

10/13/2023

Osceola Water Department  
Mr. Brandon Haynes  
PO Box 443  
Osceola, AR 72370

Ref: Analytical Testing  
Report Number: 23-228-0390 – Revised 101323  
Revised Report Number: 23-228-9390  
Client Project Description: Bioassay

AR0021580 – Quarter 3

Dear Mr. Brandon Haynes

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>Daphnia pulex</i>	NOEL = 0.23 %	CV = 0.0 %
	Fathead minnow	NOEL = 0.23 %	CV = 0.0 %

Permit Limit: Critical Dilution = 0.17 %  
Maximum Coefficient of Variation (CV) < 40 %

EPA Methods: 2021.0 *Daphnia pulex* Acute Toxicity  
2000.0 *Pimephales promelas* Acute Toxicity

All statistical interpretations generated by CETIS - Comprehensive Environmental Toxicity Information System (v2.1.4.6X64). CETIS created by Tidepool Scientific Software

Respectfully,



Blake Smith  
Lab Supervisor

# CETIS Summary Report

Report Date: 13 Oct-23 15:01 (p 1 of 1)  
 Test Code/ID: 23-228-0390-dp / 21-0443-1461

**Daphnia pulex 48-h Acute Survival Test** **Waypoint Analytical Tennessee, LLC.**

<b>Batch ID:</b> 13-3901-4102	<b>Test Type:</b> Survival (48h)	<b>Analyst:</b> Lauren N. Richardson
<b>Start Date:</b> 16 Aug-23 15:29	<b>Protocol:</b> EPA/821/R-02-012 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 18 Aug-23 15:55	<b>Species:</b> Daphnia pulex	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 48h	<b>Taxon:</b>	<b>Source:</b> In-House Culture <b>Age:</b> <24
<b>Sample ID:</b> 04-7059-1250	<b>Code:</b> 23-228-0390	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Sample Date:</b> 15 Aug-23 08:00	<b>Material:</b> POTW Effluent	<b>Source:</b> Osceola Water Department (AR002158)
<b>Receipt Date:</b> 16 Aug-23 13:15	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 31h (1.9 °C)	<b>Client:</b> Osceola Water Department	

**Sample Renewals**

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-228-0390	16 Aug-23 08:00	16 Aug-23 13:15	17 Aug-23 00:00	1.9

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	TU	S
09-5475-7192	48h Survival Rate	Steel Many-One Rank Sum Test	0.23	>0.23	---	3.15%	434.8	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
09-5475-7192	48h Survival Rate	Control Resp	1	0.9	<<	Yes	Passes Criteria

**48h Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	R	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0	L	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.07		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.1		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.13		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.17		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.23		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**48h Survival Rate Detail**

MD5: 50DE3B345E797876C8501C9D9B9F320F

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	R	1.0000	1.0000	1.0000	1.0000	1.0000
0	L	1.0000	1.0000	1.0000	1.0000	1.0000
0.07		1.0000	1.0000	1.0000	1.0000	1.0000
0.1		1.0000	1.0000	1.0000	1.0000	1.0000
0.13		1.0000	1.0000	1.0000	1.0000	1.0000
0.17		1.0000	1.0000	1.0000	1.0000	1.0000
0.23		1.0000	1.0000	1.0000	1.0000	1.0000

**48h Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	R	9/9	8/8	8/8	8/8	8/8
0	L	8/8	8/8	8/8	8/8	8/8
0.07		8/8	8/8	8/8	8/8	8/8
0.1		8/8	8/8	8/8	8/8	8/8
0.13		8/8	8/8	8/8	8/8	8/8
0.17		8/8	8/8	8/8	8/8	8/8
0.23		8/8	8/8	8/8	8/8	8/8

# CETIS Measurement Report

Report Date: 13 Oct-23 15:01 (p 1 of 3)  
Test Code/ID: 23-228-0390-dp / 21-0443-1461

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## Daphnia pulex 48-h Acute Survival Test

Waypoint Analytical Tennessee, LLC.

