

CITY OFFICIALS:

DICKIE KENNEMORE, MAYOR
MIKE GIBSON, MUNICIPAL JUDGE
DON BETTERTON, CITY ATTORNEY
LYNDA WELLS, CLERK / TREASURER



CITY COUNCIL:

JOE GUY
OTTIS RAPER
JEANETTE WALKER
LINDA WATSON
LUTHER WHITFIELD
GENE COX

June 11, 2014

Arkansas Department of
Environmental Quality
NPDES Enforcement Section
5301 N. Shore DR.
North Little Rock, Arkansas 72118

RE: NPDES PERMIT NO. AR0021580
Biomonitoring JANUARY 01, 2014 thru JUNE 30, 2014

Enclosed is the Discharge Monitoring Report for the City of Osceola for the period of **JANUARY 01, 2014 thru JUNE 30, 2014** on Biomonitoring test as required by our permit. The tests show that we passed all tests.

All tests were performed by Environmental Testing and Consulting, Inc., 2790 Whitten Rd. Memphis, TN. 38133. We are enclosing all summary forms and analysis sheets as required by our permit.

Thanks,

James N. Carlock
WWTP SUPT.
Enclosure



ENVIRONMENTAL TESTING & CONSULTING, INC.

www.etcmemphis.com

2790 Whitten Road

Memphis, Tennessee 38133

(901) 213-2400

Fax (901) 213-2440

"A Laboratory Management Partner"

5/29/2014

Osceola Water Department
Mr. James Carlock
PO Box 443
Osceola, AR, 72370

Ref: Analytical Testing
ETC Report Number: 14-127-0192
Client Project Description: Bioassay

Dear Mr. James Carlock:

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: NOEL/CV = 0.17%
Permit Limit: 0.13%

All statistical interpretations generated by CETIS - Comprehensive Environmental Toxicity Information System (v.1.8.6.1). CETIS created by Tidepool Scientific Software

Respectfully,

Connie Cook
Lab Supervisor

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

CETIS Test Evaluation Report

Report Date: 29 May-14 10:53 (1 of 2)
 Test Code: DP 14-127-0192 | 16-9909-6545

| | |
|--|--|
| Facility: OSCEOLA WATER Sample Site: Sample Code: 14-127-0192 Sample Date: 06 May-14 07:00 Sample Age: 33h (1.1 °C) Project: WET Quarterly Compliance Test (2Q) | Test Name: Daphnia pulex 48-h Acute Survival Test Organism: Daphnia pulex (Water Flea) Protocol: EPA/821/R-02-012 (2002) Start Date: 07 May-14 16:10 End Date: 09 May-14 14:50 Duration: 47h Organism Age: < 24 |
| Permitee: Osceola Water Department Address: P.O. Box 443 346 W. Hale Osceola, AR 72370 Contact: Mr. James Carlock Phone: 870-563-2628, 870-563-7460(fax) Email: | Laboratory: Environmental Testing and Consulting, Inc. Address: 2790 Whitten Road Memphis, TN 38133 Contact: Connie Cook, Lab Supervisor Phone: 901-213-2454 Email: ccook@etcmemphis.com |

| Acute Toxicity Evaluation | | | | | |
|---------------------------|-----------|------------|------|-----------|------------------------------|
| Endpoint | Parameter | C-% | IWC | Pass/Fail | Method |
| 48h Survival Rate | NOEL/LOEL | 0.17/>0.17 | 0.13 | Pass | Steel Many-One Rank Sum Test |

| Test Acceptability Criteria | | | | |
|-----------------------------|--------------|-----------|-----------|-----------|
| Endpoint | Attribute | Test Stat | Limits | Pass/Fail |
| 48h Survival Rate | Control Resp | 0.98 | 0.9 - N/A | Pass |

CETIS Test Evaluation Report

Report Date: 29 May-14 10:53 (2 of 2)
 Test Code: DP 14-127-0192 | 16-9909-6545

| 48h Survival Rate Summary | | | | | | | | | | | |
|---------------------------|---------------|-------|------|---------|---------|------|-----|---------|---------|------|---------|
| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| 0 | Lab Water | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0 | Receiving Wat | 5 | 0.98 | 0.95 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | 2.5% |
| 0.05 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0.07 | | 5 | 0.98 | 0.95 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | 2.5% |
| 0.1 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0.13 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0.17 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |

CETIS Summary Report

Report Date: 29 May-14 10:54 (p 1 of 1)
 Test Code: DP 14-127-0192 | 16-9909-6545

| Daphnia pulex 48-h Acute Survival Test | | | | Environmental Testing and Consulting, Inc. | | | |
|--|-----------------|------------|---------------------------|--|------------------------------------|--|--|
| Batch ID: | 06-9371-6753 | Test Type: | Survival (48h) | Analyst: | Connie Cook | | |
| Start Date: | 07 May-14 16:10 | Protocol: | EPA/821/R-02-012 (2002) | Diluent: | Receiving Water | | |
| Ending Date: | 09 May-14 14:50 | Species: | Daphnia pulex | Brine: | Not Applicable | | |
| Duration: | 47h | Source: | In-House Culture | Age: | < 24 | | |
| Sample ID: | 19-0278-3950 | Code: | 14-127-0192 | Client: | Osceola Water Department | | |
| Sample Date: | 06 May-14 07:00 | Material: | POTW Effluent | Project: | WET Quarterly Compliance Test (2Q) | | |
| Receive Date: | 07 May-14 14:00 | Source: | OSCEOLA WATER (AR0021580) | | | | |
| Sample Age: | 33h (1.1 °C) | Station: | | | | | |

| Comparison Summary | | | | | | | |
|--------------------|-------------------|------|-------|------|-------|-------|------------------------------|
| Analysis ID | Endpoint | NOEL | LOEL | TOEL | PMSD | TU | Method |
| 06-0584-9395 | 48h Survival Rate | 0.17 | >0.17 | NA | 5.56% | 588.2 | Steel Many-One Rank Sum Test |

| Test Acceptability | | | | | | |
|--------------------|-------------------|--------------|-----------|------------|---------|-------------------------------|
| Analysis ID | Endpoint | Attribute | Test Stat | TAC Limits | Overlap | Decision |
| 06-0584-9395 | 48h Survival Rate | Control Resp | 0.98 | 0.9 - NL | Yes | Passes Acceptability Criteria |

| 48h Survival Rate Summary | | | | | | | | | | | |
|---------------------------|-----------------|-------|------|---------|---------|------|-----|---------|---------|------|---------|
| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| 0 | Receiving Water | 5 | 0.98 | 0.91 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | 0.0% |
| 0 | Lab Water | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -2.6% |
| 0.05 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -2.6% |
| 0.07 | | 5 | 0.98 | 0.91 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | 0.0% |
| 0.1 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -2.6% |
| 0.13 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -2.6% |
| 0.17 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -2.6% |

| 48h Survival Rate Detail | | | | | | |
|--------------------------|-----------------|-------|-------|-------|-------|-------|
| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
| 0 | Receiving Water | 1 | 1 | 0.88 | 1 | 1 |
| 0 | Lab Water | 1 | 1 | 1 | 1 | 1 |
| 0.05 | | 1 | 1 | 1 | 1 | 1 |
| 0.07 | | 1 | 1 | 1 | 0.88 | 1 |
| 0.1 | | 1 | 1 | 1 | 1 | 1 |
| 0.13 | | 1 | 1 | 1 | 1 | 1 |
| 0.17 | | 1 | 1 | 1 | 1 | 1 |

CETIS Measurement Report

Report Date: 29 May-14 10:53 (p 1 of 4)
Test Code: DP 14-127-0192 | 16-9909-6545

| Daphnia pulex 48-h Acute Survival Test | | | Environmental Testing and Consulting, Inc. | | |
|--|-----------------------------------|---|--|--|--|
| Batch ID: 06-9371-6753 | Test Type: Survival (48h) | Analyst: Connie Cook | | | |
| Start Date: 07 May-14 16:10 | Protocol: EPA/821/R-02-012 (2002) | Diluent: Receiving Water | | | |
| Ending Date: 09 May-14 14:50 | Species: Daphnia pulex | Brine: Not Applicable | | | |
| Duration: 47h | Source: In-House Culture | Age: < 24 | | | |
| Sample ID: 19-0278-3950 | Code: 14-127-0192 | Client: Osceola Water Department | | | |
| Sample Date: 06 May-14 07:00 | Material: POTW Effluent | Project: WET Quarterly Compliance Test (2Q) | | | |
| Receive Date: 07 May-14 14:00 | Source: OSCEOLA WATER (AR0021580) | | | | |
| Sample Age: 33h (1.1 °C) | Station: | | | | |

CETIS Measurement Report

Report Date: 29 May-14 10:53 (p 2 of 4)
 Test Code: DP 14-127-0192 | 16-9909-6545

| Daphnia pulex 48-h Acute Survival Test | | | | | | | Environmental Testing and Consulting, Inc. | |
|--|---------------|--------------|---------|----|--------|---------|--|-------|
| Alkalinity (CaCO3)-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 62 | | | | | |
| 0 | Lab Water | 2 | 61 | | | | | |
| Total Residual Chlorine-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 0 | | | | | |
| 0 | Receiving Wat | | 0 | | | | | |
| 0.17 | | | 0 | | | | | |
| 0 | Lab Water | 2 | 0 | | | | | |
| 0 | Receiving Wat | | 0 | | | | | |
| 0.17 | | | 0 | | | | | |
| Conductivity-µS/cm | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 179 | | | | | |
| 0 | Receiving Wat | | 333 | | | | | |
| 0.17 | | | 554 | | | | | |
| 0 | Lab Water | 2 | 181 | | | | | |
| 0 | Receiving Wat | | 347 | | | | | |
| 0.17 | | | 575 | | | | | |
| Final Dissolved Oxygen-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 8 | | | | | |
| 0 | Receiving Wat | | 8.1 | | | | | |
| 0.05 | | | 8 | | | | | |
| 0.07 | | | 8 | | | | | |
| 0.1 | | | 7.9 | | | | | |
| 0.13 | | | 7.8 | | | | | |
| 0.17 | | | 7.9 | | | | | |
| 0 | Lab Water | 2 | 7.9 | | | | | |
| 0 | Receiving Wat | | 7.8 | | | | | |
| 0.05 | | | 7.8 | | | | | |
| 0.07 | | | 7.9 | | | | | |
| 0.1 | | | 7.8 | | | | | |
| 0.13 | | | 7.6 | | | | | |
| 0.17 | | | 7.7 | | | | | |
| Initial Dissolved Oxygen-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 8.8 | | | | | |
| 0 | Receiving Wat | | 8.9 | | | | | |
| 0.05 | | | 8.7 | | | | | |
| 0.07 | | | 8.7 | | | | | |
| 0.1 | | | 8.8 | | | | | |
| 0.13 | | | 8.7 | | | | | |
| 0.17 | | | 8.6 | | | | | |
| 0 | Lab Water | 2 | 8.6 | | | | | |
| 0 | Receiving Wat | | 8.7 | | | | | |
| 0.05 | | | 8.9 | | | | | |
| 0.07 | | | 8.6 | | | | | |
| 0.1 | | | 8.9 | | | | | |
| 0.13 | | | 9 | | | | | |
| 0.17 | | | 8.9 | | | | | |

CETIS Measurement Report

Report Date: 29 May-14 10:53 (p 3 of 4)
 Test Code: DP 14-127-0192 | 16-9909-6545

Daphnia pulex 48-h Acute Survival Test Environmental Testing and Consulting, Inc.

Hardness (CaCO3)-mg/L

| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
|-----|--------------|--------------|---------|----|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 92 | | | | | |
| 0 | Lab Water | 2 | 89 | | | | | |

Final pH-Units

| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
|------|---------------|--------------|---------|----|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 7.5 | | | | | |
| 0 | Receiving Wat | | 7.6 | | | | | |
| 0.05 | | | 7.5 | | | | | |
| 0.07 | | | 7.7 | | | | | |
| 0.1 | | | 7.9 | | | | | |
| 0.13 | | | 7.8 | | | | | |
| 0.17 | | | 7.9 | | | | | |
| 0 | Lab Water | 2 | 7.6 | | | | | |
| 0 | Receiving Wat | | 7.9 | | | | | |
| 0.05 | | | 7.7 | | | | | |
| 0.07 | | | 7.9 | | | | | |
| 0.1 | | | 7.8 | | | | | |
| 0.13 | | | 7.9 | | | | | |
| 0.17 | | | 7.8 | | | | | |

Initial pH-Units

| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
|------|---------------|--------------|---------|----|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 8 | | | | | |
| 0 | Receiving Wat | | 7.7 | | | | | |
| 0.05 | | | 7.9 | | | | | |
| 0.07 | | | 8 | | | | | |
| 0.1 | | | 8 | | | | | |
| 0.13 | | | 7.9 | | | | | |
| 0.17 | | | 7.9 | | | | | |
| 0 | Lab Water | 2 | 7.9 | | | | | |
| 0 | Receiving Wat | | 7.8 | | | | | |
| 0.05 | | | 7.8 | | | | | |
| 0.07 | | | 7.9 | | | | | |
| 0.1 | | | 7.9 | | | | | |
| 0.13 | | | 8 | | | | | |
| 0.17 | | | 8 | | | | | |

Final Temperature-°C

| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
|------|---------------|--------------|---------|----|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 23 | | | | | |
| 0 | Receiving Wat | | 23 | | | | | |
| 0.05 | | | 23 | | | | | |
| 0.07 | | | 23 | | | | | |
| 0.1 | | | 23 | | | | | |
| 0.13 | | | 23 | | | | | |
| 0.17 | | | 23 | | | | | |
| 0 | Lab Water | 2 | 23 | | | | | |
| 0 | Receiving Wat | | 23 | | | | | |
| 0.05 | | | 23 | | | | | |
| 0.07 | | | 23 | | | | | |
| 0.1 | | | 23 | | | | | |
| 0.13 | | | 23 | | | | | |
| 0.17 | | | 23 | | | | | |

CETIS Measurement Report

Report Date: 29 May-14 10:53 (p 4 of 4)

Test Code: DP 14-127-0192 | 16-9909-6545

| Daphnia pulex 48-h Acute Survival Test | | | Environmental Testing and Consulting, Inc. | | | | |
|--|---------------|--------------|--|----|--------|---------|---------------|
| Initial Temperature-°C | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst Notes |
| 0 | Lab Water | 1 | 23 | | | | |
| 0 | Receiving Wat | | 23 | | | | |
| 0.05 | | | 23 | | | | |
| 0.07 | | | 23 | | | | |
| 0.1 | | | 23 | | | | |
| 0.13 | | | 23 | | | | |
| 0.17 | | | 23 | | | | |
| 0 | Lab Water | 2 | 23 | | | | |
| 0 | Receiving Wat | | 23 | | | | |
| 0.05 | | | 23 | | | | |
| 0.07 | | | 23 | | | | |
| 0.1 | | | 23 | | | | |
| 0.13 | | | 23 | | | | |
| 0.17 | | | 23 | | | | |

CETIS Test Evaluation Report

Report Date: 29 May-14 10:54 (1 of 2)

Test Code: FH 14-127-0192 | 21-0009-1175

| | |
|--|--|
| Facility: OSCEOLA WATER Sample Site: Sample Code: 14-127-0192 Sample Date: 06 May-14 07:00 Sample Age: 33h (1.1 °C) Project: WET Quarterly Compliance Test (2Q) | Test Name: Fathead Minnow 48-h Acute Survival Test Organism: Pimephales promelas (Fathead Minnow) Protocol: EPA/821/R-02-012 (2002) Start Date: 07 May-14 15:45 End Date: 09 May-14 14:40 Duration: 47h Organism Age: < 24 |
| Permittee: Osceola Water Department Address: P.O. Box 443 346 W. Hale Osceola, AR 72370 Contact: Mr. James Carlock Phone: 870-563-2628, 870-563-7460(fax) Email: | Laboratory: Environmental Testing and Consulting, Inc. Address: 2790 Whitten Road Memphis, TN 38133 Contact: Connie Cook, Lab Supervisor Phone: 901-213-2454 Email: ccook@etcmemphis.com |

Acute Toxicity Evaluation

| Endpoint | Parameter | C-% | IWC | Pass/Fail | Method |
|-------------------|-----------|------------|------|-----------|------------------------------|
| 48h Survival Rate | NOEL/LOEL | 0.17/>0.17 | 0.13 | Pass | Steel Many-One Rank Sum Test |

CETIS Test Evaluation Report

Report Date: 29 May-14 10:54 (2 of 2)

Test Code: FH 14-127-0192 | 21-0009-1175

| 48h Survival Rate Summary | | | | | | | | | | | |
|---------------------------|---------------|-------|------|---------|---------|------|-----|---------|---------|------|---------|
| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| 0 | Lab Water | 5 | 0.95 | 0.92 | 0.98 | 0.88 | 1 | 0.031 | 0.068 | 7.2% | 0.0% |
| 0 | Receiving Wat | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -5.3% |
| 0.05 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -5.3% |
| 0.07 | | 5 | 0.98 | 0.95 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | -2.6% |
| 0.1 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -5.3% |
| 0.13 | | 5 | 0.98 | 0.95 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | -2.6% |
| 0.17 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | -5.3% |

CETIS Summary Report

Report Date: 29 May-14 10:55 (p 1 of 1)
Test Code: FH 14-127-0192 | 21-0009-1175

| | | | | | |
|--|--|--|---|--|--|
| Fathead Minnow 48-h Acute Survival Test | | | Environmental Testing and Consulting, Inc. | | |
| Batch ID: 06-0300-6742 | Test Type: Survival (48h) | Analyst: Connie Cook | | | |
| Start Date: 07 May-14 15:45 | Protocol: EPA/821/R-02-012 (2002) | Diluent: Receiving Water | | | |
| Ending Date: 09 May-14 14:40 | Species: Pimephales promelas | Brine: Not Applicable | | | |
| Duration: 47h | Source: Aquatox, AR | Age: < 24 | | | |
| Sample ID: 19-0278-3950 | Code: 14-127-0192 | Client: Osceola Water Department | | | |
| Sample Date: 06 May-14 07:00 | Material: POTW Effluent | Project: WET Quarterly Compliance Test (2Q) | | | |
| Receive Date: 07 May-14 14:00 | Source: OSCEOLA WATER (AR0021580) | | | | |
| Sample Age: 33h (1.1 °C) | Station: | | | | |

| | | | | | | | |
|---------------------------|-------------------|-------------|-------------|-------------|-------------|-----------|------------------------------|
| Comparison Summary | | | | | | | |
| Analysis ID | Endpoint | NOEL | LOEL | TOEL | PMSD | TU | Method |
| 02-1881-0508 | 48h Survival Rate | 0.17 | >0.17 | NA | 6.05% | 588.2 | Steel Many-One Rank Sum Test |

| | | | | | | | | | | | |
|----------------------------------|---------------------|--------------|-------------|----------------|----------------|------------|------------|----------------|----------------|------------|----------------|
| 48h Survival Rate Summary | | | | | | | | | | | |
| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| 0 | Receiving Water | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0 | Lab Water | 5 | 0.95 | 0.86 | 1 | 0.88 | 1 | 0.031 | 0.068 | 7.2% | 5.0% |
| 0.05 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0.07 | | 5 | 0.98 | 0.91 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | 2.5% |
| 0.1 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 0.13 | | 5 | 0.98 | 0.91 | 1 | 0.88 | 1 | 0.025 | 0.056 | 5.7% | 2.5% |
| 0.17 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |

| | | | | | | |
|---------------------------------|---------------------|--------------|--------------|--------------|--------------|--------------|
| 48h Survival Rate Detail | | | | | | |
| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
| 0 | Receiving Water | 1 | 1 | 1 | 1 | 1 |
| 0 | Lab Water | 1 | 1 | 1 | 0.88 | 0.88 |
| 0.05 | | 1 | 1 | 1 | 1 | 1 |
| 0.07 | | 1 | 0.88 | 1 | 1 | 1 |
| 0.1 | | 1 | 1 | 1 | 1 | 1 |
| 0.13 | | 1 | 0.88 | 1 | 1 | 1 |
| 0.17 | | 1 | 1 | 1 | 1 | 1 |

CETIS Measurement Report

Report Date: 29 May-14 10:55 (p 1 of 4)

Test Code: FH 14-127-0192 | 21-0009-1175

| Fathead Minnow 48-h Acute Survival Test | | | Environmental Testing and Consulting, Inc. | | |
|---|-----------------|------------|--|----------|------------------------------------|
| Batch ID: | 06-0300-6742 | Test Type: | Survival (48h) | Analyst: | Connie Cook |
| Start Date: | 07 May-14 15:45 | Protocol: | EPA/821/R-02-012 (2002) | Diluent: | Receiving Water |
| Ending Date: | 09 May-14 14:40 | Species: | Pimephales promelas | Brine: | Not Applicable |
| Duration: | 47h | Source: | Aquatox, AR | Age: | < 24 |
| Sample ID: | 19-0278-3950 | Code: | 14-127-0192 | Client: | Osceola Water Department |
| Sample Date: | 06 May-14 07:00 | Material: | POTW Effluent | Project: | WET Quarterly Compliance Test (2Q) |
| Receive Date: | 07 May-14 14:00 | Source: | OSCEOLA WATER (AR0021580) | | |
| Sample Age: | 33h (1.1 °C) | Station: | | | |

CETIS Measurement Report

Report Date: 29 May-14 10:55 (p 2 of 4)
 Test Code: FH 14-127-0192 | 21-0009-1175

| Fathead Minnow 48-h Acute Survival Test | | | | | | | Environmental Testing and Consulting, Inc. | |
|---|---------------|--------------|---------|----|--------|---------|--|-------|
| Alkalinity (CaCO3)-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 62 | | | | | |
| 0 | Lab Water | 2 | 61 | | | | | |
| Total Residual Chlorine-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 0 | | | | | |
| 0 | Receiving Wat | | 0 | | | | | |
| 0.17 | | | 0 | | | | | |
| 0 | Lab Water | 2 | 0 | | | | | |
| 0 | Receiving Wat | | 0 | | | | | |
| 0.17 | | | 0 | | | | | |
| Conductivity-µS/cm | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 179 | | | | | |
| 0 | Receiving Wat | | 333 | | | | | |
| 0.17 | | | 554 | | | | | |
| 0 | Lab Water | 2 | 181 | | | | | |
| 0 | Receiving Wat | | 347 | | | | | |
| 0.17 | | | 575 | | | | | |
| Final Dissolved Oxygen-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 7.5 | | | | | |
| 0 | Receiving Wat | | 7.6 | | | | | |
| 0.05 | | | 7.6 | | | | | |
| 0.07 | | | 7.5 | | | | | |
| 0.1 | | | 7.9 | | | | | |
| 0.13 | | | 7.8 | | | | | |
| 0.17 | | | 7.9 | | | | | |
| 0 | Lab Water | 2 | 7.6 | | | | | |
| 0 | Receiving Wat | | 7.5 | | | | | |
| 0.05 | | | 7.9 | | | | | |
| 0.07 | | | 7.9 | | | | | |
| 0.1 | | | 7.6 | | | | | |
| 0.13 | | | 7.7 | | | | | |
| 0.17 | | | 7.5 | | | | | |
| Initial Dissolved Oxygen-mg/L | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 8.8 | | | | | |
| 0 | Receiving Wat | | 8.9 | | | | | |
| 0.05 | | | 8.7 | | | | | |
| 0.07 | | | 8.7 | | | | | |
| 0.1 | | | 8.8 | | | | | |
| 0.13 | | | 8.7 | | | | | |
| 0.17 | | | 8.6 | | | | | |
| 0 | Lab Water | 2 | 8.6 | | | | | |
| 0 | Receiving Wat | | 8.7 | | | | | |
| 0.05 | | | 8.9 | | | | | |
| 0.07 | | | 8.6 | | | | | |
| 0.1 | | | 8.9 | | | | | |
| 0.13 | | | 9 | | | | | |
| 0.17 | | | 8.9 | | | | | |

CETIS Measurement Report

Report Date: 29 May-14 10:55 (p 3 of 4)
 Test Code: FH 14-127-0192 | 21-0009-1175

Fathead Minnow 48-h Acute Survival Test Environmental Testing and Consulting, Inc.

Hardness (CaCO3)-mg/L

| C-% | Control Type | Reading Time | Measure QA | Diff-% | Inst ID | Analyst | Notes |
|-----|--------------|--------------|------------|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 92 | | | | |
| 0 | Lab Water | 2 | 89 | | | | |

Final pH-Units

| C-% | Control Type | Reading Time | Measure QA | Diff-% | Inst ID | Analyst | Notes |
|------|---------------|--------------|------------|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 7.5 | | | | |
| 0 | Receiving Wat | | 7.4 | | | | |
| 0.05 | | | 7.5 | | | | |
| 0.07 | | | 7.7 | | | | |
| 0.1 | | | 7.6 | | | | |
| 0.13 | | | 7.9 | | | | |
| 0.17 | | | 7.9 | | | | |
| 0 | Lab Water | 2 | 7.3 | | | | |
| 0 | Receiving Wat | | 7.6 | | | | |
| 0.05 | | | 7.6 | | | | |
| 0.07 | | | 7.7 | | | | |
| 0.1 | | | 7.7 | | | | |
| 0.13 | | | 7.6 | | | | |
| 0.17 | | | 7.6 | | | | |

Initial pH-Units

| C-% | Control Type | Reading Time | Measure QA | Diff-% | Inst ID | Analyst | Notes |
|------|---------------|--------------|------------|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 8 | | | | |
| 0 | Receiving Wat | | 7.7 | | | | |
| 0.05 | | | 7.9 | | | | |
| 0.07 | | | 8 | | | | |
| 0.1 | | | 8 | | | | |
| 0.13 | | | 7.9 | | | | |
| 0.17 | | | 7.9 | | | | |
| 0 | Lab Water | 2 | 7.9 | | | | |
| 0 | Receiving Wat | | 7.8 | | | | |
| 0.05 | | | 7.8 | | | | |
| 0.07 | | | 7.9 | | | | |
| 0.1 | | | 7.9 | | | | |
| 0.13 | | | 8 | | | | |
| 0.17 | | | 8 | | | | |

Final Temperature-°C

| C-% | Control Type | Reading Time | Measure QA | Diff-% | Inst ID | Analyst | Notes |
|------|---------------|--------------|------------|--------|---------|---------|-------|
| 0 | Lab Water | 1 | 23 | | | | |
| 0 | Receiving Wat | | 23 | | | | |
| 0.05 | | | 23 | | | | |
| 0.07 | | | 23 | | | | |
| 0.1 | | | 23 | | | | |
| 0.13 | | | 23 | | | | |
| 0.17 | | | 23 | | | | |
| 0 | Lab Water | 2 | 23 | | | | |
| 0 | Receiving Wat | | 23 | | | | |
| 0.05 | | | 23 | | | | |
| 0.07 | | | 23 | | | | |
| 0.1 | | | 23 | | | | |
| 0.13 | | | 23 | | | | |
| 0.17 | | | 23 | | | | |

CETIS Measurement Report

Report Date: 29 May-14 10:55 (p 4 of 4)
 Test Code: FH 14-127-0192 | 21-0009-1175

| Fathead Minnow 48-h Acute Survival Test | | | Environmental Testing and Consulting, Inc. | | | | | |
|---|---------------|--------------|--|----|--------|---------|---------|-------|
| Initial Temperature-°C | | | | | | | | |
| C-% | Control Type | Reading Time | Measure | QA | Diff-% | Inst ID | Analyst | Notes |
| 0 | Lab Water | 1 | 23 | | | | | |
| 0 | Receiving Wat | | 23 | | | | | |
| 0.05 | | | 23 | | | | | |
| 0.07 | | | 23 | | | | | |
| 0.1 | | | 23 | | | | | |
| 0.13 | | | 23 | | | | | |
| 0.17 | | | 23 | | | | | |
| 0 | Lab Water | 2 | 23 | | | | | |
| 0 | Receiving Wat | | 23 | | | | | |
| 0.05 | | | 23 | | | | | |
| 0.07 | | | 23 | | | | | |
| 0.1 | | | 23 | | | | | |
| 0.13 | | | 23 | | | | | |
| 0.17 | | | 23 | | | | | |

Environmental Testing and Consulting, Inc.
2790 Whitten Road
Memphis, TN 38133

Additional Toxicity Test Information

1. Methods/Instrumentation used in chemical analysis:
 - Dissolved oxygen: 4500-O G YSI MODEL - 58
 - pH: 4500-H + B JENCO METER 6072
 - Temperature: 2550 B JENCO METER 6072
 - Conductivity: 2510 B CORNING METER 441
 - Alkalinity: 2320 B
 - Hardness: 200.7
 - Total Residual Chlorine: 4500-Cl G - REPORTED VALUE OF "0" INDICATES RESULT BELOW DETECTION LIMIT OF 0.02 mg/L
 - EPA Acute/Chronic Manual Edition and Date: EPA-821-R-02-012
 - OCT 2002 (Fifth edition)
2. Laboratory
 - Temperature: Average - 25 C Range - 23 - 26
 - Light Cycle: 16 hours light/ 8 hours dark
 - Light intensity: 100 foot-candles, average
 - Control Water: Dilute mineral water made with 20 % Perrier in Nanopure
 - Dilution Water: Laboratory control water
 - Pretreatment: none
3. Method 2002.0
 - Test chambers: 30 mL disposable plastic beakers
 - Volume per chamber: 15 mL
 - Number of organisms per chamber: 8
 - Number of replicates: 5
 - Food: Organisms are not fed during test.
4. Method 2000.0
 - Test chambers: 20 oz. Disposable plastic cups
 - Volume per chamber: 200 mL
 - Average number of organisms per chamber: 8
 - Number of replicates per concentration: 5
 - Food: Artemia brine shrimp hatched in laboratory during holding, prior to test.
 - Acclimation of organisms: Organisms are allowed to reach test temperature. Dilution water is added at half-hour intervals until organisms are contained in a culture media that consists of 80% dilution water.
5. 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



ENVIRONMENTAL TESTING & CONSULTING, INC.

2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440
 "A Laboratory Management Partner"

03334
 Osceola Water Department
 Mr. James Carlock
 PO Box 443
 Osceola, AR 72370

Project Bioassay
 Information :

Report Date : 5/29/2014

Report Number : 14-127-0192

REPORT OF ANALYSIS

Received : 5/7/2014

Lab No : 98761
 Sample ID : **Outfall 001 5/5-6/14**

Matrix: **Aqueous**
 Sampled: **5/6/2014 7:00**

| Test | Results | Units | MQL | DF | Date / Time Analyzed | By | Analytical Method |
|-----------------------------|---------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO3) | 276 | mg/L | 1 | 1 | 05/09/14 10:35 | EWB | 2320B-2011 |
| Total Calcium | 70.5 | mg/L | 0.100 | 1 | 05/15/14 05:06 | BKN | EPA-200.7 |
| Hardness as CaCO3(SM-2340B) | 244 | mg/L | 0.100 | 1 | 05/15/14 05:06 | | EPA-200.7 |
| Total Magnesium | 16.5 | mg/L | 0.100 | 1 | 05/15/14 05:06 | BKN | EPA-200.7 |

Lab No : 98762
 Sample ID : **Outfall 001 5/6-7/14**

Matrix: **Aqueous**
 Sampled: **5/7/2014 7:00**

| Test | Results | Units | MQL | DF | Date / Time Analyzed | By | Analytical Method |
|-----------------------------|---------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO3) | 280 | mg/L | 1 | 1 | 05/09/14 10:35 | EWB | 2320B-2011 |
| Total Calcium | 70.9 | mg/L | 0.100 | 1 | 05/15/14 05:10 | BKN | EPA-200.7 |
| Hardness as CaCO3(SM-2340B) | 244 | mg/L | 0.100 | 1 | 05/15/14 05:10 | | EPA-200.7 |
| Total Magnesium | 16.3 | mg/L | 0.100 | 1 | 05/15/14 05:10 | BKN | EPA-200.7 |

Lab No : 98763
 Sample ID : **River Water**

Matrix: **Aqueous**
 Sampled: **5/7/2014 8:00**

| Test | Results | Units | MQL | DF | Date / Time Analyzed | By | Analytical Method |
|-----------------------------|---------|-------|-------|----|----------------------|-----|-------------------|
| Alkalinity (as CaCO3) | 101 | mg/L | 1 | 1 | 05/09/14 10:35 | EWB | 2320B-2011 |
| Total Calcium | 43.2 | mg/L | 0.100 | 1 | 05/15/14 05:21 | BKN | EPA-200.7 |
| Hardness as CaCO3(SM-2340B) | 155 | mg/L | 0.100 | 1 | 05/15/14 05:21 | | EPA-200.7 |
| Total Magnesium | 11.5 | mg/L | 0.100 | 1 | 05/15/14 05:21 | BKN | EPA-200.7 |

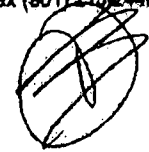
Qualifiers/ * Outside QC limit
Definitions MQL Method Quantitation Limit

DF Dilution Factor



ENVIRONMENTAL TESTING & CONSULTING, INC.

2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440



Osceola Water Department
Bioassay

14-127-0192
03334
05-07-2014
15:07:01

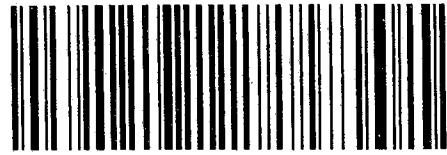
| Company Name Osceola Water Department | | Customer Number 03334 | | Telephone (870) 563-2628 | | RUSH | ICE |
|--|------------------|---------------------------------------|-----------------------------|---|-------------|------------|--------------------------|
| Site Name Semi-annual Bioassay | | | Project Comment bioassay | | | FID Number | |
| Project Osceola Water - Bioassay | | Project Number | | PO Number 611935 | | | |
| Project Manager / Contact Osceola Water Dept. | | | | E-mail James.N.Carlock@sbjgo.com NET | | | |
| Sample ID | Container Type | Collected Date / Time | # Cont | Preservative | Grab / Comp | Matrix | Analyses |
| Outfall 001 5-5-14 7AM TO 5-6-14 7AM 1 st SET | Plastic - Pint | 5-7-14 8:00 AM 2 nd SET | 2 | HNO3 - Nitric Acid | C | Aqueous | hardness |
| Outfall 001 5-5-14 7AM TO 5-6-14 7AM 1 st SET | Plastic - Pint | 5-7-14 8:00 AM 2 nd SET | 2 | NONE | C | Aqueous | Alkalinity |
| Outfall 001 5-5-14 7AM TO 5-6-14 7AM 1 st SET | Plastic - Quart | 5-7-14 8:00 AM 2 nd SET | 2 | NONE | C | Aqueous | 48 hr bioassay - renewal |
| River Water | Plastic - Pint | 5-7-14 8:00 AM | 1 | HNO3 - Nitric Acid | C | Aqueous | hardness |
| river water | Plastic - Pint | 5-7-14 8:00 AM | 1 | NONE | C | Aqueous | Alkalinity |
| river water | Plastic - Gallon | 5-7-14 8:00 AM | 4 | NONE | C | Aqueous | dilution water |

(2nd SET)
5-6-14 7AM TO 5-7-14 7AM
5-6-14 7AM TO 5-7-14 7AM
5-6-14 7AM TO 5-7-14 7AM

| | | | |
|--|-----------------------------|-------------------------------------|-----------------------------|
| Sampled By James N. Carlock | Method of Shipment | Blank / Cooler Temperature 1.1 | Remarks |
| Relinquished By (sign) James N. Carlock | Date / Time 5/7/14 10:05 | Received By (sign) Talsinger | Date / Time 5/7/14 10:25 |
| Relinquished By (sign) | Date / Time | Received By (sign) | Date / Time |
| Relinquished By (sign) Talsinger | Date / Time 5/7/14 14:00 | Received by Lab (sign) Talsinger | Date / Time 5/7/14 14:00 |

Osceola Wastewater
@ James Carlock
P O Box 443
303 West Hale
Osceola, AR 72370

CERTIFIED MAIL™



7012 3050 0000 1111 3973

Hasler

06/11/2014

US POSTAGE

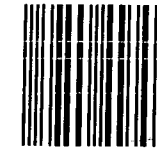
\$07.82⁰



ZIP 72370
011D11627215



1000



72118

U.S. POSTAGE
PAID
OSCEOLA, AR
72370
JUN 11, 14
AMOUNT

\$0.00
00079647-02

ADEQ
Arkansas Department of Environmental Quality
5301 N. Shore DR.
North Little Rock, Arkansas 72118-5317

