

# Arkansas Analytical, Inc.

## Toxicity Test Results

**Paragould Light, Water & Cable**  
**NPDES PERMIT NUMBER: AR0033766**  
**Third Quarter 2022**  
**AFIN # 28-00470**

Fathead Minnow, *Pimephales promelas*, Larval Survival and Growth Test  
Test 1000.0

*Ceriodaphnia dubia*, Survival and Reproduction Test  
Test 1002.0

Prepared for: **David Romine**  
**401 Grant Lane**  
**Paragould, Arkansas 72450**

Prepared by: Arkansas Analytical, Inc.  
8100 National Drive  
Little Rock, Arkansas 72209  
**Lab Number K2207003**

Thursday, July 21, 2022

## Plant location

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City of Paragould. The facility is located at 401 Grant Lane, Paragould, AR 72450, approximately 1.4 miles south of U.S. Highway 412 and 0.4 miles west of Arkansas Highway 69 on Grant Lane in Greene County, Arkansas

## Test Methods

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EPA Method 1000.0 *Pimephales promelas*, Larval survival and growth test

- Test chambers: 500 mL plastic cups
- Test solution volume: 250 mL
- Number of test organisms per chamber: 10
- Number of replicates per concentration: 5
- Test temperature 25°C ± 1°C
- Test concentrations: 0%, 32%, 42%, 56%, 80%, 100%
- Dilution water: Moderately Hard Synthetic
- No deviation from method

EPA Method 1002.0 *Ceriodaphnia dubia*, Survival and reproduction test

- Test chambers: 30 mL plastic cups
- Test solution volume: 15 mL
- Number of test organisms per chamber: 1
- Number of replicates per concentration: 10
- Test temperature 25°C ± 1°C
- Test concentrations: 0%, 32%, 42%, 56%, 80%, 100%
- Dilution water: Moderately Hard Synthetic
- No deviation from method

## Reference Toxicant Data

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### REFERENCE TOXICANT (Potassium Chloride)

| <i>Ceriodaphnia dubia</i> 6/14/22-6/21/22 |              | <i>Pimephales promelas</i> 6/14/22-6/21/22 |              |
|---|--------------|--|--------------|
| NOEC Survival:                            | 500 ppm KCl  | NOEC Survival:                             | 500 ppm KCl  |
| LOEC Survival:                            | 1000 ppm KCl | LOEC Survival:                             | 1000 ppm KCl |
| NOEC Reproduction:                        | 250 ppm KCl  | NOEC Growth:                               | 500 ppm KCl  |
| LOEC Reproduction:                        | 500 ppm KCl  | LOEC Growth:                               | 1000 ppm KCl |

## Summary of Results

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### Paragould Light, Water & Cable

| <i>Ceriodaphnia dubia</i>                           |  | <i>Pimephales promelas</i>                          |  |
|---|--|---|--|
| NOEC Survival<br>Parameter: <b>TOP3B</b>            | 100%                                   | NOEC Survival<br>Parameter: <b>TOP6C</b>            | 100%                                   |
| Pass/Fail Survival<br>Parameter: <b>TLP3B</b>       | Pass                                   | Pass/Fail Survival<br>Parameter: <b>TLP6C</b>       | Pass                                   |
| NOEC Reproduction<br>Parameter: <b>TPP3B</b>        | 100%                                   | NOEC Growth<br>Parameter: <b>TPP6C</b>              | 100%                                   |
| Pass/Fail Reproduction<br>Parameter: <b>TGP3B</b>   | Pass                                   | Pass/Fail Growth<br>Parameter: <b>TGP6C</b>         | Pass                                   |
| %CV Reproduction<br>Parameter: <b>TQP3B</b>         | 29.7%                                  | %CV Growth<br>Parameter: <b>TQP6C</b>               | 7.51%                                  |
| PMSD Reproduction                                   | 22.5%                                  | PMSD Growth   | 12.8%                                  |
| Chronic Toxicity<br>NOEC<br>Parameter: <b>51710</b> | Lethality: 100%<br>Sub-lethality: 100% | Chronic Toxicity<br>NOEC<br>Parameter: <b>51714</b> | Lethality: 100%<br>Sub-lethality: 100% |

## Conclusion

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*Pimephales promelas*, (Method 1000.0): The permit issued to the Paragould Light, Water & Cable, specifies that the **critical dilution is 100% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

*Ceriodaphnia dubia*, (Method 1002.0): The permit issued to the Paragould Light, Water & Cable, specifies the **critical dilution is 100% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Biomonitoring Analysts: Melissa Bird, Jettie Parnell, Samantha Denton

Reviewed by:

  
Melissa Bird

## Appendices

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|                 |   |
|-----------------|---|
| Appendix A..... | Chains of custody                           |
| Appendix B..... | Fathead minnow data & statistics            |
| Appendix C..... | <i>Ceriodaphnia dubia</i> data & statistics |
| Appendix D..... | Water chemistry data                        |
| Appendix E..... | Reference toxicant control charts           |