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<b>Batch ID:</b> 13-3901-4102	<b>Test Type:</b> Survival (48h)	<b>Analyst:</b> Lauren N. Richardson
<b>Start Date:</b> 16 Aug-23 15:29	<b>Protocol:</b> EPA/821/R-02-012 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 18 Aug-23 15:55	<b>Species:</b> Daphnia pulex	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 48h	<b>Taxon:</b>	<b>Source:</b> In-House Culture <b>Age:</b> <24
<hr/>		
<b>Sample ID:</b> 04-7059-1250	<b>Code:</b> 23-228-0390	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Sample Date:</b> 15 Aug-23 08:00	<b>Material:</b> POTW Effluent	<b>Source:</b> Osceola Water Department (AR002158)
<b>Receipt Date:</b> 16 Aug-23 13:15	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 31h (1.9 °C)	<b>Client:</b> Osceola Water Department	

# CETIS Measurement Report

Report Date: 13 Oct-23 15:01 (p 2 of 3)  
Test Code/ID: 23-228-0390-dp / 21-0443-1461

## Daphnia pulex 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

### Total Residual Chlorine-mg/L

Conc-%	Code	1	2
0	R	1	1
0	L	0	0
0.23		1	0

### Conductivity-µS/cm

Conc-%	Code	1	2
0	R	393.6	388.6
0	L	182.9	194.3
0.23		446.4	457.4

### Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2
0	R	6.7	7.9
0	L	6.7	7.5
0.07		6.9	8
0.1		6.9	8.1
0.13		7.3	8.2
0.17		7.2	8.2
0.23		7	8.1

### Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2
0	R	9.6	6.7
0	L	9.4	6.7
0.07		9.7	7.4
0.1		9.5	7.2
0.13		9.4	7.1
0.17		9.6	7.4
0.23		9.6	7.2

### Final pH-Units

Conc-%	Code	1	2
0	R	8.1	8.2
0	L	8.2	8.1
0.07		8.2	8.4
0.1		8.3	8.4
0.13		8.3	8.4
0.17		8.4	8.5
0.23		8.4	8.4

### Initial pH-Units

Conc-%	Code	1	2
0	R	8.6	8.1
0	L	8.2	8.2
0.07		8.7	8.5
0.1		8.6	8.5
0.13		8.6	8.6
0.17		8.5	8.4
0.23		8.6	8.3

# CETIS Measurement Report

Report Date: 13 Oct-23 15:01 (p 3 of 3)  
Test Code/ID: 23-228-0390-dp / 21-0443-1461

Daphnia pulex 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

## Final Temperature-°C

Conc-%	Code	1	2
0	R	24.2	24
0	L	24.6	24.1
0.07		24.4	24.1
0.1		24.6	24
0.13		24.7	24
0.17		24.7	24.1
0.23		24.6	24

## Initial Temperature-°C

Conc-%	Code	1	2
0	R	24.2	24.1
0	L	24.1	24.2
0.07		24.4	24.2
0.1		24.2	24.1
0.13		24.1	24
0.17		24.1	24.1
0.23		24.1	24.1

# CETIS Summary Report

Report Date: 13 Oct-23 15:02 (p 1 of 1)  
 Test Code/ID: 23-228-0390-FH / 02-7424-0406

**Fathead Minnow 48-h Acute Survival Test** **Waypoint Analytical Tennessee, LLC.**

<b>Batch ID:</b> 10-6113-6410	<b>Test Type:</b> Survival (48h)	<b>Analyst:</b> Lauren N. Richardson
<b>Start Date:</b> 16 Aug-23 15:21	<b>Protocol:</b> EPA/821/R-02-012 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 18 Aug-23 15:43	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 48h	<b>Taxon:</b>	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b> <24
<b>Sample ID:</b> 04-7059-1250	<b>Code:</b> 23-228-0390	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Sample Date:</b> 15 Aug-23 08:00	<b>Material:</b> POTW Effluent	<b>Source:</b> Osceola Water Department (AR002158)
<b>Receipt Date:</b> 16 Aug-23 13:15	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 31h (1.9 °C)	<b>Client:</b> Osceola Water Department	

