

04/01/2021

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

Ref: Analytical Testing
Report Number: 21-068-0391
Client Project Description: Bioassay QTR 1
AR0034321 – CD RT

Dear Ms. Kathryn Catlin:

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 = 84 %	CV = 25.72 %	PMSD = 44.8 %
	Fathead minnow NOEL = N/A	CV N/A	PMSD = N/A

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 Mar-21 16:11 (1 of 1)
Test Code: 21-068-0391 cd | 04-3663-6054

Facility: Harrison Treatment Plant
Sample Site:
Sample Code: 21-068-0391
Sample Date: 08 Mar-21 09:00
Sample Age: 28h (0.2 °C)
Project: WET Compliance Re-test

Permittee: Harrison Treatment Plant
Address:
 PO Box 1715
 Harrison, AR 72601

Contact: Ms. Kathryn Catlin
Phone: 870-741-5527
Email: kathryn.catlin@cityofharrison.com

Test Name: Ceriodaphnia 7-d Survival and Reproduction Test
Organism: Ceriodaphnia dubia (Water Flea)
Protocol: EPA/821/R-02-013 (2002)
Start Date: 09 Mar-21 12:33
End Date: 16 Mar-21 13:40
Duration: 7d 1h **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	84/>84	83.99	Passes IWC	Fisher Exact/Bonferroni-Holm Test
Reproduction	NOEL/LOEL	84/>84	83.99	Passes IWC	Steel Many-One Rank Sum Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
7d Survival Rate	Control Resp	0.9	0.8	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	17.6	15	>>	Yes	Passes Acceptability Criteria

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	0.0%
27		10	1	1	1	1	1	0	0	0.00%	-11.11%
35		10	1	1	1	1	1	0	0	0.00%	-11.11%
47		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	0.0%
63		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	0.0%
84		10	1	1	1	1	1	0	0	0.00%	-11.11%

Reproduction Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	17.6	15.94	19.26	11	25	1.431	4.526	25.72%	0.0%
27		10	24.6	21.84	27.36	6	34	2.381	7.531	30.61%	-39.77%
35		10	22.8	19.23	26.37	3	40	3.08	9.739	42.71%	-29.55%
47		10	20.8	17.09	24.51	0	36	3.197	10.11	48.60%	-18.18%
63		10	19.1	16.14	22.06	0	26	2.549	8.062	42.21%	-8.52%
84		10	16.5	14.98	18.02	11	22	1.31	4.143	25.11%	6.25%

CETIS Summary Report

Report Date: 17 Mar-21 16:11 (p 1 of 2)
 Test Code: 21-068-0391 cd | 04-3663-6054

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 04-2376-7132	Test Type: Reproduction-Survival (7d)	Analyst: Ivey E. Wilkinson
Start Date: 09 Mar-21 12:33	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 16 Mar-21 13:40	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 1h	Source: In-House Culture	Age: <24
Sample ID: 04-8003-8050	Code: 21-068-0391	Client: Harrison Treatment Plant
Sample Date: 08 Mar-21 09:00	Material: POTW Effluent	Project: WET Compliance Re-test
Receipt Date: 09 Mar-21 10:00	Source: Harrison Treatment Plant (AR0034321)	
Sample Age: 28h (0.2 °C)	Station:	

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	21-068-0391	09 Mar-21 09:00	10 Mar-21 10:05	11 Mar-21 00:00	3.2
2	21-068-0391	11 Mar-21 12:00	12 Mar-21 10:00	13 Mar-21 00:00	2.5

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
08-1118-0329	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	84	> 84	n/a	1.19	n/a
10-7721-5549	Reproduction	Steel Many-One Rank Sum Test	84	> 84	n/a	1.19	44.8%

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
08-1118-0329	7d Survival Rate	Control Resp	0.9	0.8	>>	Yes	Passes Acceptability Criteria
10-7721-5549	Reproduction	Control Resp	17.6	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%
27		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
35		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
47		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
63		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	0.00%
84		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	17.6	14.36	20.84	11	25	1.431	4.526	25.72%	0.00%
27		10	24.6	19.21	29.99	6	34	2.381	7.531	30.61%	-39.77%
35		10	22.8	15.83	29.77	3	40	3.08	9.739	42.71%	-29.55%
47		10	20.8	13.57	28.03	0	36	3.197	10.11	48.60%	-18.18%
63		10	19.1	13.33	24.87	0	26	2.549	8.062	42.21%	-8.52%
84		10	16.5	13.54	19.46	11	22	1.31	4.143	25.11%	6.25%

CETIS Summary Report

Report Date: 17 Mar-21 16:11 (p 2 of 2)
Test Code: 21-068-0391 cd | 04-3663-6054

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
27		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
35		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
47		1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
63		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000
84		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	13	17	23	20	16	14	11	25	16	21
27		25	25	31	34	23	6	21	27	28	26
35		32	24	21	24	3	18	40	17	27	22
47		23	25	0	16	17	36	33	24	19	15
63		17	25	25	26	18	18	13	24	25	0
84		19	11	20	22	11	20	12	19	14	17

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1
27		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
35		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
47		1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
63		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1
84		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: 17 Mar-21 16:11 (p 1 of 3)
Test Code: 21-068-0391 cd | 04-3663-6054

Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical Tennessee, LLC.

Batch ID: 04-2376-7132	Test Type: Reproduction-Survival (7d)	Analyst: Ivey E. Wilkinson
Start Date: 09 Mar-21 12:33	Protocol: EPA/821/R-02-013 (2002)	Diluent: 20% DMW
Ending Date: 16 Mar-21 13:40	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 7d 1h	Source: In-House Culture	Age: <24

Sample ID: 04-8003-8050	Code: 21-068-0391	Client: Harrison Treatment Plant
Sample Date: 08 Mar-21 09:00	Material: POTW Effluent	Project: WET Compliance Re-test
Receipt Date: 09 Mar-21 10:00	Source: Harrison Treatment Plant (AR0034321)	
Sample Age: 28h (0.2 °C)	Station:	

CETIS Measurement Report

Report Date: 17 Mar-21 16:11 (p 2 of 3)
Test Code: 21-068-0391 cd | 04-3663-6054

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	163.8	153.6	157.2	159.7	163.4	156.3	162.5
27								
35								
47								
63								
84		439	398	432	427	462	408	444

Final Dissolved Oxygen-mg/L

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

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.5	8	8.4	8.4	8.4	8.6	8.3
27		8.8	8.1	8.5	8.5	8.9	8.6	8.3
35		8.9	8.2	8.3	8.5	9	8.8	8.3
47		9.4	8.3	8.4	8.5	9.2	9.1	8.5
63		9.5	8	8.6	8.2	9.5	9.2	8.6
84		9.6	8.1	8.6	8	9.5	9.6	8.7

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.3	7.3	7.8	7.6	7.8	7.6	7.4
27		7.4	7.4	7.8	7.6	7.8	7.6	7.4
35		7.5	7.4	7.8	7.6	7.9	7.6	7.4
47		7.5	7.4	7.9	7.7	8	7.6	7.5
63		7.5	7.4	8	7.7	8	7.7	7.5
84		7.5	7.5	8	7.8	8	7.7	7.6

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.4	7.4	7.2	7.2	7.4	7.5	7.5
27		7.2	7.1	7.1	7.3	7.1	7.2	7.3
35		7.1	7.2	7.1	7.3	7.1	7.2	7.2
47		7	7	7	7.3	6.9	7.1	7.2
63		6.9	6.9	6.9	7.3	6.9	7	7.1
84		6.9	7	6.9	7.2	6.8	6.9	7

CETIS Measurement Report

Report Date: 17 Mar-21 16:11 (p 3 of 3)
Test Code: 21-068-0391 cd | 04-3663-6054

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	24.6	24.6	24	24.5	24.4	24.2	25.3
27		24.4	24.5	24	24.3	24.3	24.1	25.1
35		24.4	24.6	24	24.3	24.3	24	25
47		24.3	24.6	24.1	24.3	24.4	24.1	25.1
63		24.5	24.6	24.2	24.4	24.5	24.1	25.1
84		24.7	24.7	24.3	24.4	24.6	24.2	25

Initial Temperature-°C

Conc.-%	Code	1	2	3	4	5	6	7
0	L	24.3	24.3	24.1	24.2	24.1	23.1	24.2
27		24.4	24.9	24.6	24.3	25.3	23.2	24.4
35		24.6	24.9	24.7	24.7	25.5	23.4	24.4
47		25	25.2	24.7	24.9	25.7	23.7	24.7
63		25.2	25.5	24.9	25.1	25.8	24	24.8
84		25.7	25.7	25	25.4	25.9	24.5	

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: 10
 - Number of replicates per concentration: 4
 - 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. Attachments of 1-19 pages as needed.
 - Sample filtered with 60-micron mesh to remove excess debris
Sefar Nitex 30-60/35 mesh. Lot 2512750103

03322

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

Project Bioassay
 Information :

Report Date : 04/01/2021

Report Number : **21-068-0391**

REPORT OF ANALYSIS

Received : 03/09/2021

Lab No : **89930**

Matrix: **Aqueous**

Sample ID : **Effluent Composite 3/7-8/21**

Sampled: **3/8/2021 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	112	mg/L	1	1	03/19/21 10:30	CJD	2320B-2011
Calcium	51.8	mg/L	0.500	1	03/26/21 23:48	TJS	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	141	mg/L	0.100	1	03/26/21 23:48		EPA-200.7
Magnesium	2.88	mg/L	0.100	1	03/26/21 23:48	TJS	EPA-200.7

Lab No : **90311**

Matrix: **Aqueous**

Sample ID : **Effluent Composite 3/8-9/21**

Sampled: **3/9/2021 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	108	mg/L	1	1	03/23/21 09:30	CJD	2320B-2011
Calcium	51.6	mg/L	0.500	1	03/27/21 00:04	TJS	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	141	mg/L	0.100	1	03/27/21 00:04		EPA-200.7
Magnesium	2.93	mg/L	0.100	1	03/27/21 00:04	TJS	EPA-200.7

Lab No : **95190**

Matrix: **Aqueous**

Sample ID : **Effluent Composite 3/10-11/21**

Sampled: **3/11/2021 12:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	115	mg/L	1	1	03/23/21 09:30	CJD	2320B-2011
Calcium	48.9	mg/L	0.500	1	03/30/21 03:28	JADS	EPA-200.7
Hardness as CaCO ₃ (SM-2340B)	133	mg/L	0.100	1	03/30/21 03:28		EPA-200.7
Magnesium	2.73	mg/L	0.100	1	03/30/21 16:00	TJS	EPA-200.7

**Qualifiers/
Definitions**

DF Dilution Factor
 MQL Method Quantitation Limit

L Limit Exceeded



#1

Kit ID:	152892
Initiated By:	Sydney Andres
Initiated Date:	2/8/2021
Project Comment	Harrison WWTP Bioassay

CHAIN-OF-CUSTODY



Harrison Wastewater Treatment Plant
 Bioassay

21-068-0391
 03322
 03-09-2021
 11:30:32

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 type="checkbox"/> Fed Ex <input checked="" type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
QTR 1 A (CD RT) - Bioassay 02/14-15/2021			
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
3/7-8/21	09:00 to 09:00	Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
3/7-8/21	09:00 to 09:00	Composite 1	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
3/7-8/21	09:00 to 09:00	Composite 1	Aqueous	C	2	Plastic - Quart	NONE	Chronic CD RT

Track # 1 Z A48 A05 84 9440 7773

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments				
Ice	Custody Seals	Lab Comments	<i>Randy Reese</i>					
<input checked="" type="checkbox"/> Y/N	<input checked="" type="checkbox"/> Y/N		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			<i>Randy Reese</i>	3-8-21	09:30			
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
0.2 T99 mw						<i>Makan Beaver</i>	3/9/21	10:00 mw



Kit ID:	152893
Initiated By:	Sydney Andres
Initiated Date:	2/8/2021
Project Comment	Harrison WWTP Bioassay

CHAIN-OF-CUSTODY

2

Company Name Harrison Wastewater Treatment Plant	Company Number 03322	Client Project Manager/Contact Harrison Wastewater Treatment Plant	Purchase Order Number
Site Name QTR 1 B (CD RT) - Bioassay 02/16-17/2021	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 checked="" type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Harrison - Bioassay	Project Manager Phone # (870) 741-5527	Project Manager Email	Site/Facility ID #

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
3/8-9/21	09:00 to 09:00	Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
3/8-9/21	09:00 to 09:00	Composite 2	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
3/8-9/21	09:00 to 09:00	Composite 2	Aqueous	C	2	Plastic - Quart	NONE	Chronic CD RT


 21-068-0391
 03322
 Harrison Wastewater Treatment Plant
 Bioassay
 03-09-2021
 11:30:32

Track # 12 A48 A05 84 9831 3732

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice (Y/N)	Custody Seals (Y/N)	Lab Comments Blank/Cooler Temp 3-2 +100 S41	Randy Reese					
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
			Randy Reese	3-9-21	09:30			
			Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time
		Relinquished by: (SIGNATURE)	Date	Time	Received by: (SIGNATURE)	Date	Time	
					Summer Hanison	3/10/21	10:05	

Kit ID:	152894
Initiated By:	Sydney Andres
Initiated Date:	2/8/2021
Project Comment	Harrison WWTP Bioassay

CHAIN-OF-CUSTODY

Company Name Harrison Wastewater Treatment Plant		Company Number 03322		Client Project Manager/Contact Harrison Wastewater Treatment Plant		Purchase Order Number		
Site Name QTR 1 C (CD RT)- Bioassay 02/18-19/2021		Project Number		<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed		Method of Shipment <input type="checkbox"/> Fed Ex <input checked="" type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other		
LIMS Project ID Harrison - Bioassay		Project Manager Phone # (870) 741-5527		Project Manager Email		Site/Facility ID #		
Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
3/10-11/21	12:00 to 12:00	Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
3/10-11/21	12:00 to 12:00	Composite 3	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
3/10-11/21	12:00 to 12:00	Composite 3	Aqueous	C	3	Plastic - Quart	NONE	Chronic CD



21-068-0391
 03322
 03-09-2021
 11:30:32
 Harrison Wastewater Treatment Plant
 Bioassay / 3/10/21/3/9/21

Track # LZ A48 A05 84 9805 4745

For Laboratory Use Only			Sampled by (Name - Print)		Client Remarks/Comments			
Ice	Custody	Lab Comments	Randy Reese					
Y/N	Seals Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
			Randy Reese	3-11-21/12:15				
Blank/Cooler Temp 2.5 t99 SHT			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time		
					Summer Hanison	3/12/21 10:00		

Sample ID: Harrison Date/Time Start: 3/9/2021 12:33 - Analyst: IW

Report # 21-068-0391 Date/Time End: 3/16/2021 13:40 - Analyst: IW

Data Entered By: 3/17/21 IW Date Reviewed By: BA 3/17/21
 date / initial date / initial

Method 1002.0 - Ceriodaphnia dubia Survival and Reproduction Data

Conc. % EFF	Day #	Replicate										Total live young	# live Adults	Young per Live adult	
		1	2	3	4	5	6	7	8	9	10				
Control	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	6	0	0	0	0	0	0	0	0	0	6	10	0.6	
	4	0	3	5	0	4	4	0	0	5	3	24	10	2.4	
	5	4	5	6	4	2	2	11	5	1	5	45	10	4.5	✓
	6	0	0	0	5	0	0	0	6	0	0	11	10	1.1	
	7	3	9	12	11	10	8	x	14	10	13	90	10	9.0	
Replicate Totals	----	13	17	23	20	16	14	11	25	16	21	Avg. Yng/ adult=	17.60	% Coeff	25.719
6.25	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	2	4	2	0	0	0	0	0	3	0	11	10	1.1	
	4	0	3	0	11	3	0	2	0	5	0	24	10	2.4	
	5	5	6	5	6	5	4	4	6	6	8	55	10	5.5	✓
	6	9	1	9	0	0	2	1	9	0	7	38	10	3.8	
	7	9	11	15	17	15	0	14	12	14	11	118	10	11.8	
Replicate Totals	----	25	25	31	34	23	6	21	27	28	26	Avg. Yng/ adult=	24.60	% Coeff	30.613
12.5	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	1	0	1	0	1	1	5	10	0.5	
	4	0	3	2	0	0	0	0	2	0	0	7	10	0.7	
	5	7	5	5	5	2	0	5	4	0	7	40	10	4.0	✓
	6	7	1	0	6	0	0	10	0	9	13	46	10	4.6	
	7	18	15	14	13	0	18	24	11	17	1	131	10	13.1	
Replicate Totals	----	32	24	21	24	3	18	40	17	27	22	Avg. Yng/ adult=	22.90	% Coeff	42.260
25	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	3	0	0	0	20	20	0	0	0	2	5	10	0.5	
	4	0	2	x	1	0	4	7	0	1	0	15	10	1.5	✓
	5	4	6	x	6	6	8	9	6	4	3	52	10	5.2	
	6	0	0	x	0	9	6	0	8	0	9	32	10	3.2	
	7	16	17	x	9	0	16	17	10	14	1	100	10	10.0	
Replicate Totals	----	23	25	0	16	17	36	33	24	19	15	Avg. Yng/ adult=	20.40	% Coeff	48.483
50	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	2	0	0	0	1	2	1	3	0	0	9	10	0.9	
	4	0	3	0	3	0	0	3	0	0	x	9	10	0.9	✓
	5	6	9	4	9	3	4	3	0	10	x	48	10	4.8	
	6	5	0	9	0	4	1	6	7	0	x	32	10	3.2	
	7	4	13	12	14	10	11	0	14	15	x	93	10	9.3	
Replicate Totals	----	17	25	25	26	18	18	13	24	25	0	Avg. Yng/ adult=	19.10	% Coeff	42.207
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	3	0	2	2	0	0	7	10	0.7	
	4	0	0	0	0	0	0	0	0	0	0	4	10	0.4	
	5	5	5	5	10	4	3	5	7	2	3	49	10	4.9	✓
	6	4	0	0	12	4	0	7	8	0	0	35	10	3.5	
	7	10	6	15	0	0	13	0	2	10	14	70	10	7.0	
Replicate Totals	----	19	11	20	22	11	20	12	19	14	17	Avg. Yng/ adult=	16.50	% Coeff	25.111

Parameters for control acceptability:

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

SAMPLE ID: Harrison

Report Number: 21-068-0391

Date test started: 3/9/21

		DAY 1	2	3	4	5	6	7
INITIAL READINGS	pH CTRL	7.4	7.4	7.2	7.2	7.4	7.5	7.5
	Initial R							
	1	7.2	7.1	7.1	7.3	7.1	7.2	7.3
	2	7.1	7.2	7.1	7.3	7.1	7.2	7.2
	3	7.0	7.0	7.0	7.3	6.9	7.1	7.2
	4	6.9	6.9	6.9	7.3	6.9	7.0	7.1
	5	6.9	7.0	6.9	7.2	6.8	6.9	7.0
	DO CTRL	8.5	8.0	8.4	8.4	8.4	8.6	8.3
	Initial (mg/L) R							
	1	8.8	8.1	8.5	8.5	8.9	8.6	8.3
	2	8.9	8.2	8.3	8.5	9.0	8.8	8.3
	3	9.4	8.3	8.4	8.5	9.2	9.1	8.5
	4	9.5	8.0	8.6	8.2	9.5	9.2	8.6
	5	9.6	8.1	8.6	8.0	9.5	9.6	8.7
	Temp CTRL	24.3	24.3	24.1	24.2	24.1	23.1	24.2
Initial (°C) R								
1	24.4	24.9	24.6	24.3	25.3	23.2	24.4	
2	24.6	24.9	24.7	24.7	25.5	23.4	24.4	
3	25.0	25.2	24.7	24.9	25.7	23.7	24.7	
4	25.2	25.5	24.9	25.1	25.8	24.0	24.8	
5	25.7	25.7	25.0	25.4	25.9	24.5	25.1	
ANALYST:	lw	lw	lw	FA	lw	CF	lw	
DATE:	3/9/21	3/10/21	3/11/21	3/12/21	3/13/21	3/14/21	3/15/21	

		DAY 1	2	3	4	5	6	7
CERIODAPHNIA DUBIA READINGS	pH - CD CTRL	7.3	7.3	7.8	7.6	7.8	7.6	7.4
	After 24 hrs. R							
	1	7.4	7.4	7.8	7.6	7.8	7.6	7.4
	2	7.5	7.4	7.8	7.6	7.9	7.6	7.4
	3	7.5	7.4	7.9	7.7	8.0	7.6	7.5
	4	7.5	7.4	8.0	7.7	8.0	7.7	7.5
	5	7.5	7.5	8.0	7.8	8.0	7.7	7.6
	DO - CD CTRL	7.9	8.3	8.5	9.1	8.3	8.8	7.9
	After 24 hrs. R							
	1	8.0	8.3	8.6	8.9	8.6	8.7	7.9
	2	8.1	8.4	8.6	8.9	8.7	8.6	7.9
	3	8.1	8.4	8.7	8.9	8.8	8.6	7.9
	4	8.3	8.2	8.7	8.8	8.8	8.6	8.0
	5	8.2	7.9	8.9	8.7	8.9	8.6	8.0
	Temp CTRL	24.6	24.6	24.0	24.5	24.4	24.2	25.3
After 24 hrs (°C)R								
1	24.4	24.5	24.0	24.3	24.3	24.1	25.1	
2	24.4	24.6	24.0	24.3	24.3	24.0	25.0	
3	24.3	24.6	24.1	24.3	24.4	24.1	25.1	
4	24.5	24.6	24.2	24.4	24.5	24.1	25.1	
5	24.7	24.7	24.3	24.4	24.6	24.2	25.0	
ANALYST:	lw	lw	FA	lw	FA	lw	CF	
DATE:	3/10/21	3/11/21	3/12/21	3/13/21	3/14/21	3/15/21	3/16/21	

READINGS DATA SHEET FOR 7-DAY CHRONIC TESTING

SAMPLE ID: Harrison

Report Number: 21-068-0391

Date test started: 3/9/21

		DAY	1	2	3	4	5	6	7
FATHEAD MINNOW READINGS	pH - FH CTRL								
	After 24 hrs. R								
	1								
	2								
	3								
	4								
	5								
	DO - FH CTRL								
	After 24 hrs. R								
	1								
	2								
	3								
	4								
	5								
	Temp CTRL								
After 24 hrs (°C)R									
1									
2									
3									
4									
5									
ANALYST:									
DATE:									

Conductivity (µS/cm)

INITIAL READINGS	Initial CTRL	163.8	153.6	157.2	159.7	163.4	156.3	162.5
	R							
	100%	439	398	432	427	462	408	444
	INITIAL :	10	10	10	10	10	0F	0F
	DATE :	3/9/21	3/10/21	3/11/21	3/12/21	3/13/21	3/14/21	3/15/21

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 :	10		10		10		
	DATE :	3/9/21		3/11/21		3/13/21		
DPD Cl2 Reagent	21-Reag-	0181		21-Reag-	0181		21-Reag-	0181

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.
CERIODAPHNA SURVIVAL AND REPRODUCTION DATA

SAMPLE ID: Harrison ^{CD} only TEST START - DATE/TIME: 3/9/21 1233 ANALYST: lw
 REPORT #: 21-068-0391 TEST END - DATE/TIME: 3/10/21 1340 ANALYST: lw
 ORGANISM REF#: 21-REAG-0017 RANDOMIZING KEY #: 10cc ANALYST: lw

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

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

SAMPLE ID: D Harrison REPORT # 21-068-0391

DATE START: 3/9/21 DATE END: 3/16/21

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	3/9/21	lw	0	21-REAG-0907	21-REAG-0908
	3/10/21	lw	1	21-REAG-0907	21-REAG-0908
	3/11/21	lw	2	21-REAG-1093	21-REAG-0908
	3/12/21	lw	3	21-REAG-1093	21-REAG-0908
	3/13/21	lw	4	21-REAG-1093	21-REAG-0908
	3/14/21	CF	5	21-REAG-1093	21-REAG-1094
	3/15/21	CF	6	21-REAG-1093	21-REAG-1094

	TEST DAY	CONTROL WATER	SAMPLE LAB ID
(Comp. 1)	0	21-REAG-1067	L89930
	1	21-REAG-1092	I
(Comp. 2)	2	21-REAG-1133	L90311
	3	21-REAG-1179 ^{BA}	2
(Comp. 3)	4	21-REAG-1179	L95190
	5	21-REAG-1172	I
	6	21-REAG-11910	I

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: _____

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

SAMPLE ID: Harrison REPORT # 21-008-0391

DATE START: 3/9/21 DATE END: 3/16/21

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	SAMPLE FILTERED	SAMPLE LAB ID:	REASON FILTERING
CHRONIC	3/9/21	lw	0	YES / NO	L89930	DEBRIS / ORGANISMS
	3/10/21	lw	1	YES / NO	L	DEBRIS / ORGANISMS
	3/11/21	lw	2	YES / NO	L8090311	DEBRIS / ORGANISMS
	3/12/21	lw	3	YES / NO	L	DEBRIS / ORGANISMS
	3/13/21	lw	4	YES / NO	L95190	DEBRIS / ORGANISMS
	3/14/21	CF	5	YES / NO	L	DEBRIS / ORGANISMS
	3/15/21	CF	6	YES / NO	L	DEBRIS / ORGANISMS

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

ANALYST COMMENTS:

CERIODAPHNIA RANDOMIZATION TRANSLATION

RANDOMIZING KEY #: 10CC REPORT # 21-0608-0391
 TEST CONCENTRATIONS: 1: Control 2: 27 3: 35 4: 47 5: 63 6: 84

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

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

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

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

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

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