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# CHAIN OF CUSTODY RECORD

| CLIENT INFORMATION   |                          | BILLING INFORMATION   |      | Project Description   |                   | Turnaround Time                            |                                    | Preservation Codes:   |  |  |  |
|--|--------------------------|---|------|---|-------------------|--|------------------------------------|---|--|--|--|
| Paragould, Light, Water & Cable<br>401 Grant Lane<br>Paragould, AR 72450 |                          | Paragould, Light, Water, & Cable<br>P.O. Box 9<br>Paragould, AR 72450 |      | Chronic Toxicity<br>3rd Quarter 2022<br>Reporting Information<br>Telephone: 870-239-7795<br>Email: <a href="mailto:dromine@paragould.com">dromine@paragould.com</a> ;<br><a href="mailto:tnewsom@paragould.com">tnewsom@paragould.com</a> |                   | 1 Day (100%)<br>2 Day (50%)<br>3 Day (25%) |                                    | 1. Cool, 4 Degrees Centigrade<br>2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2<br>3. Nitric Acid (HNO <sub>3</sub> ), pH < 2<br>4. Thiosulfate for Dechlorination<br>5. Hydrochloric Acid (HCl)<br>6. Sodium Hydroxide (NaOH), pH > 12 |  |  |  |
| PO #: 9522LE   |                          | Attn: David Romine<br>NPDES Permit AR0033766                          |      | Routine   |                   | Preservative Code:<br>Bottle Type:         |                                    | TEST PARAMETERS   |  |  |  |
| <br>Sampler(s) Signature   |                          | <br>Sampler(s) Printed  |      | Chronic Toxicity<br>(Cerdoaphnia Dubia,<br>Pimephales Promelas)   |                   | 1<br>P                                     |                                    | Bottle Type Code<br>G = Glass; P = Plastic<br>V = Septum; A = Amber<br>Arkansas Analytical Work Order Number: <b>K2207003</b>   |  |  |  |
| Field Number   | SAMPLE COLLECTION Date/s | Time/s  | Grab | Comp  | Number of Bottles | Sample Matrix                              | SAMPLE IDENTIFICATION/ DESCRIPTION |   | REMARKS / SAMPLE COMMENTS  |  |  |
|  | 7/11/22 to 7/12/22       | 7:44 AM to 7:09 AM  | X    | X   | 4                 | Water                                      | Effluent Outfall 001 -- Day 1      |   | SAMPLE CONDITION UPON RECEIPT IN LAB<br>1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>4. RECEIVED ON ICE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>5. TEMPERATURE ON RECEIPT: <b>1.6</b><br>6. TEMPERATURE GUN ID: <b>HH#5</b><br><b>FOR COMPLETION BY LAB ONLY</b> |  |  |
| 1. Relinquished by: (Signature)<br>                                      |                          | Date/Time<br>7/13/22<br>11:30   |      | 2. Received by: (Signature)<br>   |                   | Date/Time<br>7-13-22<br>11:30              |                                    |   |  |  |  |
| 3. Relinquished by: (Signature)<br>                                      |                          | Date/Time   |      | 4. Received by lab: (Signature)<br>   |                   | Date/Time                                  |                                    |   |  |  |  |





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# CHAIN OF CUSTODY RECORD

| CLIENT INFORMATION   |                    | BILLING INFORMATION   |      | Project Description  |                   | Turnaround Time   |                                    | Preservation Codes:  |  |  |  |  |  |  |
|--|--------------------|---|------|--|-------------------|---|------------------------------------|--|--|--|--|--|--|--|
| Paragould, Light, Water & Cable<br>401 Grant Lane<br>Paragould, AR 72450<br>PO #: 9522LE<br>Attn: David Romine<br>NPDES Permit AR0033766 |                    | Paragould, Light, Water, & Cable<br>P.O. Box 9<br>Paragould, AR 72450 |      | Chronic Toxicity<br>3rd Quarter 2022<br>Reporting Information<br>Telephone: 870-239-7723<br>Email: dromine@paragould.com;<br>tnewsom@paragould.com |                   | 1 Day (100%)<br>2 Day (50%)<br>3 Day (25%)<br><i>Routine</i>  |                                    | 1. Cool, 4 Degrees Centigrade<br>2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2<br>3. Nitric Acid (HNO <sub>3</sub> ), pH < 2<br>4. Thiosulfate for Dechlorination<br>5. Hydrochloric Acid(HCl)<br>6. Sodium Hydroxide (NaOH), pH > 12 |  |  |  |  |  |  |
| Sampler(s) Signature<br><i>David Romine</i>  |                    | Sampler(s) Printed<br>Tiffani Newsom                                  |      | Preservative Code:<br>Bottle Type:   |                   | 1<br>P  |                                    | <b>TEST PARAMETERS</b><br>Chronic Toxicity (Ceriodaphnia Dubia, Pimephales Promelas)<br>Arkansas Analytical Work Order Number: <i>K2207003</i><br><i>B</i>   |  |  |  |  |  |  |
| Field Number   | DATE/s             | SAMPLE COLLECTION Time/s  | Grab | Comp   | Number of Bottles | Sample Matrix   | SAMPLE IDENTIFICATION/ DESCRIPTION |  |  |  |  |  |  |  |
|  | 7/12/22 to 7/13/22 | 7:55 AM to 7:29 AM  | X    | X  | 4                 | Water   | Effluent Outfall 001 -- Day 2      |  |  |  |  |  |  |  |
| 1. Relinquished by: (Signature)<br><i>Steve Park</i>   |                    | Date/Time<br><i>7/13/22 11:30</i>                                     |      | 2. Received by: (Signature)  |                   | SAMPLE CONDITION UPON RECEIPT IN LAB<br>1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>2. CONTAINERS CORRECT: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>3. COC/LABELS AGREE: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>4. RECEIVED ON ICE: <i>1°C</i><br>5. TEMPERATURE ON RECEIPT:<br>6. TEMPERATURE GUN ID: <i>HH#5</i> |                                    |  |  |  |  |  |  |  |
| 3. Relinquished by: (Signature)  |                    | Date/Time<br><i>7-13-22 11:30</i>                                     |      | 4. Received by lab: (Signature)<br><i>Tiffani Newsom</i>   |                   | REMARKS / SAMPLE COMMENTS   |                                    |  |  |  |  |  |  |  |



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# CHAIN OF CUSTODY RECORD

| CLIENT INFORMATION              |  | BILLING INFORMATION              |  | Project Description               |  | Turnaround Time                 |  | Preservation Codes:   |  |   |  |  |   |  |  |
|---------------------------------|--|----------------------------------|--|-----------------------------------|--|---------------------------------|--|---|--|---|--|--|---|--|--|
| Paragould, Light, Water & Cable |  | Paragould, Light, Water, & Cable |  | Chronic Toxicity                  |  | 1 Day (100%)                    |  | 1. Cool, 4 Degrees Centigrade   |  | 4. Thiosulfate for Dechlorination   |  |  | 5. Hydrochloric Acid(HCl)   |  |  |
| 401 Grant Lane                  |  | P.O. Box 9                       |  | 3rd Quarter 2022                  |  | 2 Day (50%)                     |  | 2. Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> ), pH < 2                            |  | 5. Hydrochloric Acid(HCl)   |  |  | 6. Sodium Hydroxide (NaOH), pH > 12   |  |  |
| Paragould, AR 72450             |  | Paragould, AR 72450              |  | Reporting Information             |  | 3 Day (25%)                     |  | 3. Nitric Acid (HNO <sub>3</sub> ), pH < 2  |  | 5. Hydrochloric Acid(HCl)   |  |  | 6. Sodium Hydroxide (NaOH), pH > 12   |  |  |
| PO #: 9522LE                    |  | Telephone: 870-239-7723          |  | Routine                           |  |                                 |  |   |  | TEST PARAMETERS   |  |  | Bottle Type Code  |  |  |
| Attn: David Romine              |  | Email: dromine@paragould.com;    |  | Preservative Code:                |  | 1                               |  | P   |  | Chronic Toxicity (Cerdocaphnia Dubia, Pimephales Promelas)                      |  |  | G = Glass; P = Plastic<br>V = Septum; A = Amber                               |  |  |
| NPDES Permit AR0033766          |  | Tiffani Newsom                   |  | Bottle Type:                      |  |                                 |  |   |  | Arkansas Analytical Work Order Number:  |  |  | K220700B  |  |  |
| Sampler(s) Signature            |  | Sampler(s) Printed               |  | Sample Identification/Description |  | Number of Bottles               |  | Sample Matrix   |  |   |  |  |   |  |  |
| Field Number                    |  | Date/s                           |  | Time/s                            |  | Grab                            |  | Comp  |  | Water   |  |  | Effluent Outfall 001 -- Day 3   |  |  |
| 7/13/22 to 7/14/22              |  | 9:01 AM to 8:07 AM               |  | X                                 |  | 4                               |  | X   |  |   |  |  |   |  |  |
| Date/Time                       |  | Date/Time                        |  | Date/Time                         |  | Date/Time                       |  | Date/Time   |  |   |  |  |   |  |  |
| 7/14/22 11:19                   |  | 7/14/22 11:19                    |  | 7/14/22 11:19                     |  | 7/14/22 11:19                   |  | 7/14/22 11:19   |  |   |  |  |   |  |  |
| 1. Relinquished by: (Signature) |  | 2. Received by: (Signature)      |  | 3. Relinquished by: (Signature)   |  | 4. Received by lab: (Signature) |  | 5. Received on receipt:   |  | SAMPLE CONDITION UPON RECEIPT IN LAB  |  |  | REMARKS / SAMPLE COMMENTS   |  |  |
| Steve Paulby                    |  | Sydney James                     |  | Sydney James                      |  | Sydney James                    |  | 1. CUSTODY SEALS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  | 2. CONTAINERS CORRECT: <input type="checkbox"/> Yes <input type="checkbox"/> No |  |  | 3. COC/LABELS AGREE: <input type="checkbox"/> Yes <input type="checkbox"/> No |  |  |
|                                 |  |                                  |  |                                   |  |                                 |  | 4. RECEIVED ON ICE: <input type="checkbox"/> Yes <input type="checkbox"/> No          |  | 5. TEMPERATURE ON RECEIPT: 1°C  |  |  | 6. TEMPERATURE GUN ID: HHT#15   |  |  |
|                                 |  |                                  |  |                                   |  |                                 |  |   |  | FOR COMPLETION BY LAB ONLY  |  |  |   |  |  |

**CETIS Summary Report**

Report Date: 21 Jul-22 13:58 (p 1 of 2)  
 Test Code/ID: K2207003FH / 08-5270-9167

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

Arkansas Analytical

|                               |                                   |  |
|-------------------------------|-----------------------------------|--|
| Batch ID: 12-2036-1881        | Test Type: Growth-Survival (7d)   | Analyst: Jettie Parnell  |
| Start Date: 13 Jul-22 13:40   | Protocol: EPA/821/R-02-013 (2002) | Diluent: Mod-Hard Synthetic Water                                |
| Ending Date: 20 Jul-22 12:51  | Species: Pimephales promelas      | Brine: Not Applicable  |
| Test Length: 6d 23h           | Taxon: Actinopterygii             | Source: Aquatox, AR <span style="float:right">Age: &lt;24</span> |
| Sample ID: 20-0631-5285       | Code: K2207003FH                  | Project: WET Quarterly Compliance Test (3Q)                      |
| Sample Date: 12 Jul-22 07:09  | Material: POTW Effluent           | Source: Paragould (AR0033766)                                    |
| Receipt Date: 13 Jul-22 11:30 | CAS (PC):                         | Station:   |
| Sample Age: 31h (1 °C)        | Client: Paragould                 |  |

**Sample Renewals**

| Renewal | Sample Code | Sample Date     | Receive Date    | Renewal Date    | Temp °C |
|---------|-------------|-----------------|-----------------|-----------------|---------|
| 1       | K2207003B   | 13 Jul-22 07:29 | 13 Jul-22 11:30 | 14 Jul-22 00:00 | 1       |
| 2       | K2207003C   | 14 Jul-22 08:07 | 14 Jul-22 11:14 | 15 Jul-22 00:00 | 1       |

**Multiple Comparison Summary**

| Analysis ID  | Endpoint           | Comparison Method                | ✓ NOEL | LOEL | TOEL | TU | PMSD  | S |
|--------------|--------------------|----------------------------------|--------|------|------|----|-------|---|
| 10-1464-4546 | 7d Survival Rate   | Steel Many-One Rank Sum Test     | 100    | >100 | n/a  | 1  | 6.27% | 1 |
| 04-0995-1495 | Mean Dry Weight-mg | Dunnett Multiple Comparison Test | 100    | >100 | n/a  | 1  | 12.8% | 1 |

**Test Acceptability**

| Analysis ID  | Endpoint         | Attribute    | Test Stat | TAC Limits |       | Overlap | Decision        |
|--------------|------------------|--------------|-----------|------------|-------|---------|-----------------|
|              |                  |              |           | Lower      | Upper |         |                 |
| 10-1464-4546 | 7d Survival Rate | Control Resp | 1         | 0.8        | >>    | Yes     | Passes Criteria |

**7d 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%   |
| 32     |      | 5     | 0.9600 | 0.8920  | 1.0000  | 0.9000 | 1.0000 | 0.0245  | 0.0548  | 5.71% | 4.00%   |
| 42     |      | 5     | 0.9600 | 0.8920  | 1.0000  | 0.9000 | 1.0000 | 0.0245  | 0.0548  | 5.71% | 4.00%   |
| 56     |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 80     |      | 5     | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00% | 0.00%   |
| 100    |      | 5     | 0.9600 | 0.8920  | 1.0000  | 0.9000 | 1.0000 | 0.0245  | 0.0548  | 5.71% | 4.00%   |

**Mean Dry Weight-mg Summary**

| Conc-% | Code | Count | Mean   | 95% LCL | 95% UCL | Min   | Max   | Std Err | Std Dev | CV%    | %Effect |
|--------|------|-------|--------|---------|---------|-------|-------|---------|---------|--------|---------|
| 0      | R    | 5     | 0.922  | 0.8851  | 0.9589  | 0.887 | 0.952 | 0.01328 | 0.0297  | 3.22%  | 0.00%   |
| 32     |      | 5     | 0.8542 | 0.7461  | 0.9623  | 0.772 | 0.984 | 0.03894 | 0.08707 | 10.19% | 7.35%   |
| 42     |      | 5     | 0.7718 | 0.6225  | 0.9211  | 0.635 | 0.904 | 0.05376 | 0.1202  | 15.58% | 16.29%  |
| 56     |      | 5     | 0.9384 | 0.8596  | 1.017   | 0.868 | 1.029 | 0.02839 | 0.06348 | 6.76%  | -1.78%  |
| 80     |      | 5     | 0.8588 | 0.757   | 0.9606  | 0.738 | 0.967 | 0.03665 | 0.08196 | 9.54%  | 6.85%   |
| 100    |      | 5     | 0.8188 | 0.7425  | 0.8951  | 0.745 | 0.904 | 0.02749 | 0.06147 | 7.51%  | 11.19%  |



**CETIS Summary Report**Report Date: 21 Jul-22 13:58 (p 2 of 2)  
Test Code/ID: K2207003FH / 08-5270-9167**Fathead Minnow 7-d Larval Survival and Growth Test**

Arkansas Analytical

**7d Survival Rate Detail**

| Conc-% | Code | Rep 1  | Rep 2  | Rep 3  | Rep 4  | Rep 5  |
|--------|------|--------|--------|--------|--------|--------|
| 0      | R    | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 32     |      | 0.9000 | 1.0000 | 1.0000 | 1.0000 | 0.9000 |
| 42     |      | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |
| 56     |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 80     |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 100    |      | 0.9000 | 0.9000 | 1.0000 | 1.0000 | 1.0000 |

**Mean Dry Weight-mg Detail**

| Conc-% | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|--------|------|-------|-------|-------|-------|-------|
| 0      | R    | 0.887 | 0.947 | 0.952 | 0.929 | 0.895 |
| 32     |      | 0.897 | 0.984 | 0.789 | 0.829 | 0.772 |
| 42     |      | 0.904 | 0.635 | 0.844 | 0.822 | 0.654 |
| 56     |      | 1.029 | 0.868 | 0.909 | 0.911 | 0.975 |
| 80     |      | 0.88  | 0.861 | 0.848 | 0.738 | 0.967 |
| 100    |      | 0.778 | 0.821 | 0.904 | 0.745 | 0.846 |

**7d Survival Rate Binomials**

| Conc-% | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|--------|------|-------|-------|-------|-------|-------|
| 0      | R    | 10/10 | 10/10 | 10/10 | 10/10 | 10/10 |
| 32     |      | 9/10  | 10/10 | 10/10 | 10/10 | 9/10  |
| 42     |      | 9/10  | 9/10  | 10/10 | 10/10 | 10/10 |
| 56     |      | 10/10 | 10/10 | 10/10 | 10/10 | 10/10 |
| 80     |      | 10/10 | 10/10 | 10/10 | 10/10 | 10/10 |
| 100    |      | 9/10  | 9/10  | 10/10 | 10/10 | 10/10 |

**CETIS Summary Report**

Report Date: 22 Jul-22 13:48 (p 1 of 2)  
 Test Code/ID: K2207003CD / 00-8675-5702

**Ceriodaphnia 7-d Survival and Reproduction Test**

Arkansas Analytical

|                               |                                       |   |
|-------------------------------|---------------------------------------|---|
| Batch ID: 15-3883-2141        | Test Type: Reproduction-Survival (7d) | Analyst: Jettie Parnell                     |
| Start Date: 13 Jul-22 13:05   | Protocol: EPA/821/R-02-013 (2002)     | Diluent: Mod-Hard Synthetic Water           |
| Ending Date: 19 Jul-22 11:17  | Species: Ceriodaphnia dubia           | Brine: Not Applicable                       |
| Test Length: 5d 22h           | Taxon: Branchiopoda                   | Source: In-House Culture Age: <24           |
| Sample ID: 21-3916-7589       | Code: K2207003CD                      | Project: WET Quarterly Compliance Test (3Q) |
| Sample Date: 12 Jul-22 07:09  | Material: POTW Effluent               | Source: Paragould (AR0033766)               |
| Receipt Date: 13 Jul-22 11:30 | CAS (PC):                             | Station:                                    |
| Sample Age: 30h (1 °C)        | Client: Paragould                     |   |

**Sample Renewals**

| Renewal | Sample Code | Sample Date     | Receive Date    | Renewal Date    | Temp °C |
|---------|-------------|-----------------|-----------------|-----------------|---------|
| 1       | K2207003B   | 13 Jul-22 07:29 | 13 Jul-22 11:30 | 14 Jul-22 00:00 | 1       |
| 2       | K2207003C   | 14 Jul-22 08:07 | 14 Jul-22 11:14 | 15 Jul-22 00:00 | 1       |

**Multiple Comparison Summary**

| Analysis ID  | Endpoint         | Comparison Method                 | ✓ NOEL | LOEL | TOEL | TU | PMSD  | S |
|--------------|------------------|-----------------------------------|--------|------|------|----|-------|---|
| 00-3091-1783 | 7d Survival Rate | Fisher Exact/Bonferroni-Holm Test | 100    | >100 | n/a  | 1  | n/a   | 1 |
| 16-3414-6433 | Reproduction     | Steel Many-One Rank Sum Test      | 100    | >100 | n/a  | 1  | 22.5% | 1 |

**Test Acceptability**

| Analysis ID  | Endpoint         | Attribute    | Test Stat | TAC Limits |       | Overlap | Decision        |
|--------------|------------------|--------------|-----------|------------|-------|---------|-----------------|
|              |                  |              |           | Lower      | Upper |         |                 |
| 00-3091-1783 | 7d Survival Rate | Control Resp | 1         | 0.8        | >>    | Yes     | Passes Criteria |
| 16-3414-6433 | Reproduction     | Control Resp | 27        | 15         | >>    | Yes     | Passes Criteria |
| 16-3414-6433 | Reproduction     | PMSD         | 0.2254    | 0.13       | 0.47  | Yes     | Passes Criteria |

**7d Survival Rate Summary**

| Conc-% | Code | Count | Mean   | 95% LCL | 95% UCL | Min    | Max    | Std Err | Std Dev | CV%    | %Effect |
|--------|------|-------|--------|---------|---------|--------|--------|---------|---------|--------|---------|
| 0      | L    | 10    | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00%  | 0.00%   |
| 32     |      | 10    | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00%  | 0.00%   |
| 42     |      | 10    | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00%  | 0.00%   |
| 56     |      | 10    | 0.9000 | 0.6738  | 1.0000  | 0.0000 | 1.0000 | 0.1000  | 0.3162  | 35.14% | 10.00%  |
| 80     |      | 10    | 1.0000 | 1.0000  | 1.0000  | 1.0000 | 1.0000 | 0.0000  | 0.0000  | 0.00%  | 0.00%   |
| 100    |      | 10    | 0.8000 | 0.4984  | 1.0000  | 0.0000 | 1.0000 | 0.1333  | 0.4216  | 52.70% | 20.00%  |

**Reproduction Summary**

| Conc-% | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV%    | %Effect |
|--------|------|-------|------|---------|---------|-----|-----|---------|---------|--------|---------|
| 0      | L    | 10    | 27   | 24.59   | 29.41   | 19  | 31  | 1.065   | 3.367   | 12.47% | 0.00%   |
| 32     |      | 10    | 25.2 | 22.34   | 28.06   | 17  | 30  | 1.263   | 3.994   | 15.85% | 6.67%   |
| 42     |      | 10    | 25.8 | 22      | 29.6    | 18  | 34  | 1.679   | 5.308   | 20.57% | 4.44%   |
| 56     |      | 10    | 25.3 | 23.36   | 27.24   | 23  | 31  | 0.857   | 2.71    | 10.71% | 6.30%   |
| 80     |      | 10    | 24   | 20.51   | 27.49   | 12  | 30  | 1.542   | 4.876   | 20.32% | 11.11%  |
| 100    |      | 10    | 21.1 | 13.09   | 29.11   | 4   | 37  | 3.542   | 11.2    | 53.08% | 21.85%  |

Average neonates per surviving female in 100% conc. →  $\bar{X} = 25.4$   
 CV = 29.7%

JP 7/21

**CETIS Summary Report**

Report Date: 22 Jul-22 13:48 (p 2 of 2)  
 Test Code/ID: K2207003CD / 00-8675-5702

**Ceriodaphnia 7-d Survival and Reproduction Test**

Arkansas Analytical

**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 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 32     |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 42     |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 56     |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 1.0000 | 1.0000 |
| 80     |      | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 100    |      | 0.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 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    | 28    | 19    | 28    | 25    | 29    | 26    | 30    | 28    | 26    | 31     |
| 32     |      | 26    | 30    | 27    | 26    | 25    | 27    | 23    | 21    | 17    | 30     |
| 42     |      | 22    | 31    | 18    | 23    | 34    | 29    | 25    | 19    | 30    | 27     |
| 56     |      | 28    | 27    | 26    | 25    | 31    | 23    | 23    | 23    | 23    | 24     |
| 80     |      | 28    | 26    | 24    | 22    | 24    | 24    | 23    | 12    | 27    | 30     |
| 100    |      | 4     | 25    | 29    | 37    | 4     | 20    | 15    | 30    | 17    | 30     |

**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   | 1/1   | 1/1   | 1/1   | 1/1    |
| 32     |      | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1    |
| 42     |      | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1    |
| 56     |      | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 0/1   | 1/1   | 1/1    |
| 80     |      | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1    |
| 100    |      | 0/1   | 1/1   | 1/1   | 1/1   | 0/1   | 1/1   | 1/1   | 1/1   | 1/1   | 1/1    |

| CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING |         |                 |             |  |             |             | Fathead Minnow |             |       |
|--|---------|-----------------|-------------|--|-------------|-------------|----------------|-------------|-------|
| Lab # / Sample ID <u>W2207003</u>                |         |                 |             | Test Start (Date/Time) <u>7/13/22-1340</u> |             |             |                |             |       |
| Client: <u>Paragold</u>                          |         |                 |             | Test End (Date/Time) <u>7/20/22-1251</u>   |             |             |                |             |       |
|  |         | Day of Test     |             |  |             |             |                |             |       |
| <u>MHS026</u>                                    |         | 1               | 2           | 3  | 4           | 5           | 6              | 7           | notes |
| <b>Control</b>                                   |         | <u>7/13</u>     | <u>7/14</u> | <u>7/15</u>                                | <u>7/16</u> | <u>7/17</u> | <u>7/18</u>    | <u>7/19</u> |       |
| D.O. (mg/L)                                      | INITIAL | <u>8.4</u>      | <u>8.4</u>  | <u>8.1</u>                                 | <u>8.4</u>  | <u>8.4</u>  | <u>8.1</u>     | <u>8.0</u>  |       |
|  | FINAL   | <u>4.7</u>      | <u>8.6</u>  | <u>7.5</u>                                 | <u>7.7</u>  | <u>7.1</u>  | <u>6.8</u>     | <u>6.5</u>  |       |
| pH (s.u.)  | INITIAL | <u>6.7</u>      | <u>7.8</u>  | <u>8.1</u>                                 | <u>8.1</u>  | <u>8.2</u>  | <u>8.3</u>     | <u>8.2</u>  |       |
|  | FINAL   | <u>7.5</u>      | <u>7.7</u>  | <u>7.7</u>                                 | <u>7.7</u>  | <u>7.8</u>  | <u>7.9</u>     | <u>6.9</u>  |       |
| temp (C)   | INITIAL | <u>23</u>       | <u>21</u>   | <u>22</u>                                  | <u>23</u>   | <u>23</u>   | <u>22</u>      | <u>22</u>   |       |
|  | FINAL   | <u>25</u>       | <u>25</u>   | <u>25</u>                                  | <u>25</u>   | <u>25</u>   | <u>25</u>      | <u>25</u>   |       |
| ALKALINITY (mg/L)                                |         | <u>64</u>       |             |  |             |             |                |             |       |
| HARDNESS (mg/L)                                  |         | <u>100</u>      |             |  |             |             |                |             |       |
| CONDUCTIVITY (umhc)                              |         | <u>348</u>      |             |  |             |             |                |             |       |
| CHLORINE (mg/L)                                  |         | <u>&lt;0.05</u> |             |  |             |             |                |             |       |
| <b>CONC: 32</b>                                  |         |                 |             |  |             |             |                |             |       |
| D.O. (mg/L)                                      | INITIAL | <u>8.4</u>      | <u>8.5</u>  | <u>8.4</u>                                 | <u>8.6</u>  | <u>8.4</u>  | <u>8.4</u>     | <u>8.2</u>  |       |
|  | FINAL   | <u>5.8</u>      | <u>6.0</u>  | <u>7.2</u>                                 | <u>7.7</u>  | <u>7.0</u>  | <u>6.9</u>     | <u>7.0</u>  |       |
| pH (s.u.)  | INITIAL | <u>6.6</u>      | <u>7.8</u>  | <u>8.0</u>                                 | <u>8.0</u>  | <u>8.0</u>  | <u>8.1</u>     | <u>8.1</u>  |       |
|  | FINAL   | <u>7.5</u>      | <u>7.6</u>  | <u>7.7</u>                                 | <u>7.7</u>  | <u>7.7</u>  | <u>7.8</u>     | <u>6.9</u>  |       |
| temp (C)   | INITIAL | <u>24</u>       | <u>21</u>   | <u>22</u>                                  | <u>23</u>   | <u>23</u>   | <u>23</u>      | <u>22</u>   |       |
|  | FINAL   | <u>25</u>       | <u>25</u>   | <u>25</u>                                  | <u>25</u>   | <u>25</u>   | <u>25</u>      | <u>25</u>   |       |
| <b>CONC: 42</b>                                  |         |                 |             |  |             |             |                |             |       |
| D.O. (mg/L)                                      | INITIAL | <u>8.3</u>      | <u>8.5</u>  | <u>8.5</u>                                 | <u>8.7</u>  | <u>8.5</u>  | <u>8.5</u>     | <u>8.3</u>  |       |
|  | FINAL   | <u>6.6</u>      | <u>6.7</u>  | <u>7.0</u>                                 | <u>7.7</u>  | <u>7.0</u>  | <u>7.2</u>     | <u>7.1</u>  |       |
| pH (mg/L)  | INITIAL | <u>6.9</u>      | <u>7.8</u>  | <u>7.9</u>                                 | <u>7.9</u>  | <u>7.9</u>  | <u>8.0</u>     | <u>8.1</u>  |       |
|  | FINAL   | <u>7.5</u>      | <u>7.6</u>  | <u>7.7</u>                                 | <u>7.8</u>  | <u>7.8</u>  | <u>7.8</u>     | <u>7.1</u>  |       |
| temp (C)   | INITIAL | <u>24</u>       | <u>21</u>   | <u>22</u>                                  | <u>23</u>   | <u>23</u>   | <u>23</u>      | <u>22</u>   |       |
|  | FINAL   | <u>25</u>       | <u>25</u>   | <u>25</u>                                  | <u>25</u>   | <u>25</u>   | <u>25</u>      | <u>25</u>   |       |
| <b>CONC: 56</b>                                  |         |                 |             |  |             |             |                |             |       |
| D.O. (mg/L)                                      | INITIAL | <u>8.3</u>      | <u>8.6</u>  | <u>8.5</u>                                 | <u>8.8</u>  | <u>8.4</u>  | <u>8.5</u>     | <u>8.4</u>  |       |
|  | FINAL   | <u>6.6</u>      | <u>6.8</u>  | <u>7.1</u>                                 | <u>7.6</u>  | <u>6.6</u>  | <u>7.1</u>     | <u>6.9</u>  |       |
| pH (s.u.)  | INITIAL | <u>7.1</u>      | <u>7.8</u>  | <u>7.9</u>                                 | <u>7.9</u>  | <u>8.1</u>  | <u>8.0</u>     | <u>8.1</u>  |       |
|  | FINAL   | <u>7.6</u>      | <u>7.6</u>  | <u>7.7</u>                                 | <u>7.8</u>  | <u>7.8</u>  | <u>7.8</u>     | <u>7.1</u>  |       |
| temp (C)   | INITIAL | <u>25</u>       | <u>21</u>   | <u>22</u>                                  | <u>24</u>   | <u>23</u>   | <u>23</u>      | <u>22</u>   |       |
|  | FINAL   | <u>25</u>       | <u>25</u>   | <u>25</u>                                  | <u>25</u>   | <u>25</u>   | <u>25</u>      | <u>25</u>   |       |
| <b>CONC: 80</b>                                  |         |                 |             |  |             |             |                |             |       |
| D.O. (mg/L)                                      | INITIAL | <u>8.2</u>      | <u>8.6</u>  | <u>8.5</u>                                 | <u>8.7</u>  | <u>8.4</u>  | <u>8.4</u>     | <u>8.2</u>  |       |
|  | FINAL   | <u>6.5</u>      | <u>6.9</u>  | <u>7.0</u>                                 | <u>7.7</u>  | <u>6.7</u>  | <u>7.2</u>     | <u>7.0</u>  |       |
| pH (s.u.)  | INITIAL | <u>7.3</u>      | <u>7.9</u>  | <u>7.8</u>                                 | <u>7.9</u>  | <u>7.9</u>  | <u>8.0</u>     | <u>8.1</u>  |       |
|  | FINAL   | <u>7.7</u>      | <u>7.0</u>  | <u>7.8</u>                                 | <u>7.9</u>  | <u>7.8</u>  | <u>7.9</u>     | <u>7.4</u>  |       |
| temp (C)   | INITIAL | <u>25</u>       | <u>21</u>   | <u>23</u>                                  | <u>24</u>   | <u>24</u>   | <u>23</u>      | <u>22</u>   |       |
|  | FINAL   | <u>25</u>       | <u>25</u>   | <u>25</u>                                  | <u>25</u>   | <u>25</u>   | <u>25</u>      | <u>25</u>   |       |
| <b>CONC: 100</b>                                 |         |                 |             |  |             |             |                |             |       |
| D.O. (mg/L)                                      | INITIAL | <u>8.3</u>      | <u>8.6</u>  | <u>8.7</u>                                 | <u>9.1</u>  | <u>8.4</u>  | <u>8.5</u>     | <u>8.3</u>  |       |
|  | FINAL   | <u>5.8</u>      | <u>7.0</u>  | <u>6.7</u>                                 | <u>7.4</u>  | <u>6.7</u>  | <u>6.7</u>     | <u>7.1</u>  |       |
| pH (s.u.)  | INITIAL | <u>7.4</u>      | <u>7.9</u>  | <u>7.9</u>                                 | <u>7.9</u>  | <u>7.8</u>  | <u>8.0</u>     | <u>8.1</u>  |       |
|  | FINAL   | <u>7.7</u>      | <u>7.8</u>  | <u>7.8</u>                                 | <u>8.0</u>  | <u>7.9</u>  | <u>7.5</u>     | <u>7.4</u>  |       |
| temp (C)   | INITIAL | <u>25</u>       | <u>21</u>   | <u>23</u>                                  | <u>24</u>   | <u>24</u>   | <u>23</u>      | <u>22</u>   |       |
|  | FINAL   | <u>25</u>       | <u>25</u>   | <u>25</u>                                  | <u>25</u>   | <u>25</u>   | <u>25</u>      | <u>25</u>   |       |
| <b>CONC: 100</b>                                 |         | <u>A</u>        | <u>B</u>    | <u>C</u>                                   | <u>A</u>    | <u>B</u>    | <u>C</u>       | <u>C</u>    |       |
| ALKALINITY (mg/L)                                |         | <u>130</u>      | <u>138</u>  | <u>100</u>                                 | <u>130</u>  | <u>138</u>  | <u>100</u>     |             |       |
| HARDNESS (mg/L)                                  |         | <u>42</u>       | <u>44</u>   | <u>60</u>                                  | <u>42</u>   | <u>44</u>   | <u>60</u>      |             |       |
| CONDUCTIVITY (umhc)                              |         | <u>566</u>      | <u>596</u>  | <u>620</u>                                 | <u>566</u>  | <u>596</u>  | <u>620</u>     |             |       |
| CHLORINE (mg/L)                                  |         | <u>&lt;0.05</u> |             |  |             |             |                |             |       |



CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

Ceriodaphnia Dubia

Lab #/ Sample ID *W2207003*

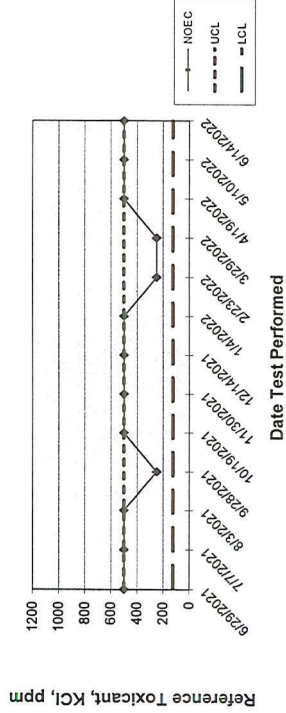
Test Start (Date/Time) *7/13/22-1205*

Client: *Ramsgard*

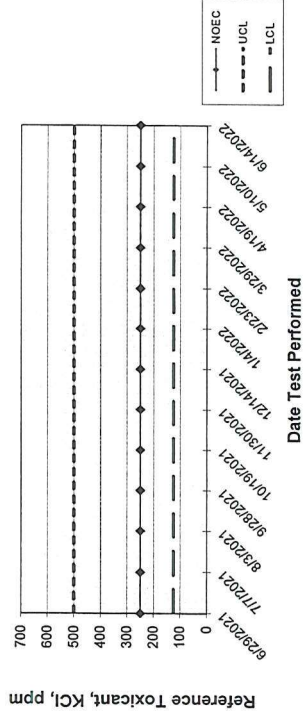
Test End (Date/Time) *7/19/22-1107*

|                         |                | Day of Test |             |             |             |             |             |             | notes/remarks |
|-------------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
|                         |                | 1           | 2           | 3           | 4           | 5           | 6           | 7           |               |
| <b>Control</b>          | MHS <i>026</i> | <i>7/13</i> | <i>7/14</i> | <i>7/15</i> | <i>7/16</i> | <i>7/17</i> | <i>7/18</i> | <i>7/19</i> |               |
| D.O. (mg/L)             | INITIAL        | 8.4         | 8.4         | 8.1         | 8.4         | 8.4         | 8.1         | 8.0         |               |
|                         | FINAL          | 7.8         | 8.3         | 8.2         | 8.1         | 7.6         | 7.6         |             |               |
| pH (s.u.)               | INITIAL        | 6.7         | 7.3         | 8.1         | 8.1         | 8.2         | 8.3         | 8.2         |               |
|                         | FINAL          | 7.8         | 7.5         | 8.8         | 8.0         | 7.5         | 8.1         |             |               |
| temp (C)                | INITIAL        | 23          | 21          | 23          | 23          | 23          | 22          | 22          |               |
|                         | FINAL          | 25          | 25          | 25          | 25          | 25          | 25          |             |               |
| ALKALINITY (mg/L)       |                | 64          |             |             |             |             |             |             |               |
| HARDNESS (mg/L)         |                | 700         |             |             |             |             |             |             |               |
| CONDUCTIVITY (umhos/cm) |                | 348         |             |             |             |             |             |             |               |
| CHLORINE (mg/L)         |                | 20.05       |             |             |             |             |             |             |               |
| <b>CONC: 32</b>         |                |             |             |             |             |             |             |             |               |
| D.O. (mg/L)             | INITIAL        | 8.4         | 8.5         | 8.4         | 8.6         | 8.4         | 8.4         | 8.2         |               |
|                         | FINAL          | 7.8         | 8.3         | 8.3         | 8.2         | 7.6         | 7.6         |             |               |
| pH (s.u.)               | INITIAL        | 6.6         | 7.8         | 8.0         | 8.0         | 8.0         | 8.1         | 8.1         |               |
|                         | FINAL          | 7.8         | 7.8         | 8.3         | 7.9         | 7.5         | 7.5         |             |               |
| temp (C)                | INITIAL        | 24          | 21          | 22          | 23          | 23          | 23          | 23          |               |
|                         | FINAL          | 25          | 25          | 25          | 25          | 25          | 25          |             |               |
| <b>CONC: 42</b>         |                |             |             |             |             |             |             |             |               |
| D.O. (mg/L)             | INITIAL        | 8.3         | 8.5         | 8.5         | 8.7         | 8.5         | 8.5         | 8.3         |               |
|                         | FINAL          | 7.9         | 8.4         | 8.3         | 8.2         | 7.0         | 7.5         |             |               |
| pH (mg/L)               | INITIAL        | 6.9         | 7.8         | 7.9         | 7.9         | 7.9         | 8.0         | 8.1         |               |
|                         | FINAL          | 7.8         | 7.9         | 8.1         | 7.9         | 8.0         | 8.0         |             |               |
| temp (C)                | INITIAL        | 24          | 21          | 22          | 23          | 23          | 23          | 23          |               |
|                         | FINAL          | 25          | 25          | 25          | 25          | 25          | 25          |             |               |
| <b>CONC: 56</b>         |                |             |             |             |             |             |             |             |               |
| D.O. (mg/L)             | INITIAL        | 8.3         | 8.6         | 8.5         | 8.8         | 8.4         | 8.5         | 8.4         |               |
|                         | FINAL          | 7.9         | 8.5         | 8.3         | 8.1         | 7.5         | 8.1         |             |               |
| pH (s.u.)               | INITIAL        | 7.1         | 7.8         | 7.9         | 7.9         | 7.9         | 8.0         | 8.1         |               |
|                         | FINAL          | 7.9         | 7.9         | 8.1         | 8.0         | 8.0         | 8.1         |             |               |
| temp (C)                | INITIAL        | 25          | 21          | 22          | 24          | 23          | 23          | 22          |               |
|                         | FINAL          | 25          | 25          | 25          | 25          | 25          | 25          |             |               |
| <b>CONC: 80</b>         |                |             |             |             |             |             |             |             |               |
| D.O. (mg/L)             | INITIAL        | 8.2         | 8.6         | 8.5         | 8.7         | 8.4         | 8.4         | 8.2         |               |
|                         | FINAL          | 8.0         | 7.5         | 8.3         | 8.1         | 7.8         | 8.1         |             |               |
| pH (s.u.)               | INITIAL        | 7.3         | 7.9         | 7.8         | 7.9         | 7.9         | 8.0         | 8.1         |               |
|                         | FINAL          | 8.0         | 8.0         | 8.1         | 8.6         | 8.1         | 8.1         |             |               |
| temp (C)                | INITIAL        | 25          | 21          | 23          | 24          | 24          | 23          | 22          |               |
|                         | FINAL          | 25          | 25          | 25          | 25          | 25          | 25          |             |               |
| <b>CONC: 100</b>        |                |             |             |             |             |             |             |             |               |
| D.O. (mg/L)             | INITIAL        | 8.3         | 8.6         | 8.2         | 9.1         | 8.4         | 8.5         | 8.5         |               |
|                         | FINAL          | 8.1         | 8.6         | 8.3         | 8.2         | 7.7         | 8.2         |             |               |
| pH (s.u.)               | INITIAL        | 7.4         | 7.9         | 7.9         | 7.9         | 7.8         | 8.0         | 8.1         |               |
|                         | FINAL          | 8.1         | 8.1         | 8.2         | 8.1         | 8.1         | 8.2         |             |               |
| temp (C)                | INITIAL        | 25          | 21          | 23          | 24          | 24          | 23          | 22          |               |
|                         | FINAL          | 25          | 25          | 25          | 25          | 25          | 25          |             |               |
| <b>CONC: 100</b>        |                | A           | B           | C           | A           | B           | C           | C           |               |
| ALKALINITY (mg/L)       |                | 130         | 138         | 100         | 130         | 138         | 100         |             |               |
| HARDNESS (mg/L)         |                | 42          | 44          | 60          | 42          | 44          | 60          |             |               |
| CONDUCTIVITY (umhos/cm) |                | 566         | 596         | 620         | 566         | 596         | 620         |             |               |
| CHLORINE (mg/L)         |                | 20.05       |             |             |             |             |             |             |               |

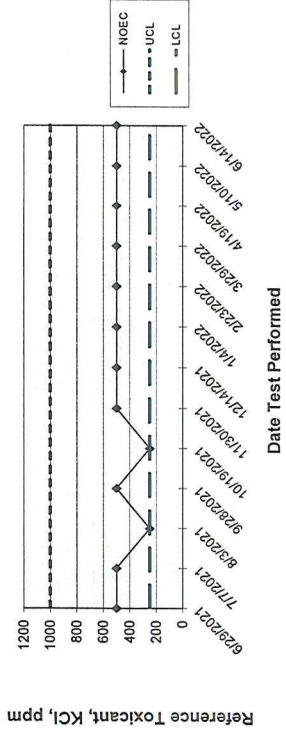
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