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Ivey E. Wilkinson
<b>Start Date:</b> 28 Jul-20 10:00	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 04 Aug-20 09:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 23h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b> <24

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<b>Sample ID:</b> 11-4520-6942	<b>Code:</b> 20-210-0390	<b>Client:</b> Harrison Treatment Plant
<b>Sample Date:</b> 27 Jul-20 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Receipt Date:</b> 28 Jul-20 08:00	<b>Source:</b> Harrison Treatment Plant (AR0034321)	
<b>Sample Age:</b> 25h (0.8 °C)	<b>Station:</b>	

**CETIS Measurement Report**

**Report Date:** 17 Aug-20 16:36 (p 2 of 3)  
**Test Code:** 20-210-0390 fh | 18-9310-7898

**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
27								
35								
47								
63								
84		0	0	0	0	0	0	0

**Conductivity-µS/cm**

Conc-%	Code	1	2	3	4	5	6	7
0	L	169.4	159	172.5	169.7	169.2	171.3	162.4
27								
35								
47								
63								
84		509	470	479	464	506	518	471

**Final Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.3	7	7.2	6.6	6.8	7.1	10.7
27		7.2	6.6	6.6	6.3	6.9	7.4	10.8
35		7.1	6.9	6.7	6.3	6.8	6.8	10.2
47		7.1	7.2	6.8	6.5	6.8	7	10.5
63		7.2	7.2	7	6.4	6.8	7.1	10.6
84		7.1	7.2	6.8	6.4	6.9	8	10.7

**Initial Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.2	8.7	8.2	8.7	8.1	8	8.7
27		8.5	8.8	8.3	8.6	8.6	8	8.6
35		8.6	9.1	8.3	8.6	8.6	7.9	8.2
47		8.9	9.3	8.4	8.8	8.7	7.9	8.2
63		8.9	9.4	8.4	8.8	8.8	8	8.2
84		9.1	9.3	8.4	8.7	8.8	8	8.2

**Final pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7	7.1	7.3	7.2	7.1	7.3	7.3
27		7.1	7.1	7.2	7.1	7.1	7.4	7.4
35		7.1	7.2	7.3	7.1	7.1	7.4	7.3
47		7.2	7.3	7.3	7.2	7.1	7.5	7.3
63		7.4	7.4	7.4	7.2	7.1	7.5	7.4
84		7.4	7.4	7.3	7.2	7.1	7.6	7.4

**Initial pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.5	7	7.7	7.7	7.6	7.7	7.8
27		7.5	7.6	7.5	7.6	7.5	7.6	7.8
35		7.5	7.5	7.4	7.6	7.5	7.6	7.8
47		7.5	7.5	7.4	7.5	7.4	7.7	7.7
63		7.5	7.4	7.3	7.4	7.4	7.6	7.5
84		7.4	7.5	7.2	7.2	7.2	7.6	7.4

# CETIS Measurement Report

Report Date: 17 Aug-20 16:36 (p 3 of 3)  
Test Code: 20-210-0390 fh | 18-9310-7898

## 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	24.1	24.4	22.7	24.9	22.7	21.1	24.4
27		23.8	24.3	22.6	25.1	22.9	20.7	24.6
35		23.8	24.3	22.7	25	23	20.7	24.4
47		23.8	24.3	22.7	25	23	20.4	24.2
63		23.8	24.4	22.5	24.9	23	20.5	24.3
84		23.7	24.6	22.7	25.1	23	20.3	24.4

### Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	22.9	22.7	23.1	22.7	22.7	23	21.9
27		23.5	22.5	23.1	22.5	24.2	22.9	22.3
35		23.8	22.7	23.1	22.3	24.3	22.9	22.3
47		24.3	22.9	24.4	22.2	24.4	22.8	22.5
63		24.8	23.3	23.3	22.1	24.5	23	22.7
84		25.2	23.5	23.3	21.8	25	22.9	22.9

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
  - 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 6156984
  - Sodium Chloride is used as the reference toxicity chemical for invertebrate species
  - Current chemical ID: CS 6158580
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

03322

Harrison Wastewater Treatment Plant  
 Mr. Randy Reese  
 1508 Silver Valley Road  
 Harrison , AR 72601

Project Bioassay  
 Information :

Report Number : **20-210-0390**

**REPORT OF ANALYSIS**

Report Date : 08/17/2020

Received : 07/28/2020

Lab No : **95586**

Sample ID : **Effluent Composite 7/26-27/20**

Matrix: **Aqueous**

Sampled: **7/27/2020 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>93</b>	mg/L	1	1	08/05/20 09:50	CJD	2320B-2011
Calcium	<b>48.3</b>	mg/L	0.500	1	08/04/20 21:24	TJS	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>134</b>	mg/L	0.100	1	08/04/20 21:24		EPA-200.7
Magnesium	<b>3.24</b>	mg/L	0.100	1	08/04/20 21:24	TJS	EPA-200.7

Lab No : **97557**

Sample ID : **Effluent Composite 7/27-28/20**

Matrix: **Aqueous**

Sampled: **7/28/2020 10:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>80</b>	mg/L	1	1	08/05/20 09:50	CJD	2320B-2011
Calcium	<b>48.3</b>	mg/L	0.500	1	08/04/20 21:29	TJS	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>134</b>	mg/L	0.100	1	08/04/20 21:29		EPA-200.7
Magnesium	<b>3.18</b>	mg/L	0.100	1	08/04/20 21:29	TJS	EPA-200.7

Lab No : **98288**

Sample ID : **Effluent Composite 7/29-30/20**

Matrix: **Aqueous**

Sampled: **7/30/2020 10:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>78</b>	mg/L	1	1	08/05/20 09:50	CJD	2320B-2011
Calcium	<b>48.7</b>	mg/L	0.500	1	08/04/20 21:35	TJS	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>135</b>	mg/L	0.100	1	08/04/20 21:35		EPA-200.7
Magnesium	<b>3.32</b>	mg/L	0.100	1	08/04/20 21:35	TJS	EPA-200.7

**Qualifiers/  
Definitions**

DF Dilution Factor  
 MQL Method Quantitation Limit

L Limit Exceeded



<b>Kit ID:</b> 126727
<b>Initiated By:</b> Sydney Andres
<b>Initiated Date:</b> 10/24/2019
<b>Project Comment</b> Harrison WWTP Bioassay

**CHAIN-OF-CUSTODY**

<b>Company Name</b> Harrison Wastewater Treatment Plant	<b>Company Number</b> 03322	<b>Client Project Manager/Contact</b> Harrison Wastewater Treatment Plant	<b>Purchase Order Number</b>
<b>Site Name</b> QTR 3 A - Bioassay 07/26-27/2020	<b>Project Number</b>	<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results needed	<b>Method of Shipment</b> <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
<b>LIMS Project ID</b> Harrison - Bioassay	<b>Project Manager Phone #</b> (870) 741-5527	<b>Project Manager Email</b>	<b>Site/Facility ID #</b>

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
7/26-27/20	09:00 to 09:00	Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
7/26-27/20	09:00 to 09:00	Composite 1	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
7/26-27/20	09:00 to 09:00	Composite 1	Aqueous	C	2	Plastic - Gallon	NONE	Chronic CD/FH



20-210-0390  
 03322  
 07-28-2020  
 Harrison Wastewater Treatment Plant  
 Bioassay  
 09:52:08

<b>For Laboratory Use Only</b>			<b>Sampled by (Name - Print)</b> Randy Reese		<b>Client Remarks/Comments</b>			
<b>Ice</b> Y/N	<b>Custody Seals</b> Y/N	<b>Lab Comments</b>  Blank/Cooler Temp 0.8 T102 RH	<b>Relinquished by: (SIGNATURE)</b> Randy Reese	<b>Date Time</b> 7/27/20/09:30	<b>Received by: (SIGNATURE)</b>		<b>Date Time</b>	
			<b>Relinquished by: (SIGNATURE)</b>	<b>Date Time</b>	<b>Received by: (SIGNATURE)</b>		<b>Date Time</b>	
			<b>Relinquished by: (SIGNATURE)</b>	<b>Date Time</b>	<b>Received by: (SIGNATURE)</b>		<b>Date Time</b>	
			<b>Relinquished by: (SIGNATURE)</b>	<b>Date Time</b>	<b>Received by: (SIGNATURE)</b> Summer Harrison		<b>Date Time</b> 7/28/20 08:00	





OUT-OF-CUSTODY

#2

Kit ID:	126728
Initiated By:	Sydney Andres
Initiated Date:	10/24/2019
Project Comment	Harrison WWTP Bioassay

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Harrison Wastewater Treatment Plant	03322	Harrison Wastewater Treatment Plant	
Site Name	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	<b>Method of Shipment</b> <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
QTR 3 B - Bioassay 07/28-29/2020			
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
Harrison - Bioassay	(870) 741-5527		

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
7/27-28/20	10:00 to 10:00	Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
7/27-28/20	10:00 to 10:00	Composite 2	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
7/27-28/20	10:00 to 10:00	Composite 2	Aqueous	C	2	Plastic - Gallon	NONE	Chronic CD/FH

20-210-0390  
 03322  
 07-28-2020  
 09:52:08  
 Harrison Wastewater Treatment Plant  
 Bioassav

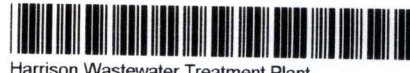
For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments				
Ice	Custody Seals	Lab Comments	Randy Reese					
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
				7/28/20	10:30			
				Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
3.7 T/101 SHT						Summerhiser	7/29/20	07:45



#3

Kit ID:	126729
Initiated By:	Sydney Andres
Initiated Date:	10/24/2019
Project Comment	Harrison WWTP Bioassay

CHAIN-OF-CUSTODY



Harrison Wastewater Treatment Plant  
Bioassay

20-210-0390  
03322  
07-28-2020  
09:52:08

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Harrison Wastewater Treatment Plant	03322	Harrison Wastewater Treatment Plant	
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 checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
QTR 3 C - Bioassay 07/30-31/2020			
LIMS Project ID	Project Manager Phone #	Project Manager Email	Site/Facility ID #
Harrison - Bioassay	(870) 741-5527		

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
7/28/20 7/30/20	10:00-10:00	Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
7/28/20 7/30/20	10:00-10:00	Composite 3	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
7/29/20 7/30/20	10:00-10:00	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	Jeremy Jennings					
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			Relinquished by: (SIGNATURE)					
Blank/Cooler Temp			Relinquished by: (SIGNATURE)					
1.7°C	T100							

7/31/20  
08:10