**Sample Renewals**

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-228-0390	16 Aug-23 08:00	16 Aug-23 13:15	17 Aug-23 00:00	1.9

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	TU	S
13-1328-7105	48h Survival Rate	Steel Many-One Rank Sum Test	0.23	>0.23	---	5.01%	434.8	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
13-1328-7105	48h Survival Rate	Control Resp	1	0.9	<<	Yes	Passes Criteria

**48h Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	R	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0	L	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.07		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.1		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.13		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.17		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.23		5	0.9750	0.9056	1.0440	0.8750	1.0000	0.0250	0.0559	5.73%	2.50%

**48h Survival Rate Detail**

MD5: A3651C48CEC7445DDB370FA33DBB9AFA

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	R	1.0000	1.0000	1.0000	1.0000	1.0000
0	L	1.0000	1.0000	1.0000	1.0000	1.0000
0.07		1.0000	1.0000	1.0000	1.0000	1.0000
0.1		1.0000	1.0000	1.0000	1.0000	1.0000
0.13		1.0000	1.0000	1.0000	1.0000	1.0000
0.17		1.0000	1.0000	1.0000	1.0000	1.0000
0.23		0.8750	1.0000	1.0000	1.0000	1.0000

**48h Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	R	9/9	8/8	8/8	8/8	8/8
0	L	8/8	8/8	8/8	8/8	8/8
0.07		8/8	8/8	8/8	8/8	8/8
0.1		8/8	8/8	8/8	8/8	8/8
0.13		8/8	8/8	8/8	8/8	8/8
0.17		8/8	8/8	8/8	8/8	8/8
0.23		7/8	8/8	8/8	8/8	8/8

# CETIS Measurement Report

Report Date: 13 Oct-23 15:02 (p 1 of 3)  
Test Code/ID: 23-228-0390-FH / 02-7424-0406

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## Fathead Minnow 48-h Acute Survival Test

Waypoint Analytical Tennessee, LLC.

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<b>Batch ID:</b> 10-6113-6410	<b>Test Type:</b> Survival (48h)	<b>Analyst:</b> Lauren N. Richardson
<b>Start Date:</b> 16 Aug-23 15:21	<b>Protocol:</b> EPA/821/R-02-012 (2002)	<b>Diluent:</b> 20% DMW
<b>Ending Date:</b> 18 Aug-23 15:43	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 48h	<b>Taxon:</b>	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b> <24
<hr/>		
<b>Sample ID:</b> 04-7059-1250	<b>Code:</b> 23-228-0390	<b>Project:</b> WET Quarterly Compliance Test (3Q)
<b>Sample Date:</b> 15 Aug-23 08:00	<b>Material:</b> POTW Effluent	<b>Source:</b> Osceola Water Department (AR002158)
<b>Receipt Date:</b> 16 Aug-23 13:15	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 31h (1.9 °C)	<b>Client:</b> Osceola Water Department	

# CETIS Measurement Report

Report Date: 13 Oct-23 15:02 (p 2 of 3)  
Test Code/ID: 23-228-0390-FH / 02-7424-0406

## Fathead Minnow 48-h Acute Survival Test

Waypoint Analytical Tennessee, LLC.

### Total Residual Chlorine-mg/L

Conc-%	Code	1	2
0	R	1	1
0	L	0	0
0.23		1	0

### Conductivity-µS/cm

Conc-%	Code	1	2
0	R	393.6	388.6
0	L	182.9	194.3
0.23		446.4	457.4

### Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2
0	R	8.1	8.6
0	L	8.2	8.7
0.07		8	8.5
0.1		8	8.4
0.13		8	8.3
0.17		8.1	8.2
0.23		8.1	8.2

### Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2
0	R	9.6	6.7
0	L	9.4	6.7
0.07		9.7	7.4
0.1		9.5	7.2
0.13		9.4	7.1
0.17		9.6	7.4
0.23		9.6	7.2

### Final pH-Units

Conc-%	Code	1	2
0	R	7.7	8.1
0	L	7.8	7.9
0.07		8.2	8.3
0.1		8.2	8.3
0.13		8.2	8.3
0.17		8.3	8.3
0.23		8.2	8.3

### Initial pH-Units

Conc-%	Code	1	2
0	R	8.6	8.1
0	L	8.2	8.2
0.07		8.7	8.5
0.1		8.6	8.5
0.13		8.6	8.6
0.17		8.5	8.4
0.23		8.6	8.3



# CETIS Measurement Report

Report Date: 13 Oct-23 15:02 (p 3 of 3)  
Test Code/ID: 23-228-0390-FH / 02-7424-0406

Fathead Minnow 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

## Final Temperature-°C

Conc-%	Code	1	2
0	R	25	24
0	L	24.5	24.1
0.07		25.1	24.1
0.1		25.1	24
0.13		25.1	24.1
0.17		25.1	24.1
0.23		25.2	24.1

## Initial Temperature-°C

Conc-%	Code	1	2
0	R	24.2	24.1
0	L	24.1	24.2
0.07		24.4	24.2
0.1		24.2	24.1
0.13		24.1	24
0.17		24.1	24.1
0.23		24.1	24.1

Additional Toxicity Test Information

1. Methods/Instrumentation used in chemical analysis:
  - Dissolved oxygen, DM 4: (SM 4500-O G-2016)
  - pH, PH 21: (SM 4500-H + B-2011)
  - Temperature, T148 & T124
  - Conductivity, C 2: (SM 2510 B-2011)
  - Alkalinity: (SM 2320 B-2011)
  - Hardness: (EPA 200.7 / SM 2340 B-2011)
  - Total Residual Chlorine: (SM 4500-CL G-2011)
    - Reported value of “0” indicates result below detection limit of 0.02 mg/L
    - Reported value of “1” indicates result above detection limit of 0.02mg/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 2021.0 *Daphnia pulex* Acute Toxicity Testing
  - Test chambers: 30 mL disposable plastic beakers
  - Volume per chamber: 25 mL
  - Number of organisms per chamber: 8
  - Number of replicates: 5
  - Food: *Daphnia pulex* are fed 0.15mL *Raphidocelis subcapitata* (Algae) and YTC solution while holding prior to testing.
  - Acclimation of organisms: In house cultures are raised at 25°C. Purchased organisms are allowed to reach 25°C prior to use.
4. Method 2000.0 *Pimephales promelas* (Fathead minnow) Acute Toxicity Testing
  - 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 0.15mL *Artemia* brine shrimp hatched in laboratory during holding, prior to test 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 6169894
  - Sodium Chloride is used as the reference toxicity chemical for invertebrate species
  - Current chemical ID: CS 8205752
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

03334

Osceola Water Department  
 Mr. Brandon Haynes  
 303 W. Hale  
 Osceola , AR 72370

Project Bioassay  
 Information :

Report Number : **23-228-0390**

**REPORT OF ANALYSIS**

Report Date : 09/05/2023

Received : 08/16/2023

Lab No : **94735**

Matrix: **Aqueous**

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

Sampled: **8/15/2023 8:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>175</b>	mg/L	1	1	08/29/23 09:50	JJZ	2320B-2011
Calcium	<b>36.3</b>	mg/L	0.100	1	08/18/23 16:58	TJS	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>129</b>	mg/L	0.100	1	08/18/23 16:58		EPA-200.7
Magnesium	<b>9.39</b>	mg/L	0.100	1	08/18/23 16:58	TJS	EPA-200.7

Lab No : **94736**

Matrix: **Aqueous**

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

Sampled: **8/16/2023 8:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>176</b>	mg/L	1	1	08/29/23 09:50	JJZ	2320B-2011
Calcium	<b>35.8</b>	mg/L	0.100	1	08/18/23 17:03	TJS	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>128</b>	mg/L	0.100	1	08/18/23 17:03		EPA-200.7
Magnesium	<b>9.32</b>	mg/L	0.100	1	08/18/23 17:03	TJS	EPA-200.7

Lab No : **94737**

Matrix: **Aqueous**

Sample ID : **River Water**

Sampled: **8/16/2023 9:25**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO <sub>3</sub> )	<b>143</b>	mg/L	1	1	08/29/23 09:50	JJZ	2320B-2011
Calcium	<b>39.0</b>	mg/L	0.100	1	08/18/23 17:08	TJS	EPA-200.7
Hardness as CaCO <sub>3</sub> (SM-2340B)	<b>162</b>	mg/L	0.100	1	08/18/23 17:08		EPA-200.7
Magnesium	<b>15.6</b>	mg/L	0.100	1	08/18/23 17:08	TJS	EPA-200.7

**Qualifiers/  
Definitions**

DF Dilution Factor  
 MQL Method Quantitation Limit

L Limit Exceeded

Kit ID:	200229
Initiated By:	Sydney Andres
Initiated Date:	1/6/2023
Project Comment	Bioassay

### CHAIN-OF-CUSTODY



23-228-0390  
 03334  
 08-16-2023  
 14:30:22

Osceola Water Department  
 Bioassav

Company Name Osceola Water Department	Company Number 03334	Client Project Manager/Contact <b>BRANDON HAYNES</b> Osceola Water Dept.	Purchase Order Number <b>958331</b>
Site Name QTR 3 Bioassay 07/31/23 - 08/02/23	Project Number	<input type="checkbox"/> RUSH – Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Osceola Water - Bioassay	Project Manager Phone # (870) 563-2628	Project Manager Email <b>bhaynes@rcyahwo.com</b>	Site/Facility ID #

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
8/14/23 8/15/23	8:00 AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
8/15/23 8/16/23	8:00 AM	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
8/14/23 8/15/23	8:00 AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
8/15/23 8/16/23	8:00 AM	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
8/14/23 8/15/23	8:00 AM	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Quart	NONE	48 hr bioassay - renewal
8/15/23 8/16/23	8:00 AM	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Quart	NONE	48 hr bioassay - renewal
8/16/23	9:25 AM	River Water	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	hardness
8/16/23	9:25 AM	river water	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity

For Laboratory Use Only		Sampled by (Name - Print) <b>BRANDON HAYNES</b>	Client Remarks/Comments	
Ice (V)N	Custody Seals (V)N	Relinquished by: (SIGNATURE) <i>[Signature]</i>	Date Time 8/16/23	Received by: (SIGNATURE) <i>[Signature]</i>
Lab Comments Blank/Cooler Temp T-136 1.9 c A		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)
		Relinquished by: (SIGNATURE) <i>[Signature]</i>	Date Time 8/16/23 1315	Received by: (SIGNATURE) <i>[Signature]</i>

Kit ID:	200229
Initiated By:	Sydney Andres
Initiated Date:	1/6/2023
Project Comment	Bioassay

CHAIN-OF-CUSTODY

Company Name Osceola Water Department		Company Number 03334		Client Project Manager/Contact Brandon Haynes Osceola Water Dept.		Purchase Order Number 958331		
Site Name QTR 3 Bioassay 07/31/23 - 08/02/23		Project Number		<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed		Method of Shipment <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other		
LIMS Project ID Osceola Water - Bioassay		Project Manager Phone # (870) 563-2628		Project Manager Email bhaynes58@yahoo.com		Site/Facility ID #		
Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
8/16/23	9:25 AM	river water	Aqueous	C	4	Plastic - Gallon	NONE	dilution water



23-228-0390  
 03334  
 08-16-2023  
 Osceola Water Department  
 Bioassay  
 14:30:22

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments		
Ice	Custody Seals	Lab Comments	Brandon Haynes			
(Y/N)	(Y/N)		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
			<i>[Signature]</i>	8/16/23	<i>[Signature]</i>	8/16/23 0953
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
Blank/Cooler Temp F=136 1.9 °C			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
			<i>[Signature]</i>	8/16/23 1315	<i>[Signature]</i>	8/16/23 1315

Waypoint Analytical, LLC.

48 HOUR RENEWAL DAILY READINGS SHEET

SAMPLE ID: Osceola  
 REPORT #: 23-228-0390  
 DATE START: 8/16/23

pH	DAY 1	DAY 2	AFTER - DAY 1	AFTER - DAY 2	AFTER - DAY 1	AFTER - DAY 2
	INITIAL	INITIAL	Daphnia pulex	Daphnia pulex	Fathead Minnow	Fathead Minnow
CONTROL	8.2	8.2	8.2	8.1	7.8	7.9
R	8.6	8.1	8.1	8.2	7.7	8.1
1	8.7	8.5	8.2	8.4	8.2	8.3
2	8.6	8.5	8.3	8.4	8.2	8.3
3	8.6	8.6	8.3	8.4	8.2	8.3
4	8.5	8.4	8.4	8.5	8.3	8.3
5	8.6	8.3	8.4	8.4	8.2	8.3

  

DO mg/L	DAY 1	DAY 2	AFTER - DAY 1	AFTER - DAY 2	AFTER - DAY 1	AFTER - DAY 2
	INITIAL	INITIAL	Daphnia pulex	Daphnia pulex	Fathead Minnow	Fathead Minnow
CONTROL	9.4	6.7	6.7	7.5	8.2	8.7
R	9.6	6.7	6.7	7.9	8.1	8.6
0.07	9.7	7.4	6.9	8.0	8.0	8.5
0.10	9.5	7.2	6.9	8.1	8.0	8.4
0.13	9.4	7.1	7.3	8.2	8.0	8.3
0.17	9.6	7.4	7.2	8.2	8.1	8.2
0.23	9.6	7.2	7.0	8.1	8.1	8.2

  

TEMP. (C°)	DAY 1	DAY 2	AFTER - DAY 1	AFTER - DAY 2	AFTER - DAY 1	AFTER - DAY 2
	INITIAL	INITIAL	Daphnia pulex	Daphnia pulex	Fathead Minnow	Fathead Minnow
CONTROL	24.1	24.2	24.6	24.1	24.5	24.1
R	24.2	24.1	24.2	24.0	25.0	24.0
1	24.4	24.2	24.4	24.1	25.1	24.1
2	24.2	24.1	24.6	24.0	25.1	24.0
3	24.1	24.0	24.7	24.0	25.1	24.1
4	24.1	24.1	24.7	24.1	25.1	24.1
5	24.1	24.1	24.6	24.0	25.2	24.1

  

ANALYST:	UR	UR	UR	CF	CF	CF
DATE:	8/16/23	8/17/23	8/17/23	8/18/23	8/18/23	8/18/23

	CONDUCTIVITY (micromhos)		CHLORINE mg/L		DL = 0.02 mg/L
	DAY 1	DAY 2	DAY 1	DAY 2	DAY 1 DPD Cl2 Reagent ID
CONTROL	182.9	194.3	40.02	40.02	23-REAG-2353
Rec. Stream	393.6	388.6	70.02	70.02	DAY 2 DPD Cl2 Reagent ID
EFFLUENT	476.4	457.4	70.02	40.02	23-REAG-2353
ANALYST:	UR	UR	UR	UR	
DATE:	8/16/23	8/17/23	8/16/23	8/17/23	

Meter	ID	Tests are maintained at 25 ± 1 ° C / Incubator ID: BIO / Therm. ID: 120554
pH	PH 21	Samples stored in fridge at 0-6 ° C / Fridge ID: R6 / Therm. ID: T123
Conductivity	C 2	Samples warmed in waterbath then maintained in Bio2 until use / Waterbath Therm. ID: T124
DO	DM 4	Bio2 Therm. ID: T113
Temp.	T148	Comments / Observations:

Waypoint Analytical, LLC.

48 HOUR SURVIVAL DATA SHEET (5 replicates)

SAMPLE ID: Osceola  
 REPORT #: 23-228-0390  
 TEST START - DATE/TIME: 8/16/23 1529 ANALYST: UR  
 TEST END - DATE/TIME: 8/18/23 1555 ANALYST: UR  
 TEST TYPE: RENEWAL

CONC. (% EFF)	REP NO.	NO. OF SURVIVORS		
		HOUR		
		0	24	48
CONTROL	A	8	9	9
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
RECEIVING STREAM	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.07	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.10	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.13	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.17	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.23	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
ANALYST:		UR	UR	UR
DATE:		8/16/23	8/17/23	8/18/23

TEST ORGANISM: Daphnia pulex  
 ORGANISM RN: 23-REAG-0011

WAYPOINT ANALYTICAL, LLC.  
 TEST TRACEABILITY RECORD  
48 HOUR DAPHNIA PULEX

SAMPLE ID: Osceola REPORT # 23-228-0390

DATE START: 8/16/23 DATE END: 8/18/23

DAPHNIA PULEX REFERENCE # : 23-REAG-0011

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	CONTROL WATER	ALGAE	YCT
ACUTE	8/16/23	UR	0	23-REAG-4610	23-REAG-4529	23-REAG-4531
	8/17/23	UR	24 HRS	23-REAG-4608	23-REAG-4529	23-REAG-4531

TEST DAY	SAMPLE LAB ID:	RECEIVING STREAM LAB ID:
0	L94735	L94737
24 HRS	L94736	L94737

COMMENTS: Organisms are fed 0.15 mL Algae and YCT while holding prior to test set up.  
 YCT is filtered with 60-micron mesh to removed additional debris  
 Test conducted at 25 ± 1°C Incubator ID: BIO / Thermometer ID: 120554

ANALYST COMMENTS:



Waypoint Analytical, LLC.

48 HOUR SURVIVAL DATA SHEET (5 replicates)

SAMPLE ID: Osceola  
 REPORT #: 23-228-0390  
 TEST START - DATE/TIME: 8/16/23 1521 +427 ANALYST: UR  
 TEST END - DATE/TIME: 8/18/23 1543 ANALYST: UR  
 TEST TYPE: RENEWAL

CONC. (% EFF)	REP NO.	NO. OF SURVIVORS		
		HOUR		
		0	24	48
CONTROL	A	ur 8 9	ur 8 9	9
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
RECEIVING STREAM	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.07	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.10	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.13	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.17	A	8	8	8
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
0.23	A	8	8	7
	B	8	8	8
	C	8	8	8
	D	8	8	8
	E	8	8	8
ANALYST:		ur	ur	ur
DATE:		8/16/23	8/17/23	8/18/23

TEST ORGANISM: Fathead minnow

ORGANISM RN: 23-REAG-4667

WAYPOINT ANALYTICAL, LLC.  
 TEST TRACEABILITY RECORD  
48 HOUR FATHEAD MINNOW

SAMPLE ID: OSCEOLA REPORT # 23-228-0390

DATE START: 8/16/23 DATE END: 8/18/23

FATHEAD MINNOW REFERENCE # 23-REAG-4467

REFERENCE NUMBERS

PARAMETER	DATE	INITIALS	TEST DAY	CONTROL WATER	SAMPLE LAB ID:	RECEIVING STREAM:
ACUTE	8/16/23	UR	0	23-REAG-4460	L94735	L94737
	8/17/23	UR	24 HRS	23-REAG-4468	L94736	L94737

(if applicable)

COMMENTS: Fathead minnows are fed 0.15 mL Artemia brine shrimp x2 daily while holding prior to test set up.  
 Test conducted at 25 ± 1°C Incubator ID: BIO / Thermometer ID: 120554

ANALYST COMMENTS: