

05/03/2023

City of Marion Water Department  
Mr. Jerry Kelley  
PO Box 814  
Marion, AR 72364

Ref: Analytical Testing  
Report Number: 23-108-0393  
Client Project Description: Bioassay  
Quarter 2  
AR0021971

Dear Mr. Kelley:

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 = 1.3 % | CV = 0.0 % |
|          | Fathead minnow       | NOEL = 1.3 % | CV = 0.0 % |

Permit Limit: Critical Dilution = 1.0 %  
Maximum Coefficient of Variation (CV) < 40 %

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

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: 03 May-23 15:31 (p 1 of 1)  
 Test Code/ID: 23-108-0393 DP / 20-1824-8964

## Daphnia pulex 48-h Acute Survival Test

Waypoint Analytical Tennessee, LLC.

|                               |                                         |                                             |
|-------------------------------|-----------------------------------------|---------------------------------------------|
| Batch ID: 10-7182-6713        | Test Type: Survival (48h)               | Analyst: Ivey E. Moffett                    |
| Start Date: 19 Apr-23 09:35   | Protocol: EPA/821/R-02-012 (2002)       | Diluent: 20% DMW                            |
| Ending Date: 21 Apr-23 09:44  | Species: Daphnia pulex                  | Brine: Not Applicable                       |
| Test Length: 48h              | Taxon:                                  | Source: In-House Culture Age: <24           |
| Sample ID: 04-2507-7152       | Code: 23-108-0393                       | Project: WET Quarterly Compliance Test (2Q) |
| Sample Date: 18 Apr-23 10:43  | Material: POTW Effluent                 | Source: Marion Water Department (AR0021971) |
| Receipt Date: 18 Apr-23 12:45 | CAS (PC):                               | Station: Outfall 002                        |
| Sample Age: 23h (1.1 °C)      | Client: City of Marion Water Department |                                             |

## Sample Renewals

| Renewal | Sample Code | Sample Date     | Receive Date    | Renewal Date    | Temp °C |
|---------|-------------|-----------------|-----------------|-----------------|---------|
| 1       | 23-108-0393 | 19 Apr-23 10:07 | 19 Apr-23 13:40 | 20 Apr-23 00:00 | 1.4     |

## Multiple Comparison Summary

| Analysis ID  | Endpoint          | Comparison Method            | ✓ NOEL | LOEL | TOEL | PMSD  | TU   | S |
|--------------|-------------------|------------------------------|--------|------|------|-------|------|---|
| 18-5800-3212 | 48h Survival Rate | Steel Many-One Rank Sum Test | 1.3    | >1.3 | ---  | 5.61% | 76.9 | 1 |

## Test Acceptability

| Analysis ID  | Endpoint          | Attribute    | Test Stat | TAC Limits |       | Overlap | Decision        |
|--------------|-------------------|--------------|-----------|------------|-------|---------|-----------------|
|              |                   |              |           | Lower      | Upper |         |                 |
| 18-5800-3212 | 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%   |
| 0.42   |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 0.56   |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 0.75   |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 1      |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 1.3    |      | 5     | 0.9500 | 0.8650  | 1.0350  | 0.8750 | 1.0000 | 0.0306  | 0.0685  | 7.21% | 5.00%   |

## 48h Survival Rate Detail

MD5: 6EBBE7759E2CD8F4AAA6578F00241B8C

| 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 |
| 0.42   |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 0.56   |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 0.75   |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1      |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1.3    |      | 0.8750 | 0.8750 | 1.0000 | 1.0000 | 1.0000 |

## 48h Survival Rate Binomials

| Conc-% | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|--------|------|-------|-------|-------|-------|-------|
| 0      | R    | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0      | L    | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0.42   |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0.56   |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0.75   |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 1      |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 1.3    |      | 7/8   | 7/8   | 8/8   | 8/8   | 8/8   |

# CETIS Measurement Report

Report Date: 03 May-23 15:31 (p 1 of 3)  
Test Code/ID: 23-108-0393 DP / 20-1824-8964

## Daphnia pulex 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

|                                      |                                                |                                                    |
|--------------------------------------|------------------------------------------------|----------------------------------------------------|
| <b>Batch ID:</b> 10-7182-6713        | <b>Test Type:</b> Survival (48h)               | <b>Analyst:</b> Ivey E. Moffett                    |
| <b>Start Date:</b> 19 Apr-23 09:35   | <b>Protocol:</b> EPA/821/R-02-012 (2002)       | <b>Diluent:</b> 20% DMW                            |
| <b>Ending Date:</b> 21 Apr-23 09:44  | <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> 04-2507-7152       | <b>Code:</b> 23-108-0393                       | <b>Project:</b> WET Quarterly Compliance Test (2Q) |
| <b>Sample Date:</b> 18 Apr-23 10:43  | <b>Material:</b> POTW Effluent                 | <b>Source:</b> Marion Water Department (AR0021971) |
| <b>Receipt Date:</b> 18 Apr-23 12:45 | <b>CAS (PC):</b>                               | <b>Station:</b> Outfall 002                        |
| <b>Sample Age:</b> 23h (1.1 °C)      | <b>Client:</b> City of Marion Water Department |                                                    |

# CETIS Measurement Report

Report Date: 03 May-23 15:31 (p 2 of 3)  
Test Code/ID: 23-108-0393 DP / 20-1824-8964

## 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 |
| 1.3    |      | 1 | 1 |

### Conductivity-µS/cm

| Conc-% | Code | 1     | 2     |
|--------|------|-------|-------|
| 0      | R    | 408.2 | 411.6 |
| 0      | L    | 186.8 | 185.6 |
| 1.3    |      | 539.3 | 526.2 |

### Final Dissolved Oxygen-mg/L

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.4 | 8   |
| 0      | L    | 8.4 | 8   |
| 0.42   |      | 8.5 | 8   |
| 0.56   |      | 8.5 | 8   |
| 0.75   |      | 8.5 | 8   |
| 1      |      | 8.5 | 7.9 |
| 1.3    |      | 8.4 | 7.9 |

### Initial Dissolved Oxygen-mg/L

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.7 | 9.1 |
| 0      | L    | 8.7 | 8.6 |
| 0.42   |      | 8.9 | 8.9 |
| 0.56   |      | 8.9 | 9   |
| 0.75   |      | 8.9 | 9   |
| 1      |      | 9   | 9.1 |
| 1.3    |      | 8.8 | 9.1 |

### Final pH-Units

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.1 | 8.2 |
| 0      | L    | 8.1 | 8.3 |
| 0.42   |      | 8.2 | 8.4 |
| 0.56   |      | 8.3 | 8.3 |
| 0.75   |      | 8.3 | 8.2 |
| 1      |      | 8.3 | 8.3 |
| 1.3    |      | 8.4 | 8.4 |

### Initial pH-Units

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.1 | 8   |
| 0      | L    | 8.4 | 8.3 |
| 0.42   |      | 8.2 | 8   |
| 0.56   |      | 8.2 | 8   |
| 0.75   |      | 8.1 | 8   |
| 1      |      | 8.1 | 8   |
| 1.3    |      | 8.1 | 8   |

# CETIS Measurement Report

Report Date: 03 May-23 15:31 (p 3 of 3)  
Test Code/ID: 23-108-0393 DP / 20-1824-8964

## Daphnia pulex 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

### Final Temperature-°C

| Conc-% | Code | 1    | 2    |
|--------|------|------|------|
| 0      | R    | 24   | 24.2 |
| 0      | L    | 23.9 | 24   |
| 0.42   |      | 23.9 | 24.3 |
| 0.56   |      | 23.6 | 24.2 |
| 0.75   |      | 23.6 | 24.1 |
| 1      |      | 23.9 | 24.2 |
| 1.3    |      | 24.1 | 24.2 |

### Initial Temperature-°C

| Conc-% | Code | 1    | 2    |
|--------|------|------|------|
| 0      | R    | 25.1 | 24   |
| 0      | L    | 24.9 | 23.4 |
| 0.42   |      | 25.2 | 24.2 |
| 0.56   |      | 25.3 | 24.1 |
| 0.75   |      | 25.3 | 24.4 |
| 1      |      | 25.1 | 25   |
| 1.3    |      | 25.1 | 25.1 |

# CETIS Summary Report

Report Date: 03 May-23 15:30 (p 1 of 1)  
Test Code/ID: 23-108-0393 FH / 08-9512-4779

## Fathead Minnow 48-h Acute Survival Test

Waypoint Analytical Tennessee, LLC.

|                               |                                         |                                             |
|-------------------------------|-----------------------------------------|---------------------------------------------|
| Batch ID: 19-4609-5306        | Test Type: Survival (48h)               | Analyst: Ivey E. Moffett                    |
| Start Date: 19 Apr-23 09:18   | Protocol: EPA/821/R-02-012 (2002)       | Diluent: 20% DMW                            |
| Ending Date: 21 Apr-23 09:30  | Species: Pimephales promelas            | Brine: Not Applicable                       |
| Test Length: 48h              | Taxon:                                  | Source: Aquatic Biosystems, CO Age: <24     |
| Sample ID: 04-2507-7152       | Code: 23-108-0393                       | Project: WET Quarterly Compliance Test (2Q) |
| Sample Date: 18 Apr-23 10:43  | Material: POTW Effluent                 | Source: Marion Water Department (AR0021971) |
| Receipt Date: 18 Apr-23 12:45 | CAS (PC):                               | Station: Outfall 002                        |
| Sample Age: 23h (1.1 °C)      | Client: City of Marion Water Department |                                             |

## Sample Renewals

| Renewal | Sample Code | Sample Date     | Receive Date    | Renewal Date    | Temp °C |
|---------|-------------|-----------------|-----------------|-----------------|---------|
| 1       | 23-108-0393 | 19 Apr-23 10:07 | 01 Apr-23 13:40 | 20 Apr-23 00:00 | 1.4     |

## Multiple Comparison Summary

| Analysis ID  | Endpoint          | Comparison Method            | ✓ NOEL | LOEL | TOEL | PMSD | TU   | S |
|--------------|-------------------|------------------------------|--------|------|------|------|------|---|
| 14-0385-1707 | 48h Survival Rate | Steel Many-One Rank Sum Test | 1.3    | >1.3 | ---  | ---  | 76.9 | 1 |

## Test Acceptability

| Analysis ID  | Endpoint          | Attribute    | Test Stat | TAC Limits |       | Overlap | Decision        |
|--------------|-------------------|--------------|-----------|------------|-------|---------|-----------------|
|              |                   |              |           | Lower      | Upper |         |                 |
| 14-0385-1707 | 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%   |
| 0.42   |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 0.56   |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 0.75   |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 1      |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 1.3    |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |

## 48h Survival Rate Detail

MD5: D2C12B180240F39F6E0C4528A0CD2B97

| 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 |
| 0.42   |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 0.56   |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 0.75   |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1      |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 1.3    |      | 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    | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0      | L    | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0.42   |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0.56   |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 0.75   |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 1      |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |
| 1.3    |      | 8/8   | 8/8   | 8/8   | 8/8   | 8/8   |

# CETIS Measurement Report

Report Date: 03 May-23 15:30 (p 1 of 3)  
Test Code/ID: 23-108-0393 FH / 08-9512-4779

## Fathead Minnow 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

|                                      |                                                |                                                       |
|--------------------------------------|------------------------------------------------|-------------------------------------------------------|
| <b>Batch ID:</b> 19-4609-5306        | <b>Test Type:</b> Survival (48h)               | <b>Analyst:</b> Ivey E. Moffett                       |
| <b>Start Date:</b> 19 Apr-23 09:18   | <b>Protocol:</b> EPA/821/R-02-012 (2002)       | <b>Diluent:</b> 20% DMW                               |
| <b>Ending Date:</b> 21 Apr-23 09:30  | <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> 04-2507-7152       | <b>Code:</b> 23-108-0393                       | <b>Project:</b> WET Quarterly Compliance Test (2Q)    |
| <b>Sample Date:</b> 18 Apr-23 10:43  | <b>Material:</b> POTW Effluent                 | <b>Source:</b> Marion Water Department (AR0021971)    |
| <b>Receipt Date:</b> 18 Apr-23 12:45 | <b>CAS (PC):</b>                               | <b>Station:</b> Outfall 002                           |
| <b>Sample Age:</b> 23h (1.1 °C)      | <b>Client:</b> City of Marion Water Department |                                                       |

# CETIS Measurement Report

Report Date: 03 May-23 15:30 (p 2 of 3)  
Test Code/ID: 23-108-0393 FH / 08-9512-4779

## 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 |
| 1.3    |      | 1 | 1 |

### Conductivity-µS/cm

| Conc-% | Code | 1     | 2     |
|--------|------|-------|-------|
| 0      | R    | 408.2 | 411.6 |
| 0      | L    | 186.8 | 185.6 |
| 1.3    |      | 539.3 | 526.2 |

### Final Dissolved Oxygen-mg/L

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.2 | 7.7 |
| 0      | L    | 8.3 | 7.7 |
| 0.42   |      | 8.2 | 7.7 |
| 0.56   |      | 8.3 | 7.7 |
| 0.75   |      | 8.3 | 7.7 |
| 1      |      | 8.3 | 7.8 |
| 1.3    |      | 8.3 | 7.8 |

### Initial Dissolved Oxygen-mg/L

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.7 | 9.1 |
| 0      | L    | 8.7 | 8.6 |
| 0.42   |      | 8.9 | 8.9 |
| 0.56   |      | 8.9 | 9   |
| 0.75   |      | 8.9 | 9   |
| 1      |      | 9   | 9.1 |
| 1.3    |      | 8.8 | 9.1 |

### Final pH-Units

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8   | 8.1 |
| 0      | L    | 7.8 | 7.8 |
| 0.42   |      | 8.1 | 8.2 |
| 0.56   |      | 8.3 | 8.2 |
| 0.75   |      | 8.2 | 8.2 |
| 1      |      | 8.3 | 8.2 |
| 1.3    |      | 8.3 | 8.3 |

### Initial pH-Units

| Conc-% | Code | 1   | 2   |
|--------|------|-----|-----|
| 0      | R    | 8.1 | 8   |
| 0      | L    | 8.4 | 8.3 |
| 0.42   |      | 8.2 | 8   |
| 0.56   |      | 8.2 | 8   |
| 0.75   |      | 8.1 | 8   |
| 1      |      | 8.1 | 8   |
| 1.3    |      | 8.1 | 8   |

# CETIS Measurement Report

Report Date: 03 May-23 15:30 (p 3 of 3)  
Test Code/ID: 23-108-0393 FH / 08-9512-4779

Fathead Minnow 48-h Acute Survival Test

Waypoint Analytical Tennessee , LLC.

## Final Temperature-°C

| Conc-% | Code | 1    | 2    |
|--------|------|------|------|
| 0      | R    | 24.4 | 24.1 |
| 0      | L    | 24.1 | 24.2 |
| 0.42   |      | 23.6 | 24   |
| 0.56   |      | 23.5 | 24   |
| 0.75   |      | 23.5 | 24.1 |
| 1      |      | 24   | 24   |
| 1.3    |      | 24   | 24   |

## Initial Temperature-°C

| Conc-% | Code | 1    | 2    |
|--------|------|------|------|
| 0      | R    | 25.1 | 24   |
| 0      | L    | 24.9 | 23.4 |
| 0.42   |      | 25.2 | 24.2 |
| 0.56   |      | 25.3 | 24.1 |
| 0.75   |      | 25.3 | 24.4 |
| 1      |      | 25.1 | 25   |
| 1.3    |      | 25.1 | 25.1 |

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)
    - o Reported value of "0" indicates result below detection limit of 0.02 mg/L
    - o 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 8204118
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

02608

City of Marion Water Department  
Mr. Jerry Kelley  
PO Box 814  
Marion , AR 72364

Project Bioassay  
Information :

Report Number : **23-108-0393**

## REPORT OF ANALYSIS

Report Date : 05/03/2023

Received : 04/18/2023

Lab No : **98344**

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

Matrix: **Aqueous**

Sampled: **4/18/2023 10:43**

| Test                                     | Results     | Units | MQL   | DF | Date / Time Analyzed | By  | Analytical Method |
|------------------------------------------|-------------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO <sub>3</sub> )       | <b>127</b>  | mg/L  | 1     | 1  | 05/02/23 09:15       | AMS | 2320B-2011        |
| Calcium                                  | <b>25.3</b> | mg/L  | 0.100 | 1  | 04/25/23 23:25       | TJS | EPA-200.7         |
| Hardness as CaCO <sub>3</sub> (SM-2340B) | <b>91.7</b> | mg/L  | 0.100 | 1  | 04/25/23 23:25       |     | EPA-200.7         |
| Magnesium                                | <b>6.93</b> | mg/L  | 0.100 | 1  | 04/25/23 23:25       | BKN | EPA-200.7         |

Lab No : **98345**

Sample ID : **Receiving Water**

Matrix: **Aqueous**

Sampled: **4/18/2023 8:31**

| Test                                     | Results     | Units | MQL   | DF | Date / Time Analyzed | By  | Analytical Method |
|------------------------------------------|-------------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO <sub>3</sub> )       | <b>127</b>  | mg/L  | 1     | 1  | 05/02/23 09:15       | AMS | 2320B-2011        |
| Calcium                                  | <b>45.0</b> | mg/L  | 0.100 | 1  | 04/25/23 23:30       | TJS | EPA-200.7         |
| Hardness as CaCO <sub>3</sub> (SM-2340B) | <b>168</b>  | mg/L  | 0.100 | 1  | 04/25/23 23:30       |     | EPA-200.7         |
| Magnesium                                | <b>13.6</b> | mg/L  | 0.100 | 1  | 04/25/23 23:30       | BKN | EPA-200.7         |

Lab No : **98880**

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

Matrix: **Aqueous**

Sampled: **4/19/2023 10:07**

| Test                                     | Results     | Units | MQL   | DF | Date / Time Analyzed | By  | Analytical Method |
|------------------------------------------|-------------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO <sub>3</sub> )       | <b>126</b>  | mg/L  | 1     | 1  | 05/02/23 09:15       | AMS | 2320B-2011        |
| Calcium                                  | <b>24.5</b> | mg/L  | 0.100 | 1  | 04/25/23 23:36       | TJS | EPA-200.7         |
| Hardness as CaCO <sub>3</sub> (SM-2340B) | <b>89.1</b> | mg/L  | 0.100 | 1  | 04/25/23 23:36       |     | EPA-200.7         |
| Magnesium                                | <b>6.78</b> | mg/L  | 0.100 | 1  | 04/25/23 23:36       | BKN | EPA-200.7         |

### Qualifiers/ Definitions

DF Dilution Factor  
MQL Method Quantitation Limit

L Limit Exceeded

02608

City of Marion Water Department  
Mr. Jerry Kelley  
PO Box 814  
Marion , AR 72364

Project Bioassay  
Information :

Report Number : **23-108-0393**

**REPORT OF ANALYSIS**

Report Date : 05/03/2023

Received : 04/18/2023

Lab No : **99001**

Sample ID : **Receiving Water**

Matrix: **Aqueous**

Sampled: **4/19/2023 8:10**

| Test                                     | Results     | Units | MQL   | DF | Date / Time Analyzed | By  | Analytical Method |
|------------------------------------------|-------------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO <sub>3</sub> )       | <b>129</b>  | mg/L  | 1     | 1  | 05/02/23 09:15       | AMS | 2320B-2011        |
| Calcium                                  | <b>44.4</b> | mg/L  | 0.100 | 1  | 04/25/23 23:41       | TJS | EPA-200.7         |
| Hardness as CaCO <sub>3</sub> (SM-2340B) | <b>166</b>  | mg/L  | 0.100 | 1  | 04/25/23 23:41       |     | EPA-200.7         |
| Magnesium                                | <b>13.5</b> | mg/L  | 0.100 | 1  | 04/25/23 23:41       | BKN | EPA-200.7         |

**Qualifiers/  
Definitions**

DF Dilution Factor  
MQL Method Quantitation Limit

L Limit Exceeded



#1

|                 |               |
|-----------------|---------------|
| Kit ID:         | 197927        |
| Initiated By:   | Sydney Andres |
| Initiated Date: | 12/7/2022     |
| Project Comment | Bioassay      |

## CHAIN-OF-CUSTODY



City of Marion Water Department  
Bioassay

23-108-0393  
02608  
04-18-2023  
13:47:02

|                                        |  |                         |  |                                                                                                                                         |  |                                                                                                                                                                                  |  |
|----------------------------------------|--|-------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Company Name                           |  | Company Number          |  | Client Project Manager/Contact                                                                                                          |  | Purchase Order Number                                                                                                                                                            |  |
| City of Marion Water Department        |  | 02608                   |  | City of Marion Water Department                                                                                                         |  |                                                                                                                                                                                  |  |
| Site Name                              |  | Project Number          |  | <input type="checkbox"/> RUSH – Additional charges apply<br><input type="checkbox"/> Special Detection Limits(s)<br>Date Results Needed |  | Method of Shipment                                                                                                                                                               |  |
| Bioassay Quarterly 2 B - 04/18-19/2023 |  |                         |  |                                                                                                                                         |  | <input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS<br><input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off<br>Other |  |
| LIMS Project ID                        |  | Project Manager Phone # |  | Project Manager Email                                                                                                                   |  | Site/Facility ID #                                                                                                                                                               |  |
| Marion - Bioassay                      |  | (870) 739-5413          |  | jshempert.waterdept@yahoo.com                                                                                                           |  |                                                                                                                                                                                  |  |

  

| Date    | Time     | Sample ID                 | Matrix  | Grab/Comp | # of Cont | Container Type   | Preservation       | Analyses                 |
|---------|----------|---------------------------|---------|-----------|-----------|------------------|--------------------|--------------------------|
| 4-18-23 | 10:43 am | Outfall 001 - Composite 2 | Aqueous | C         | 1         | Plastic - Pint   | HNO3 - Nitric Acid | hardness                 |
| 4-18-23 | 10:43 am | Outfall 001 - Composite 2 | Aqueous | C         | 1         | Plastic - Pint   | NONE               | Alkalinity               |
| 4-18-23 | 10:43 am | Outfall 001 - Composite 2 | Aqueous | C         | 1         | Plastic - Quart  | NONE               | 48 hr bioassay - renewal |
| 4-18-23 | 8:31 am  | Receiving Water           | Aqueous |           | 2         | Plastic - Gallon | NONE               | Dilution Water           |
| 4-18-23 | 8:31 am  | Receiving Water           | Aqueous |           | 1         | Plastic - Pint   | HNO3 - Nitric Acid | Hardness                 |
| 4-18-23 | 8:31 am  | Receiving Water           | Aqueous |           | 1         | Plastic - Pint   | NONE               | Alkalinity               |

| For Laboratory Use Only             |                                     |              | Sampled by (Name - Print)    | Client Remarks/Comments |       |                          |           |
|-------------------------------------|-------------------------------------|--------------|------------------------------|-------------------------|-------|--------------------------|-----------|
| Ice                                 | Custody Seals                       | Lab Comments | Jerry W. [Signature]         |                         |       |                          |           |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |              | Relinquished by: (SIGNATURE) | Date                    | Time  | Received by: (SIGNATURE) | Date Time |
|                                     |                                     |              | [Signature]                  |                         |       | [Signature]              | 4/18/23   |
|                                     |                                     |              | Relinquished by: (SIGNATURE) | Date                    | Time  | Received by: (SIGNATURE) | Date Time |
| Blank/Cooler Temp                   |                                     |              | Relinquished by: (SIGNATURE) | Date                    | Time  | Received by: (SIGNATURE) | Date Time |
| 99.1°C                              |                                     |              | [Signature]                  | 4/18/23                 | 12:45 | [Signature]              | 4/18/23   |



#2  
X

|                 |               |
|-----------------|---------------|
| Kit ID:         | 197926        |
| Initiated By:   | Sydney Andres |
| Initiated Date: | 12/7/2022     |
| Project Comment | Bioassay      |

## CHAIN-OF-CUSTODY



City of Marion Water Department  
Bioassay / 4/18/23

23-108-0393  
02608  
04-18-2023  
13:47:02

| Company Name                         |          | Company Number            |         | Client Project Manager/Contact                                                                                                          |           | Purchase Order Number                                                                                                                                                                                  |                    |                          |
|--------------------------------------|----------|---------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|
| City of Marion Water Department      |          | 02608                     |         | City of Marion Water Department                                                                                                         |           |                                                                                                                                                                                                        |                    |                          |
| Site Name                            |          | Project Number            |         | <input type="checkbox"/> RUSH – Additional charges apply<br><input type="checkbox"/> Special Detection Limits(s)<br>Date Results Needed |           | Method of Shipment<br><input type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS<br><input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off<br>Other |                    |                          |
| Bioassay Quarter 2 A - 04/17-18/2023 |          |                           |         |                                                                                                                                         |           |                                                                                                                                                                                                        |                    |                          |
| LIMS Project ID                      |          | Project Manager Phone #   |         | Project Manager Email                                                                                                                   |           | Site/Facility ID #                                                                                                                                                                                     |                    |                          |
| Marion - Bioassay                    |          | (870) 739-5413            |         | jshempert.waterdept@yahoo.com                                                                                                           |           |                                                                                                                                                                                                        |                    |                          |
| Date                                 | Time     | Sample ID                 | Matrix  | Grab/Comp                                                                                                                               | # of Cont | Container Type                                                                                                                                                                                         | Preservation       | Analyses                 |
| 4-19-23                              | 10:07 am | Outfall 001 - Composite 1 | Aqueous | C                                                                                                                                       | 1         | Plastic - Pint                                                                                                                                                                                         | HNO3 - Nitric Acid | hardness                 |
| 4-19-23                              | 10:07 am | Outfall 001 - Composite 1 | Aqueous | C                                                                                                                                       | 1         | Plastic - Pint                                                                                                                                                                                         | NONE               | Alkalinity               |
| 4-19-23                              | 10:07 am | Outfall 001 - Composite 1 | Aqueous | C                                                                                                                                       | 1         | Plastic - Quart                                                                                                                                                                                        | NONE               | 48 hr bioassay - renewal |
|                                      |          | Receiving Water           | Aqueous |                                                                                                                                         | 2         | Plastic - Gallon                                                                                                                                                                                       | NONE               | Dilution Water           |
|                                      |          | Receiving Water           | Aqueous |                                                                                                                                         | 1         | Plastic - Pint                                                                                                                                                                                         | HNO3 - Nitric Acid | Hardness                 |
|                                      |          | Receiving Water           | Aqueous |                                                                                                                                         | 1         | Plastic - Pint                                                                                                                                                                                         | NONE               | Alkalinity               |

| For Laboratory Use Only |               |              | Sampled by (Name - Print)    |  | Client Remarks/Comments |         |                          |      |         |
|-------------------------|---------------|--------------|------------------------------|--|-------------------------|---------|--------------------------|------|---------|
| Ice                     | Custody Seals | Lab Comments |                              |  |                         |         |                          |      |         |
| 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    |
| 199 1.42                |               |              | Bayer                        |  | Date                    | Time    | Received by: (SIGNATURE) | Date | Time    |
|                         |               |              |                              |  | 1340                    | 4/19/23 |                          | 1340 | 4/19/23 |

NAME: Marion Water Dept.

ADDRESS:

# NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

## DISCHARGE MONITORING REPORT (DMR)

| PERMIT NUMBER | DISCHARGE NUMBER |
|---------------|------------------|
| AR0021971     |                  |

FACILITY:

LOCATION:

ATTN:

### MONITORING PERIOD

| YEAR | MONTH | DAY | TO | YEAR | MONTH | DAY |
|------|-------|-----|----|------|-------|-----|
|      |       |     |    |      |       |     |

| PARAMETER                                                                    |                       | QUANTITY OR LOADING |         |       | QUALITY OR CONCENTRATION |         |         |                  | NO<br>EX | FREQUENCY OF<br>ANALYSIS | SAMPLE<br>TYPE |
|------------------------------------------------------------------------------|-----------------------|---------------------|---------|-------|--------------------------|---------|---------|------------------|----------|--------------------------|----------------|
|                                                                              |                       | AVERAGE             | MAXIMUM | UNITS | MINIMUM                  | AVERAGE | MAXIMUM | UNITS            |          |                          |                |
| P/F STATRE 48 HR ACUTE<br>DAPHNIA PULEX<br>M3D 1 0 0<br>EFFLUENT GROSS VALUE | SAMPLE<br>MEASUREMENT | *****               | *****   | ***** | *****                    | 0       | *****   | (9A)             | 0        | QTRLY COMP24             |                |
|                                                                              | PERMIT<br>REQUIREMENT |                     |         |       |                          |         |         | PASS=0<br>FAIL=1 |          |                          |                |

|                                                                                    |                       |       |       |       |       |   |       |                  |   |              |  |
|------------------------------------------------------------------------------------|-----------------------|-------|-------|-------|-------|---|-------|------------------|---|--------------|--|
| P/F STATRE 48 HR ACUTE<br>PIMEPHALES PROMELAS<br>M6C 1 0 0<br>EFFLUENT GROSS VALUE | SAMPLE<br>MEASUREMENT | ***** | ***** | ***** | ***** | 0 | ***** | (9A)             | 0 | QTRLY COMP24 |  |
|                                                                                    | PERMIT<br>REQUIREMENT |       |       |       |       |   |       | PASS=0<br>FAIL=1 |   |              |  |

|                                                                                 |                       |       |       |       |       |     |       |              |   |              |  |
|---------------------------------------------------------------------------------|-----------------------|-------|-------|-------|-------|-----|-------|--------------|---|--------------|--|
| NOEL LETHAL STATRE 48 HR<br>ACUTE D. PULEX<br>43D 1 0 0<br>EFFLUENT GROSS VALUE | SAMPLE<br>MEASUREMENT | ***** | ***** | ***** | ***** | 1.3 | ***** | (23)         | 0 | QTRLY COMP24 |  |
|                                                                                 | PERMIT<br>REQUIREMENT |       |       |       |       |     |       | PER-<br>CENT |   |              |  |

|                                                                                   |                       |       |       |       |       |     |       |              |   |              |  |
|-----------------------------------------------------------------------------------|-----------------------|-------|-------|-------|-------|-----|-------|--------------|---|--------------|--|
| NOEL LETHAL STATRE 48 HR<br>ACUTE PIMEPHALES<br>M6C 1 0 0<br>EFFLUENT GROSS VALUE | SAMPLE<br>MEASUREMENT | ***** | ***** | ***** | ***** | 1.3 | ***** | (23)         | 0 | QTRLY COMP24 |  |
|                                                                                   | PERMIT<br>REQUIREMENT |       |       |       |       |     |       | PER-<br>CENT |   |              |  |

|                                                                                 |                       |       |       |       |       |     |       |              |   |              |  |
|---------------------------------------------------------------------------------|-----------------------|-------|-------|-------|-------|-----|-------|--------------|---|--------------|--|
| COEF OF VAR STATRE<br>48 HR ACUTE D. PULEX<br>M3D 1 0 0<br>EFFLUENT GROSS VALUE | SAMPLE<br>MEASUREMENT | ***** | ***** | ***** | ***** | 0.0 | ***** | (23)         | 0 | QTRLY COMP24 |  |
|                                                                                 | PERMIT<br>REQUIREMENT |       |       |       |       |     |       | PER-<br>CENT |   |              |  |

|                                                                                   |                       |       |       |       |       |     |       |              |   |              |  |
|-----------------------------------------------------------------------------------|-----------------------|-------|-------|-------|-------|-----|-------|--------------|---|--------------|--|
| COEF OF VAR STATRE<br>48 HR ACUTE PIMEPHALES<br>M6C 1 0 0<br>EFFLUENT GROSS VALUE | SAMPLE<br>MEASUREMENT | ***** | ***** | ***** | ***** | 0.0 | ***** | (23)         | 0 | QTRLY COMP24 |  |
|                                                                                   | PERMIT<br>REQUIREMENT |       |       |       |       |     |       | PER-<br>CENT |   |              |  |

## Waypoint Analytical, LLC.

## 48 HOUR RENEWAL DAILY READINGS SHEET

SAMPLE ID: Marion  
 REPORT #: 23-108-0393  
 DATE START: 4/19/23

|            | DAY 1   | DAY 2   | AFTER - DAY 1 | AFTER - DAY 2 | AFTER - DAY 1  | AFTER - DAY 2  |
|------------|---------|---------|---------------|---------------|----------------|----------------|
| pH         | INITIAL | INITIAL | Daphnia pulex | Daphnia pulex | Fathead Minnow | Fathead Minnow |
| CONTROL    | 8.4     | 8.3     | 8.1           | 8.3           | 7.8            | 7.8            |
| R          | 8.1     | 8.0     | 8.1           | 8.2           | 8.0            | 7.8.1          |
| 1          | 8.2     | 8.0     | 8.2           | 8.4           | 8.1            | 8.2            |
| 2          | 8.2     | 8.0     | 8.3           | 8.3           | 8.3            | 8.2            |
| 3          | 8.1     | 8.0     | 8.3           | 8.2           | 8.2            | 8.2            |
| 4          | 8.1     | 8.0     | 8.3           | 8.3           | 8.3            | 8.2            |
| 5          | 8.1     | 8.0     | 8.4           | 8.4           | 8.3            | 8.3            |
| DO mg/L    | INITIAL | INITIAL | Daphnia pulex | Daphnia pulex | Fathead Minnow | Fathead Minnow |
| CONTROL    | 8.7     | 8.6     | 8.4           | 8.0           | 8.3            | 7.7            |
| R          | 8.7     | 9.1     | 8.4           | 8.0           | 8.2            | 7.7            |
| 1          | 8.9     | 8.9     | 8.5           | 8.0           | 8.2            | 7.7            |
| 2          | 8.9     | 9.0     | 8.5           | 8.0           | 8.3            | 7.7            |
| 3          | 8.9     | 9.0     | 8.5           | 8.0           | 8.3            | 7.7            |
| 4          | 9.0     | 9.1     | 8.5           | 7.9           | 8.3            | 7.8            |
| 5          | 8.8     | 9.1     | 8.4           | 7.9           | 8.3            | 7.8            |
| TEMP. (C°) | INITIAL | INITIAL | Daphnia pulex | Daphnia pulex | Fathead Minnow | Fathead Minnow |
| CONTROL    | 24.9    | 23.4    | 23.9          | 24.0          | 24.1           | 24.2           |
| R          | 25.1    | 24.0    | 24.0          | 24.2          | 24.4           | 24.1           |
| 1          | 25.2    | 24.2    | 23.9          | 24.3          | 23.6           | 24.0           |
| 2          | 25.3    | 24.1    | 23.6          | 24.2          | 23.5           | 24.0           |
| 3          | 25.3    | 24.4    | 23.6          | 24.1          | 23.5           | 24.1           |
| 4          | 25.1    | 25.0    | 23.9          | 24.2          | 24.0           | 24.0           |
| 5          | 25.1    | 25.1    | 24.1          | 24.2          | 24.0           | 24.0           |
| ANALYST:   | 1m      | UR      | UR            | UR            | UR             | UR             |
| DATE:      | 4/19/23 | 4/20/23 | 4/20/23       | 4/21/23       | 4/20/23        | 4/21/23        |

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     | 186.8   | 185.6   | 40.02   | 40.02   | 23-REAG- 0422            |
| Rec. Stream | 408.2   | 411.6   | 70.02   | 70.02   | DAY 2 DPD Cl2 Reagent ID |
| EFFLUENT    | 539.3   | 526.2   | 70.02   | 70.02   | 23-REAG- 0422            |
| ANALYST:    | 1m      | UR      | 1m      | UR      |                          |
| DATE:       | 4/19/23 | 4/20/23 | 4/19/23 | 4/20/23 |                          |

| Meter        | ID    |
|--------------|-------|
| pH           | PH 21 |
| Conductivity | C 2   |
| DO           | DM 4  |
| Temp.        | T148  |

Tests are maintained at 25 ± 1 ° C / Incubator ID: BIO / Therm. ID: 120554

Samples stored in fridge at 0-6 ° C / Fridge ID: R6 / Therm. ID: T123

Samples warmed in waterbath then maintained in Bio2 until use / Waterbath Therm. ID: T124

Bio2 Therm. ID: T113

Comments / Observations:

## Waypoint Analytical, LLC.

## 48 HOUR SURVIVAL DATA SHEET (5 replicates)

SAMPLE ID:

MARION

REPORT #:

23-108-0393

TEST START - DATE/TIME:

4/19/23 935

ANALYST: IM

TEST END - DATE/TIME :

4/21/23 944

ANALYST: UR

TEST TYPE: RENEWAL

TEST ORGANISM: Daphnia pulex

ORGANISM RN: 23-REAG-0011

| CONC.<br>(% EFF)    | REP<br>NO. | NO. OF SURVIVORS |         |         |
|---------------------|------------|------------------|---------|---------|
|                     |            | HOUR             |         |         |
|                     |            | 0                | 24      | 48      |
| CONTROL             | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| RECEIVING<br>STREAM | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 0.42                | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 0.56                | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 0.75                | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 1.0                 | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 1.3                 | A          | 8                | 8       | 8       |
|                     | B          | 8                | 7       | 7       |
|                     | C          | 8                | 8       | 7       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| ANALYST:            |            | IM               | UR      | UR      |
| DATE:               |            | 4/19/23          | 4/20/23 | 4/21/23 |

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

SAMPLE ID: Marion REPORT # 23-108-0393

DATE START: 4/19/23 DATE END: 4/21/23

DAPHNIA PULEX REFERENCE # : 23-REAG-0011

REFERENCE NUMBERS

| PARAMETER | DATE    | INITIALS | TEST DAY | CONTROL WATER | ALGAE        | YCT          |
|-----------|---------|----------|----------|---------------|--------------|--------------|
| ACUTE     | 4/19/23 | lm       | 0        | 23-REAG-2188  | 23-REAG-2207 | 23-REAG-2076 |
|           | 4/20/23 | UR       | 24 HRS   | 23-REAG-2230  | 23-REAG-2207 | 23-REAG-2076 |

| TEST DAY | SAMPLE LAB ID: | RECEIVING STREAM LAB ID: |
|----------|----------------|--------------------------|
| 0        | L98344         | L98345                   |
| 24 HRS   | L98880         | L99001                   |

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  $25 \pm 1^{\circ}\text{C}$  Incubator ID: BIO / Thermometer ID: 120554

ANALYST COMMENTS:

## 48 HOUR SURVIVAL DATA SHEET (5 replicates)

SAMPLE ID:

MARION

REPORT #:

23-108-0393

TEST START - DATE/TIME:

4/19/23 9:18

ANALYST:

IM

TEST END - DATE/TIME :

4/21/23 9:30

ANALYST:

UR

TEST TYPE:

RENEWAL

| CONC.<br>(% EFF)    | REP<br>NO. | NO. OF SURVIVORS |         |         |
|---------------------|------------|------------------|---------|---------|
|                     |            | HOUR             |         |         |
|                     |            | 0                | 24      | 48      |
| CONTROL             | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| RECEIVING<br>STREAM | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 0.42                | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 0.56                | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 0.75                | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 1.0                 | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| 1.3                 | A          | 8                | 8       | 8       |
|                     | B          | 8                | 8       | 8       |
|                     | C          | 8                | 8       | 8       |
|                     | D          | 8                | 8       | 8       |
|                     | E          | 8                | 8       | 8       |
| ANALYST:            |            | IM               | UR      | UR      |
| DATE:               |            | 4/19/23          | 4/20/23 | 4/21/23 |

TEST ORGANISM: Fathead minnow

ORGANISM RN: 23-REAG-

22160

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

SAMPLE ID: Marion REPORT # 23-108-0393

DATE START: 4/18/23 DATE END: 4/21/23

FATHEAD MINNOW REFERENCE # 23-REAG-2216

REFERENCE NUMBERS

| PARAMETER | DATE    | INITIALS | TEST DAY | CONTROL WATER | SAMPLE LAB ID: | RECEIVING STREAM: |
|-----------|---------|----------|----------|---------------|----------------|-------------------|
| ACUTE     | 4/18/23 | Im       | 0        | 23-REAG-2188  | L98344         | L98345            |
|           | 4/20/23 | UR       | 24 HRS   | 23-REAG-2230  | L98880         | L99001            |

(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  $25 \pm 1^{\circ}\text{C}$  Incubator ID: BIO / Thermometer ID: 120554

ANALYST COMMENTS: