



**Whole Effluent Toxicity Test Report
City of Blaine**

February 2024

Report date: March 16, 2024

Submitted to:

City of Blaine
Light House Point WWTP
272 Marine Drive
Blaine, WA 98230

1.0 INTRODUCTION

Chronic toxicity tests were conducted using effluent samples collected from the City of Blaine in February 2024. Chronic bioassays were conducted using *Americamysis bahia* (mysid shrimp) and *Atherinops affinis* (Pacific topsmelt). Testing was performed at Rainier Environmental located in Fife, Washington.

2.0 METHODS

2.1 Sample Collection and Transport

City of Blaine personnel collected composite samples of effluent into LDPE cubitainers. Samples were packed in coolers containing ice and transported to Rainier Environmental. Appropriate chain-of-custody procedures were employed during collection and transport.

2.2 Sample Receipt

Upon arrival at Rainier Environmental, coolers were opened, samples inspected, and the contents verified against information on the chain-of-custody forms. Receipt temperature was measured and recorded on the chain-of-custody forms. Standard water quality parameters were measured and recorded on a sample check-in sheet (Appendix D). The samples were stored at 4°C in the dark until used for testing.

2.3 Test Methods

The chronic toxicity tests were conducted for mysid shrimp and topsmelt according to USEPA (2002) and USEPA (1995) procedures, respectively, and are summarized in Tables 1 and 2.

Table 1. Summary of methods for the mysid shrimp 7-day survival and growth test.

| | |
|--|--|
| Test initiation date and time | 2/27/2024; 1045h |
| Test termination date and time | 3/5/2024; 1010h |
| Test Type | Static renewal |
| Endpoint | Survival and growth at 7 days |
| Test organism | <i>Americamysis bahia</i> |
| Test organism source | Aquatic BioSystems; Fort Collins, CO |
| Test organism age | 7 days post-hatch |
| Feeding | <i>Artemia</i> nauplii, twice daily |
| Test chamber and solution volume | 250 mL plastic cup |
| Test solution volume | 200 mL |
| Test temperature | 26 ± 1°C |
| Dilution water | Crystal Sea Marine Mix artificial seawater |
| Salinity | 30 ± 2 ppt |
| Test concentrations (% sample) | 100, 50, 25, 5.2, 1.38, laboratory control |
| Number of organisms/chamber | 5 |
| Number of replicates | 8 |
| Photoperiod | 16 hours light/8 hours dark |
| Aeration | None |
| Test protocol | EPA-821-R-02-014 |
| Test acceptability criteria for controls | ≥ 80% survival; average dry weight ≥ 0.20 mg |
| Reference toxicant | Copper chloride |

Table 2. Summary of methods for the Pacific topsmelt 7-day survival and growth test.

| | |
|--|--|
| Test initiation date and time | 2/27/2024; 1110h |
| Test termination date and time | 3/5/2024; 1130h |
| Test Type | Static renewal |
| Endpoint | Survival and growth at 7 days |
| Test organism | <i>Atherinops affinis</i> |
| Test organism source | Aquatic BioSystems; Fort Collins, CO |
| Test organism age | 11 days post-hatch |
| Feeding | <i>Artemia</i> nauplii, twice daily |
| Test chamber | 1-liter plastic cup |
| Test solution volume | 500 mL |
| Test temperature | 20 ± 1°C |
| Dilution water | Crystal Sea Marine Mix artificial seawater |
| Salinity | 30 ± 2 ppt |
| Test concentrations (% sample) | 100, 50, 25, 5.2, 1.38, laboratory control |
| Number of organisms/chamber | 5 |
| Number of replicates | 5 |
| Photoperiod | 16 hours light/8 hours dark |
| Aeration | None |
| Test protocol | EPA-600-R-95-136 |
| Test acceptability criteria for controls | ≥ 80% survival; average dry weight ≥ 0.85 mg |
| Reference toxicant | Copper chloride |

3.0 RESULTS

Details of standard water quality measurements conducted upon receipt of samples are provided in Table 3.

Table 3. Sample information.

| Sample ID | | Effluent | |
|--------------------------------------|------------------|------------------|-----------------|
| Rainier Log-In No. | 24-037 | 24-040 | 24-041 |
| Collection date and time | 2/26/2024; 0800h | 2/28/2024; 0730h | 3/1/2024; 0730h |
| Receipt date and time | 2/26/2024; 1055h | 2/28/2024; 1030h | 3/1/2024; 1050h |
| Receipt temperature (°C) | 5.8 | 5.5 | 4.7 |
| Dissolved oxygen (mg/L) | 6.0 | 8.2 | 6.8 |
| pH (units) | 7.08 | 7.06 | 7.11 |
| Conductivity (µS/cm) | 698 | 320 | 322 |
| Salinity (ppt) | 0.3 | 0.0 | 0.0 |
| Hardness (mg/L CaCO ₃) | 100 | 108 | 104 |
| Alkalinity (mg/L CaCO ₃) | 100 | 104 | 100 |
| Total Chlorine (mg/L) | <0.03 | <0.03 | <0.03 |
| Total Ammonia (mg/L) | <1.0 | <1.0 | <1.0 |

Results for the chronic toxicity tests are summarized in Table 4. The mysid shrimp and Pacific Topsmelt tests involved a 7-day static-renewal exposure to the effluent. The endpoints for these tests were survival and growth (evaluated on the basis of dry weight divided by initial count for biomass and final count for dry weight) at the end of the 7-day exposure. In the mysid shrimp test the highest concentration with no observed effect (NOEC) was 100 percent for survival, dry weight and biomass. In the Pacific Topsmelt test the highest concentration with no observed effect (NOEC) was 100 percent for survival, dry weight and biomass. No statistically significant difference was detected in the CCEC of 1.38 percent sample for any endpoint of either test.

Individual statistical summaries for all tests and copies of the laboratory bench sheets, control QC plots, sample check-in sheets, and chain of custody forms are provided in Appendices A through E.

Table 4. Summary of results for the chronic toxicity tests.

| Species | Endpoint | NOEC ^a (% effluent) | LOEC ^b (% effluent) |
|--------------|------------|-----------------------------------|-----------------------------------|
| Mysid Shrimp | Survival | 100 | >100 |
| | Biomass | 100 | >100 |
| | Dry weight | 100 | >100 |
| Topsmelt | Survival | 100 | >100 |
| | Biomass | 100 | >100 |
| | Dry weight | 100 | >100 |

^a No Observed Effect Concentration, ^b Lowest Observed Effect Concentration

4.0 QA/QC

The samples were received in good condition and within the temperature range specified by WDOE (2016). The toxicity tests met all acceptability criteria for performance of control organisms. There were no deviations from the protocols and water quality parameters remained within the ranges specified in the corresponding test methods throughout the tests.

Results for the reference toxicant tests used to monitor laboratory performance and test organism sensitivity are summarized in Table 7. Reference toxicant test results fell within the acceptable range of mean \pm two standard deviations of historical test results, indicating that the tests organisms were of an appropriate degree of sensitivity. The coefficients of variation (CV) for the tests are also shown in the table.

Table 5. Reference toxicant test results.

| Species | Date initiated | Endpoint | LC ₅₀ /EC ₅₀ | Acceptable Range | CV (%) |
|--------------|----------------|-------------|------------------------------------|-------------------------|--------|
| Mysid shrimp | 2/13/2024 | 7d survival | 170 μ g/L Cu | 160 – 294 μ g/L Cu | 16.5 |
| | | 7d growth | 118 μ g/L Cu | 127 – 252 μ g/L Cu | 18.6 |
| Topsmelt | 2/13/2024 | 7d survival | 92.3 μ g/L Cu | 46.1 – 170 μ g/L Cu | 38.6 |
| | | 7d growth | 84.7 μ g/L Cu | 42.5 – 150 μ g/L Cu | 37.0 |

REFERENCES

- Tidepool Scientific Software. 2000-2007. CETIS Comprehensive Environmental Toxicity Information System Software, Version 1.6.3revG
- USEPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition. EPA-821-R-02-014. pp 214-292.
- USEPA. 1995. Short-Term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to the West Coast Marine and Estuarine Organisms. EPA-600-R-95-136. pp 71-140.
- WDOE. 2016. Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria. Washington State Department of Ecology. Water Quality Program. Publication number: WQ-R-95-80, Revised June 2016.

Appendix A
***Americamysis bahia* (mysid shrimp) Chronic Test**
Statistical Summaries and Raw Bench Sheets

CETIS Summary Report

Report Date: 15 Mar-24 13:14 (p 1 of 2)
Test Code: 2402-068 | 19-0175-0992

Mysidopsis 7-d Survival, Growth and Fecundity Test

Rainier Environmental Laboratory

| | | | | | |
|---------------|-----------------|------------|-------------------------|----------|---------------------|
| Batch ID: | 19-3127-9008 | Test Type: | Growth-Survival (7d) | Analyst: | Eric Tollefson |
| Start Date: | 27 Feb-24 10:45 | Protocol: | EPA/821/R-02-014 (2002) | Diluent: | Laboratory Seawater |
| Ending Date: | 05 Mar-24 10:10 | Species: | Mysidopsis bahia | Brine: | |
| Duration: | 6d 23h | Source: | Aquatic Biosystems, CO | Age: | 7d |
| Sample ID: | 19-9210-9202 | Code: | 24-037 | Client: | Blaine |
| Sample Date: | 26 Feb-24 08:00 | Material: | POTW Effluent | Project: | |
| Receive Date: | 26 Feb-24 10:55 | Source: | Blaine (WA0022641) | | |
| Sample Age: | 27h (5.8 °C) | Station: | | | |

Comparison Summary

| Analysis ID | Endpoint | NOEL | LOEL | TOEL | PMSD | TU | Method |
|--------------|---------------------|------|------|------|-------|----|----------------------------------|
| 20-0177-8176 | 7d Survival Rate | 100 | >100 | NA | 11.4% | 1 | Steel Many-One Rank Sum Test |
| 03-5322-4785 | Mean Dry Biomass-mg | 100 | >100 | NA | 18.4% | 1 | Dunnett Multiple Comparison Test |
| 16-1492-7013 | Mean Dry Weight-mg | 100 | >100 | NA | 18.0% | 1 | Dunnett Multiple Comparison Test |

7d Survival Rate Summary

| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|------|----------------|-------|-------|---------|---------|-----|-----|---------|---------|--------|---------|
| 0 | Dilution Water | 8 | 0.95 | 0.9154 | 0.9846 | 0.8 | 1 | 0.03273 | 0.09258 | 9.75% | 0.0% |
| 1.38 | | 8 | 0.975 | 0.9486 | 1 | 0.8 | 1 | 0.025 | 0.07071 | 7.25% | -2.63% |
| 5.2 | | 8 | 0.975 | 0.9486 | 1 | 0.8 | 1 | 0.025 | 0.07071 | 7.25% | -2.63% |
| 25 | | 8 | 0.95 | 0.9154 | 0.9846 | 0.8 | 1 | 0.03273 | 0.09258 | 9.75% | 0.0% |
| 50 | | 8 | 0.875 | 0.8363 | 0.9137 | 0.8 | 1 | 0.0366 | 0.1035 | 11.83% | 7.9% |
| 100 | | 8 | 0.9 | 0.8601 | 0.9399 | 0.8 | 1 | 0.0378 | 0.1069 | 11.88% | 5.26% |

Mean Dry Biomass-mg Summary

| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|------|----------------|-------|--------|---------|---------|-------|-------|----------|---------|--------|---------|
| 0 | Dilution Water | 8 | 0.2493 | 0.2334 | 0.2651 | 0.2 | 0.31 | 0.01497 | 0.04234 | 16.99% | 0.0% |
| 1.38 | | 8 | 0.2678 | 0.2574 | 0.2781 | 0.24 | 0.316 | 0.009808 | 0.02774 | 10.36% | -7.42% |
| 5.2 | | 8 | 0.2638 | 0.2516 | 0.2759 | 0.226 | 0.312 | 0.01147 | 0.03243 | 12.3% | -5.82% |
| 25 | | 8 | 0.2642 | 0.2503 | 0.2782 | 0.21 | 0.304 | 0.01323 | 0.03742 | 14.16% | -6.02% |
| 50 | | 8 | 0.2337 | 0.2213 | 0.2462 | 0.162 | 0.266 | 0.01178 | 0.03332 | 14.25% | 6.22% |
| 100 | | 8 | 0.2295 | 0.2078 | 0.2512 | 0.148 | 0.296 | 0.02057 | 0.05818 | 25.35% | 7.92% |

Mean Dry Weight-mg Summary

| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|------|----------------|-------|--------|---------|---------|--------|--------|---------|---------|--------|---------|
| 0 | Dilution Water | 8 | 0.2625 | 0.2491 | 0.2759 | 0.206 | 0.31 | 0.0127 | 0.03592 | 13.68% | 0.0% |
| 1.38 | | 8 | 0.2756 | 0.2641 | 0.287 | 0.24 | 0.316 | 0.01085 | 0.03068 | 11.13% | -4.98% |
| 5.2 | | 8 | 0.2708 | 0.26 | 0.2816 | 0.238 | 0.312 | 0.01026 | 0.02901 | 10.71% | -3.17% |
| 25 | | 8 | 0.2793 | 0.265 | 0.2935 | 0.21 | 0.335 | 0.01354 | 0.03829 | 13.71% | -6.38% |
| 50 | | 8 | 0.2689 | 0.2533 | 0.2845 | 0.2025 | 0.3225 | 0.01475 | 0.04172 | 15.51% | -2.43% |
| 100 | | 8 | 0.2561 | 0.2331 | 0.279 | 0.148 | 0.325 | 0.02175 | 0.06152 | 24.03% | 2.45% |

CETIS Summary Report

Report Date: 15 Mar-24 13:14 (p 2 of 2)
Test Code: 2402-068 | 19-0175-0992

Mysidopsis 7-d Survival, Growth and Fecundity Test

Rainier Environmental Laboratory

7d Survival Rate Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 |
|------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 1 | 1 | 1 | 1 | 1 | 1 | 0.8 | 0.8 |
| 1.38 | | 1 | 1 | 1 | 0.8 | 1 | 1 | 1 | 1 |
| 5.2 | | 0.8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 25 | | 0.8 | 1 | 1 | 1 | 1 | 0.8 | 1 | 1 |
| 50 | | 0.8 | 0.8 | 0.8 | 1 | 0.8 | 1 | 1 | 0.8 |
| 100 | | 1 | 1 | 1 | 0.8 | 0.8 | 1 | 0.8 | 0.8 |

Mean Dry Biomass-mg Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 |
|------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 0.27 | 0.206 | 0.302 | 0.224 | 0.31 | 0.258 | 0.2 | 0.224 |
| 1.38 | | 0.242 | 0.278 | 0.296 | 0.25 | 0.248 | 0.316 | 0.272 | 0.24 |
| 5.2 | | 0.226 | 0.312 | 0.248 | 0.29 | 0.3 | 0.238 | 0.238 | 0.258 |
| 25 | | 0.268 | 0.248 | 0.298 | 0.21 | 0.294 | 0.212 | 0.28 | 0.304 |
| 50 | | 0.216 | 0.258 | 0.23 | 0.266 | 0.162 | 0.24 | 0.24 | 0.258 |
| 100 | | 0.296 | 0.282 | 0.148 | 0.26 | 0.25 | 0.26 | 0.186 | 0.154 |

Mean Dry Weight-mg Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 |
|------|----------------|--------|--------|--------|--------|--------|-------|--------|--------|
| 0 | Dilution Water | 0.27 | 0.206 | 0.302 | 0.224 | 0.31 | 0.258 | 0.25 | 0.28 |
| 1.38 | | 0.242 | 0.278 | 0.296 | 0.3125 | 0.248 | 0.316 | 0.272 | 0.24 |
| 5.2 | | 0.2825 | 0.312 | 0.248 | 0.29 | 0.3 | 0.238 | 0.238 | 0.258 |
| 25 | | 0.335 | 0.248 | 0.298 | 0.21 | 0.294 | 0.265 | 0.28 | 0.304 |
| 50 | | 0.27 | 0.3225 | 0.2875 | 0.266 | 0.2025 | 0.24 | 0.24 | 0.3225 |
| 100 | | 0.296 | 0.282 | 0.148 | 0.325 | 0.3125 | 0.26 | 0.2325 | 0.1925 |

7d Survival Rate Binomials

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 |
|------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 4/5 | 4/5 |
| 1.38 | | 5/5 | 5/5 | 5/5 | 4/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 5.2 | | 4/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 25 | | 4/5 | 5/5 | 5/5 | 5/5 | 5/5 | 4/5 | 5/5 | 5/5 |
| 50 | | 4/5 | 4/5 | 4/5 | 5/5 | 4/5 | 5/5 | 5/5 | 4/5 |
| 100 | | 5/5 | 5/5 | 5/5 | 4/5 | 4/5 | 5/5 | 4/5 | 4/5 |

Initial and Final Chemistries

Seven Day Chronic Saltwater Bioassay

Client: Blaine
 Sample ID: Effluent
 Test No: 2402-067
 Rainier Check-In #: 24-037 24-040

Start Date & Time: 2/27/2024 1045
 Stop Date & Time: 3/5/2024 1010
 Test species: Americamysis bahia
24-041

| Conc. or (%) CON | Days | | | | | | | | | | | | | |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| pH | 8.55 | 8.17 | 8.50 | 8.15 | 8.49 | 8.11 | 8.47 | 8.02 | 8.42 | 7.98 | 8.39 | 7.97 | 8.35 | 7.95 |
| DO (mg/l) | 6.1 | 5.9 | 6.2 | 5.8 | 6.1 | 5.9 | 6.2 | 5.7 | 6.0 | 5.4 | 6.4 | 5.4 | 6.3 | 5.7 |
| Salinity (ppt) | 28.9 | 29.1 | 29.0 | 29.2 | 29.3 | 29.4 | 29.2 | 29.7 | 29.2 | 29.7 | 29.2 | 29.5 | 29.3 | 29.4 |
| Temperature (°C) | 25.4 | 25.2 | 25.3 | 25.1 | 25.1 | 25.2 | 25.3 | 25.1 | 25.2 | 25.3 | 25.1 | 25.4 | 25.2 | 25.4 |
| 1.38 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.54 | 8.21 | 8.51 | 8.17 | 8.47 | 8.12 | 8.45 | 8.07 | 8.40 | 8.04 | 8.38 | 7.98 | 8.31 | 7.94 |
| | 6.1 | 5.8 | 6.2 | 5.9 | 6.1 | 5.9 | 6.2 | 5.6 | 6.1 | 5.3 | 5.5 | 5.5 | 6.3 | 5.8 |
| | 29.3 | 29.2 | 29.1 | 29.3 | 29.2 | 29.4 | 29.3 | 29.9 | 29.2 | 29.4 | 29.2 | 29.4 | 29.2 | 29.3 |
| | 25.3 | 25.2 | 25.3 | 25.3 | 25.1 | 25.3 | 25.3 | 25.0 | 25.1 | 25.2 | 25.2 | 25.4 | 25.2 | 25.3 |
| 5.2 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.53 | 8.18 | 8.50 | 8.16 | 8.46 | 8.13 | 8.44 | 8.10 | 8.37 | 8.05 | 8.31 | 7.99 | 8.30 | 7.96 |
| | 6.2 | 5.7 | 6.3 | 5.9 | 6.1 | 5.8 | 6.2 | 5.7 | 6.2 | 5.4 | 6.6 | 5.5 | 6.4 | 5.8 |
| | 29.3 | 29.2 | 29.3 | 29.3 | 29.3 | 29.4 | 29.3 | 29.5 | 29.2 | 29.5 | 29.2 | 29.3 | 29.3 | 29.4 |
| | 25.3 | 25.1 | 25.3 | 25.3 | 25.1 | 25.2 | 25.4 | 25.1 | 25.1 | 25.3 | 25.0 | 25.3 | 25.2 | 25.4 |
| 25 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.44 | 8.17 | 8.40 | 8.14 | 8.37 | 8.12 | 8.35 | 8.05 | 8.35 | 8.08 | 8.28 | 8.01 | 8.25 | 7.99 |
| | 6.1 | 5.6 | 6.2 | 5.6 | 6.0 | 5.9 | 6.1 | 5.7 | 6.1 | 5.1 | 6.3 | 5.2 | 6.4 | 5.7 |
| | 29.0 | 29.2 | 29.2 | 29.3 | 29.2 | 29.4 | 29.3 | 29.8 | 29.2 | 29.9 | 29.1 | 29.2 | 29.2 | 29.3 |
| | 25.4 | 25.2 | 25.3 | 25.3 | 25.2 | 25.2 | 25.3 | 25.1 | 25.3 | 25.3 | 25.0 | 25.3 | 25.1 | 25.4 |
| 50 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.32 | 8.13 | 8.29 | 8.11 | 8.25 | 8.09 | 8.21 | 8.07 | 8.22 | 8.02 | 8.18 | 8.01 | 8.15 | 7.99 |
| | 6.0 | 5.5 | 6.1 | 5.6 | 6.1 | 5.8 | 6.0 | 5.6 | 6.6 | 5.0 | 6.4 | 5.2 | 6.3 | 5.5 |
| | 28.8 | 29.0 | 28.9 | 28.9 | 29.1 | 29.3 | 29.0 | 29.2 | 29.1 | 29.8 | 28.9 | 28.9 | 28.9 | 28.9 |
| | 25.5 | 25.2 | 25.3 | 25.4 | 25.3 | 25.2 | 25.3 | 25.1 | 25.5 | 25.3 | 25.3 | 25.4 | 25.3 | 25.4 |
| 100 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.12 | 8.09 | 8.10 | 8.07 | 8.14 | 8.06 | 8.12 | 8.04 | 8.15 | 8.01 | 8.11 | 8.00 | 8.10 | 8.02 |
| | 5.9 | 5.4 | 6.0 | 5.5 | 6.2 | 6.0 | 5.8 | 5.9 | 6.0 | 5.3 | 5.2 | 5.4 | 6.0 | 5.3 |
| | 28.3 | 28.5 | 28.5 | 28.7 | 28.8 | 29.1 | 28.7 | 28.8 | 28.8 | 29.2 | 29.3 | 28.4 | 28.5 | 28.6 |
| | 25.1 | 25.2 | 25.5 | 25.4 | 25.3 | 25.2 | 25.3 | 25.1 | 25.8 | 25.3 | 25.4 | 25.4 | 25.4 | 25.4 |
| Tech Initials: | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> | <i>df</i> |

Rainier Environmental
 Washington Laboratory
 5013 Pacific Hwy. E., Suite 20
 Tacoma, WA 98424

Test Chamber: VWR
 Dilution Water Batch #: ASN 004

QA Check: df

Sample Description: _____
 Organism Source: ABS
 Date Received: 2/27/2024
 Date of Hatch: 2/20/2024

Comments: _____

Raw Data Sheet
Mysid Shrimp
(Americamysis bahia)
Mysid Survival

Test Number: 2402-067

Sample ID:

Technician Initials

QA check ५

Comments: _____

Rainier Environmental
Washington Laboratory
5013 Pacific Hwy. E., Suite 20
Tacoma, WA 98424

Raw Data Sheet
Mysid Shrimp
(*Americamysis bahia*)
Mysid Survival

Client: Blaine

Test Number: 2402-067

Sample ID: EFFLUENT

| Conc. or % | Cont. | Rep. | Days | | | | | | | | Mean % Survival |
|---------------------|-------|------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|--------------------|
| | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 25 | 22 | 1 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | |
| | 31 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 14 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 40 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 34 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 1 | 6 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | |
| | 46 | 7 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 5 | 8 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 50 | 48 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | |
| | 23 | 2 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | |
| | 32 | 3 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | |
| | 2 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 35 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | |
| | 44 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 13 | 7 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 27 | 8 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | |
| 100 | 41 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 6 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 37 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 18 | 4 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | |
| | 25 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 11 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 43 | 7 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | |
| | 19 | 8 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | |
| Technician Initials | | | <i>AF</i> | <i>AF</i> | <i>AF</i> | <i>AF</i> | <i>U</i> | <i>U</i> | <i>AF</i> | <i>AF</i> | |

Feeding Times: 0 1000 1 1040 2 0900 3 0730 4 0730 5 0930 6 0900
1600 1530 1545 1545 1600 1430 1545

QA check U

Comments: _____

Rainier Environmental
Washington Laboratory
5013 Pacific Hwy. E., Suite 20
Tacoma, WA 98424

Raw Data Sheet
Mysid Weights
Seven Day Chronic Bioassay

Client: Blaine

Species: Americamysis bahia

Sample ID: EFFLUENT

Test Number: 2402-067

| Conc. or ② | Cont. | Rep. | pan wt. (gm) | pan + mysid (gm) | mysid wt. (mg) | # mysids | avg. per mysid (mg) | avg. per conc. |
|---------------|-------|------|-----------------|---------------------|-------------------|-------------|------------------------|----------------|
| CON | 33 | 1 | 0.04414 | 0.04549 | | 5 | | |
| | 8 | 2 | 0.04319 | 0.04422 | | 5 | | |
| | 16 | 3 | 0.04362 | 0.04513 | | 5 | | |
| | 39 | 4 | 0.04559 | 0.04671 | | 5 | | |
| | 21 | 5 | 0.04533 | 0.04698 | | 5 | | |
| | 3 | 6 | 0.04288 | 0.04417 | | 5 | | |
| | 30 | 7 | 0.04428 | 0.04528 | | 4 | | |
| | 12 | 8 | 0.04433 | 0.04545 | | 4 | | |
| 1.38 | 36 | 1 | 0.04149 | 0.04270 | | 5 | | |
| | 42 | 2 | 0.04669 | 0.04808 | | 5 | | |
| | 7 | 3 | 0.04345 | 0.04493 | | 5 | | |
| | 24 | 4 | 0.04394 | 0.04519 | | 4 | | |
| | 20 | 5 | 0.04202 | 0.04326 | | 5 | | |
| | 4 | 6 | 0.04289 | 0.04447 | | 5 | | |
| | 29 | 7 | 0.04319 | 0.04455 | | 5 | | |
| | 15 | 8 | 0.04261 | 0.04391 | | 5 | | |
| 5.2 | 47 | 1 | 0.04342 | 0.04455 | | 4 | | |
| | 9 | 2 | 0.04553 | 0.04709 | | 5 | | |
| | 26 | 3 | 0.04474 | 0.04598 | | 5 | | |
| | 17 | 4 | 0.04129 | 0.04274 | | 5 | | |
| | 38 | 5 | 0.04249 | 0.04399 | | 5 | | |
| | 10 | 6 | 0.04528 | 0.04647 | | 5 | | |
| | 45 | 7 | 0.04481 | 0.04600 | | 5 | | |
| | 28 | 8 | 0.04648 | 0.04777 | | 5 | | |

Tech Initials: U U

Date/Time in: 3/5/2024 1010
Date/Time out: 3/6/2024 1200

Oven temp. (°C): 62.0
Oven temp. (°C): 65.5

QA Check: U

Rainier Environmental
Washington Laboratory
5013 Pacific Hwy. E., Suite 20
Tacoma, WA 98424

Raw Data Sheet
Mysid Weights
Seven Day Chronic Bioassay

Client: Blaine

Species: Americamysis bahia

Sample ID: 02402-067 EFFLUENT

Test Number: 2402-067

| Conc. or % | Cont. | Rep. | pan wt. (gm) | pan + mysid (gm) | mysid wt. (mg) | # mysids | avg. per mysid (mg) | avg. per conc. |
|---------------|-------|------|-----------------|---------------------|-------------------|-------------|------------------------|----------------|
| 25 | 22 | 1 | 0.04337 | 0.04471 | | 4 | | |
| | 31 | 2 | 0.04375 | 0.04499 | | 5 | | |
| | 14 | 3 | 0.04314 | 0.04463 | | 5 | | |
| | 40 | 4 | 0.04389 | 0.04494 | | 5 | | |
| | 34 | 5 | 0.04349 | 0.04496 | | 5 | | |
| | 1 | 6 | 0.04489 | 0.04595 | | 4 | | |
| | 46 | 7 | 0.04411 | 0.04551 | | 5 | | |
| | 5 | 8 | 0.04378 | 0.04530 | | 5 | | |
| 50 | 48 | 1 | 0.04290 | 0.04398 | | 4 | | |
| | 23 | 2 | 0.04339 | 0.04468 | | 4 | | |
| | 32 | 3 | 0.04353 | 0.04468 | 0.04468 | 4 | | |
| | 2 | 4 | 0.04579 | 0.04712 | | 5 | | |
| | 35 | 5 | 0.04331 | 0.04412 | | 4 | | |
| | 44 | 6 | 0.04624 | 0.04744 | | 5 | | |
| | 13 | 7 | 0.04197 | 0.04317 | | 5 | | |
| | 27 | 8 | 0.04318 | 0.04447 | | 4 | | |
| 100 | 41 | 1 | 0.04679 | 0.04827 | | 5 | | |
| | 6 | 2 | 0.04387 | 0.04528 | | 5 | | |
| | 27 | 3 | 0.04517 | 0.04591 | | 5 | | |
| | 18 | 4 | 0.04110 | 0.04240 | | 4 | | |
| | 25 | 5 | 0.04275 | 0.04400 | | 4 | | |
| | 11 | 6 | 0.04531 | 0.04661 | | 5 | | |
| | 43 | 7 | 0.04684 | 0.04777 | | 4 | | |
| | 19 | 8 | 0.04230 | 0.04307 | | 4 | | |

Tech Initials: vt vt

Date/Time in: 3/5/2024 10:10

Oven temp. (°C): 67.0

QA Check: vt

Date/Time out: 3/6/2024 12:00

Oven temp. (°C): 65.5

Appendix B
***Atherinops affinis* (Pacific topsmelt) Chronic Test**
Statistical Summaries and Raw Bench Sheets

CETIS Summary Report

Report Date: 15-Mar-24 13:33 (p 1 of 2)
Test Code: 2402-068 | 08-1584-0901

Pacific Topsmelt 7-d Survival and Growth Test

Rainier Environmental Laboratory

| | | | | | |
|---------------|-----------------|------------|-------------------------|----------|---------------------|
| Batch ID: | 11-8595-0003 | Test Type: | Growth-Survival (7d) | Analyst: | Eric Tollefson |
| Start Date: | 27 Feb-24 11:10 | Protocol: | EPA/600/R-95/136 (1995) | Diluent: | Laboratory Seawater |
| Ending Date: | 05 Mar-24 11:30 | Species: | Atherinops affinis | Brine: | Crystal Sea |
| Duration: | 7d 0h | Source: | Aquatic Biosystems, CO | Age: | 11d |
| Sample ID: | 19-9210-9202 | Code: | 24-037 | Client: | Blaine |
| Sample Date: | 26 Feb-24 08:00 | Material: | POTW Effluent | Project: | |
| Receive Date: | 26 Feb-24 10:55 | Source: | Blaine (WA0022641) | | |
| Sample Age: | 27h (5.8 °C) | Station: | | | |

Comparison Summary

| Analysis ID | Endpoint | NOEL | LOEL | TOEL | PMSD | TU | Method |
|--------------|---------------------|------|------|------|-------|----|----------------------------------|
| 02-9399-7150 | 7d Survival Rate | 100 | >100 | NA | 5.0% | 1 | Steel Many-One Rank Sum Test |
| 08-8906-8923 | Mean Dry Biomass-mg | 100 | >100 | NA | 16.8% | 1 | Dunnett Multiple Comparison Test |
| 20-7354-7029 | Mean Dry Weight-mg | 100 | >100 | NA | 16.8% | 1 | Dunnett Multiple Comparison Test |

Test Acceptability

| Analysis ID | Endpoint | Attribute | Test Stat | TAC Limits | Overlap | Decision |
|--------------|---------------------|--------------|-----------|------------|---------|-------------------------------|
| 02-9399-7150 | 7d Survival Rate | Control Resp | 1 | 0.8 - NL | Yes | Passes Acceptability Criteria |
| 08-8906-8923 | Mean Dry Biomass-mg | Control Resp | 1.319 | 0.85 - NL | Yes | Passes Acceptability Criteria |
| 02-9399-7150 | 7d Survival Rate | PMSD | 0.05 | NL - 0.25 | No | Passes Acceptability Criteria |
| 08-8906-8923 | Mean Dry Biomass-mg | PMSD | 0.1682 | NL - 0.5 | No | Passes Acceptability Criteria |

7d Survival Rate Summary

| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|------|----------------|-------|------|---------|---------|-----|-----|---------|---------|------|---------|
| 0 | Dilution Water | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 1.38 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 5.2 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 25 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 50 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |
| 100 | | 5 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0.0% | 0.0% |

Mean Dry Biomass-mg Summary

| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|------|----------------|-------|-------|---------|---------|-------|-------|---------|---------|--------|---------|
| 0 | Dilution Water | 5 | 1.319 | 1.239 | 1.399 | 1.078 | 1.602 | 0.09555 | 0.2137 | 16.2% | 0.0% |
| 1.38 | | 5 | 1.176 | 1.155 | 1.197 | 1.104 | 1.252 | 0.02488 | 0.05564 | 4.73% | 10.86% |
| 5.2 | | 5 | 1.245 | 1.182 | 1.308 | 0.99 | 1.46 | 0.07533 | 0.1684 | 13.53% | 5.64% |
| 25 | | 5 | 1.254 | 1.208 | 1.3 | 1.114 | 1.384 | 0.05521 | 0.1235 | 9.84% | 4.91% |
| 50 | | 5 | 1.333 | 1.289 | 1.377 | 1.174 | 1.478 | 0.05291 | 0.1183 | 8.87% | -1.06% |
| 100 | | 5 | 1.28 | 1.219 | 1.34 | 1.02 | 1.418 | 0.07217 | 0.1614 | 12.61% | 3.0% |

Mean Dry Weight-mg Summary

| C-% | Control Type | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|------|----------------|-------|-------|---------|---------|-------|-------|---------|---------|--------|---------|
| 0 | Dilution Water | 5 | 1.319 | 1.239 | 1.399 | 1.078 | 1.602 | 0.09555 | 0.2137 | 16.2% | 0.0% |
| 1.38 | | 5 | 1.176 | 1.155 | 1.197 | 1.104 | 1.252 | 0.02488 | 0.05564 | 4.73% | 10.86% |
| 5.2 | | 5 | 1.245 | 1.182 | 1.308 | 0.99 | 1.46 | 0.07533 | 0.1684 | 13.53% | 5.64% |
| 25 | | 5 | 1.254 | 1.208 | 1.3 | 1.114 | 1.384 | 0.05521 | 0.1235 | 9.84% | 4.91% |
| 50 | | 5 | 1.333 | 1.289 | 1.377 | 1.174 | 1.478 | 0.05291 | 0.1183 | 8.87% | -1.06% |
| 100 | | 5 | 1.28 | 1.219 | 1.34 | 1.02 | 1.418 | 0.07217 | 0.1614 | 12.61% | 3.0% |

CETIS Summary Report

Report Date: 15 Mar-24 13:33 (p 2 of 2)
 Test Code: 2402-068 | 08-1584-0901

Pacific Topsmelt 7-d Survival and Growth Test

Rainier Environmental Laboratory

7d Survival Rate Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|------|----------------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 1 | 1 | 1 | 1 | 1 |
| 1.38 | | 1 | 1 | 1 | 1 | 1 |
| 5.2 | | 1 | 1 | 1 | 1 | 1 |
| 25 | | 1 | 1 | 1 | 1 | 1 |
| 50 | | 1 | 1 | 1 | 1 | 1 |
| 100 | | 1 | 1 | 1 | 1 | 1 |

Mean Dry Biomass-mg Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|------|----------------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 1.154 | 1.602 | 1.312 | 1.078 | 1.45 |
| 1.38 | | 1.168 | 1.104 | 1.204 | 1.252 | 1.152 |
| 5.2 | | 1.284 | 1.264 | 1.46 | 1.226 | 0.99 |
| 25 | | 1.114 | 1.362 | 1.142 | 1.384 | 1.27 |
| 50 | | 1.418 | 1.296 | 1.174 | 1.3 | 1.478 |
| 100 | | 1.37 | 1.228 | 1.418 | 1.02 | 1.362 |

Mean Dry Weight-mg Detail

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|------|----------------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 1.154 | 1.602 | 1.312 | 1.078 | 1.45 |
| 1.38 | | 1.168 | 1.104 | 1.204 | 1.252 | 1.152 |
| 5.2 | | 1.284 | 1.264 | 1.46 | 1.226 | 0.99 |
| 25 | | 1.114 | 1.362 | 1.142 | 1.384 | 1.27 |
| 50 | | 1.418 | 1.296 | 1.174 | 1.3 | 1.478 |
| 100 | | 1.37 | 1.228 | 1.418 | 1.02 | 1.362 |

7d Survival Rate Binomials

| C-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 |
|------|----------------|-------|-------|-------|-------|-------|
| 0 | Dilution Water | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 1.38 | | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 5.2 | | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 25 | | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 50 | | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |
| 100 | | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 |

Initial and Final Chemistries

Seven Day Chronic Saltwater Bioassay

Client: Blaine
 Sample ID: Effluent
 Test No: 2402-068
 Rainier Check-In #: 24-037 24-040

Start Date & Time: 2/27/2024 1110
 Stop Date & Time: 3/5/2024 1130
 Test species: Atherinops affinis
24-041

| Conc. or % CDN | Days | | | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| pH | 8.51 | 8.29 | 8.60 | 8.22 | 8.48 | 8.20 | 8.45 | 8.18 | 8.38 | 8.11 | 8.38 | 8.10 | 8.35 | 8.07 |
| DO (mg/l) | 6.6 | 6.2 | 6.7 | 5.6 | 6.7 | 5.7 | 6.6 | 6.0 | 6.8 | 6.7 | 7.0 | 6.6 | 6.9 | 6.5 |
| Salinity (ppt) | 29.0 | 29.2 | 29.1 | 29.4 | 29.1 | 29.3 | 29.3 | 29.2 | 29.2 | 29.7 | 29.2 | 29.3 | 29.3 | 29.4 |
| Temperature (°C) | 19.9 | 20.2 | 20.1 | 20.1 | 19.8 | 20.0 | 19.9 | 20.1 | 20.4 | 19.9 | 20.2 | 19.9 | 20.1 | 19.8 |
| 1.38 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.56 | 8.26 | 8.58 | 8.24 | 8.51 | 8.21 | 8.47 | 8.15 | 8.41 | 8.14 | 8.37 | 8.11 | 8.34 | 8.03 |
| | 6.5 | 6.2 | 6.6 | 6.4 | 6.8 | 5.7 | 6.7 | 5.9 | 6.8 | 6.5 | 7.1 | 6.6 | 7.1 | 6.6 |
| | 29.3 | 29.3 | 29.2 | 29.2 | 29.1 | 29.1 | 29.3 | 29.5 | 29.2 | 29.4 | 29.2 | 29.3 | 29.3 | 29.2 |
| | 19.9 | 20.2 | 20.1 | 20.1 | 20.0 | 20.1 | 20.0 | 20.1 | 20.2 | 19.9 | 20.2 | 19.7 | 20.1 | 19.9 |
| 5.2 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.55 | 8.24 | 8.57 | 8.21 | 8.47 | 8.19 | 8.44 | 8.12 | 8.37 | 8.10 | 8.35 | 8.09 | 8.31 | 8.01 |
| | 6.5 | 6.1 | 6.7 | 6.6 | 7.0 | 5.9 | 6.8 | 6.4 | 7.0 | 6.6 | 7.1 | 6.5 | 7.1 | 6.4 |
| 25 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.47 | 8.21 | 8.45 | 8.19 | 8.42 | 8.17 | 8.40 | 8.10 | 8.35 | 8.08 | 8.32 | 8.07 | 8.30 | 8.04 |
| | 6.4 | 5.9 | 6.5 | 6.4 | 7.0 | 6.0 | 6.8 | 6.7 | 6.9 | 6.8 | 7.0 | 6.4 | 7.0 | 6.9 |
| 50 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.35 | 8.17 | 8.33 | 8.15 | 8.35 | 8.13 | 8.37 | 8.11 | 8.32 | 8.05 | 8.29 | 8.04 | 8.25 | 7.98 |
| | 6.3 | 5.8 | 6.4 | 6.2 | 6.8 | 6.1 | 6.5 | 6.5 | 6.8 | 6.6 | 6.9 | 6.4 | 6.9 | 6.7 |
| 100 | Days | | | | | | | | | | | | | |
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final | init. | final |
| | 8.11 | 8.10 | 8.08 | 8.12 | 8.10 | 8.09 | 8.09 | 8.07 | 8.19 | 8.06 | 8.17 | 8.01 | 8.16 | 7.95 |
| | 6.0 | 5.7 | 6.2 | 6.2 | 6.5 | 6.2 | 6.3 | 6.2 | 6.7 | 6.5 | 6.8 | 6.1 | 6.7 | 6.8 |
| Tech Initials: <u>AS</u> <u>AS</u> <u>AS</u> <u>U</u> <u>U</u> <u>AS</u> <u>AS</u> <u>U</u> <u>U</u> <u>U</u> <u>U</u> <u>U</u> <u>AS</u> <u>U</u> | | | | | | | | | | | | | | |

Rainier Environmental
 Washington Laboratory
 5013 Pacific Hwy. E., Suite 20
 Tacoma, WA 98424

Test Chamber: RM 2
 Dilution Water Batch #: ASW 004

QA Check: U

Sample Description: _____
 Organism Source: ABS
 Date Received: 2/27/2024
 Date of Hatch: 2/16/2024

Comments: _____

Rainier Environmental
Washington Laboratory
5013 Pacific Hwy. E., Suite 20
Tacoma, WA 98424

Raw Data Sheet
Pacific Topsmelt
(*Atherinops affinis*)
Larval Survival

Client Name: Blaine

Test No.: 2402-069

Sample ID: EFFLUENT

| Conc. or (%) | Cont. | Rep. | Days | | | | | | | | Mean % Survival |
|-----------------|-------|------|------|----|----|----|----|----|----|----|--------------------|
| | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| CON | 28 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 9 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 2 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 30 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 16 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 1.38 | 6 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 1 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 23 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 15 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 27 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 5.2 | 19 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 5 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 22 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 11 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 24 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 25 | 29 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 3 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 10 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 18 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 26 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 50 | 13 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 4 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 25 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 20 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 7 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 100 | 17 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 12 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 8 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 21 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 14 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| Tech Initials | | | AL | AL | Ut | AL | Ut | Ut | AL | Ut | |

Feeding Times: 0 10400 2 0900 3 0730 4 0730 5 0930 6 0800
1800 1530 1545 1545 1600 1430 1545

Comments: _____ QA Check U

Rainier Environmental
Washington Laboratory
5013 Pacific Hwy., E. Suite 20
Tacoma, WA 98424

Fish Weights
Seven Day Chronic Bioassay

Client: Blaine

Species: A. affinis

Sample ID: EFFLUENT

Test No: 2402-068

| Conc. or % | cont. # | rep. | pan wt. (gm) | pan + fish (gm) | fish wt. (mg) | # fish | avg. per fish (mg) | avg. per conc. (mg) |
|----------------|------------|------|-----------------|--------------------|------------------|-----------|-----------------------|------------------------|
| CON | 28 | 1 | 0.05090 | 0.05667 | | 5 | | |
| | 9 | 2 | 0.04238 | 0.05039 | | 5 | | |
| | 2 | 3 | 0.04675 | 0.05331 | | 5 | | |
| | 30 | 4 | 0.04367 | 0.04906 | | 5 | | |
| | 16 | 5 | 0.04418 | 0.05143 | | 5 | | |
| 1.38 | 6 | 1 | 0.04181 | 0.04765 | | 5 | | |
| | 1 | 2 | 0.04789 | 0.05341 | | 5 | | |
| | 23 | 3 | 0.04477 | 0.05344 | 0.05079 | 5 | | |
| | 15 | 4 | 0.04583 | 0.05209 | | 5 | | |
| | 27 | 5 | 0.04974 | 0.05550 | | 5 | | |
| 5.2 | 19 | 1 | 0.04447 | 0.05089 | | 5 | | |
| | 5 | 2 | 0.04100 | 0.04732 | | 5 | | |
| | 22 | 3 | 0.04375 | 0.05105 | | 5 | | |
| | 11 | 4 | 0.04521 | 0.05134 | | 5 | | |
| | 24 | 5 | 0.04393 | 0.04888 | | 5 | | |
| 25 | 29 | 1 | 0.04489 | 0.05046 | | 5 | | |
| | 3 | 2 | 0.04761 | 0.05442 | | 5 | | |
| | 10 | 3 | 0.04323 | 0.04894 | | 5 | | |
| | 18 | 4 | 0.04345 | 0.05037 | | 5 | | |
| | 26 | 5 | 0.04905 | 0.05540 | | 5 | | |
| 50 | 13 | 1 | 0.04325 | 0.05034 | | 5 | | |
| | 4 | 2 | 0.04822 | 0.05470 | | 5 | | |
| | 25 | 3 | 0.04888 | 0.05475 | | 5 | | |
| | 20 | 4 | 0.04219 | 0.04869 | | 5 | | |
| | 7 | 5 | 0.04281 | 0.05020 | | 5 | | |
| 100 | 17 | 1 | 0.04322 | 0.05007 | | 5 | | |
| | 12 | 2 | 0.04383 | 0.04997 | | 5 | | |
| | 8 | 3 | 0.04218 | 0.04927 | | 5 | | |
| | 21 | 4 | 0.04433 | 0.04943 | | 5 | | |
| | 14 | 5 | 0.04490 | 0.05171 | | 5 | | |
| Tech Initials: | | | <u>U</u> | <u>U</u> | | | | |

Date/Time in: 3/5/2024 1130
Date/Time out: 3/6/2024 1200

Oven temp. (°C): 65.0
Oven temp. (°C): 65.5

QA check U

Appendix C
Control QC Plots

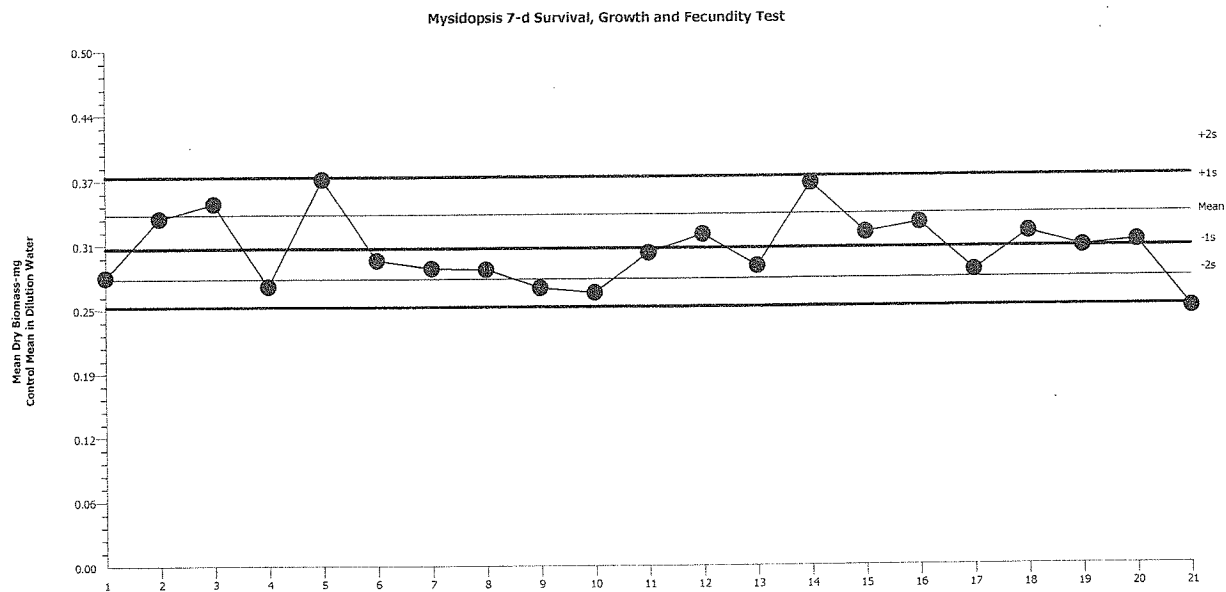
Mysidopsis 7-d Survival, Growth and Fecundity Test

Rainier Environmental Laboratory

Test Type: Growth-Survival (7d)
Protocol: EPA/821/R-02-014 (2002)

Organism: Mysidopsis bahia (Atlantic Mysid)
Endpoint: Mean Dry Biomass-mg

Material: All Materials
Source: All SampleID Sources



Mean: 0.3085

Count: 20

-1s Warning Limit: 0.2789

-2s Action Limit: 0.2521

Sigma: NA

CV: 10.60%

+1s Warning Limit: 0.3413

+2s Action Limit: 0.3776

Quality Control Data

| Point | Year | Month | Day | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|---------|-----------|----------|---------|--------|--------------|-------------|
| 1 | 2022 | Aug | 30 | 0.2805 | -0.02801 | -0.9424 | | | 03-3763-1524 | |
| 2 | | | 30 | 0.3373 | 0.02879 | 0.8833 | | | 04-8469-4882 | |
| 3 | | Oct | 18 | 0.3517 | 0.04319 | 1.297 | (+) | | 07-6505-9381 | |
| 4 | | | 18 | 0.2717 | -0.03681 | -1.258 | (-) | | 14-1722-5275 | |
| 5 | | | 18 | 0.3752 | 0.06669 | 1.938 | (+) | | 17-0962-9515 | |
| 6 | | Nov | 15 | 0.2968 | -0.01171 | -0.3831 | | | 10-4540-6015 | |
| 7 | | | 15 | 0.289 | -0.01951 | -0.6468 | | | 16-8953-5320 | |
| 8 | 2023 | Feb | 14 | 0.288 | -0.02051 | -0.6811 | | | 16-3174-0222 | |
| 9 | | | 14 | 0.2703 | -0.03821 | -1.309 | (-) | | 19-5181-2318 | |
| 10 | | Jun | 20 | 0.2655 | -0.04301 | -1.487 | (-) | | 11-6707-3060 | |
| 11 | | Sep | 19 | 0.3038 | -0.00471 | -0.1523 | | | 14-1206-6025 | |
| 12 | | | 19 | 0.3215 | 0.01299 | 0.4083 | | | 08-4328-9224 | |
| 13 | | | 19 | 0.2907 | -0.01781 | -0.5887 | | | 09-3046-9852 | |
| 14 | | Dec | 7 | 0.3707 | 0.06219 | 1.818 | (+) | | 19-4896-5773 | |
| 15 | | | 7 | 0.3227 | 0.01419 | 0.4452 | | | 02-6887-3147 | |
| 16 | 2024 | Jan | 23 | 0.332 | 0.02349 | 0.7265 | | | 07-5636-7580 | |
| 17 | | | 23 | 0.286 | -0.02251 | -0.7501 | | | 07-7768-5247 | |
| 18 | | | 30 | 0.3227 | 0.01419 | 0.4452 | | | 06-6661-5863 | |
| 19 | | Feb | 13 | 0.3087 | 0.0001897 | 0.006086 | | | 05-8904-3553 | |
| 20 | | | 13 | 0.3137 | 0.00519 | 0.1652 | | | 15-1428-5394 | |
| 21 | | | 27 | 0.2493 | -0.05921 | -2.11 | (-) | (-) | 19-0175-0992 | |

Mysidopsis 7-d Survival, Growth and Fecundity Test

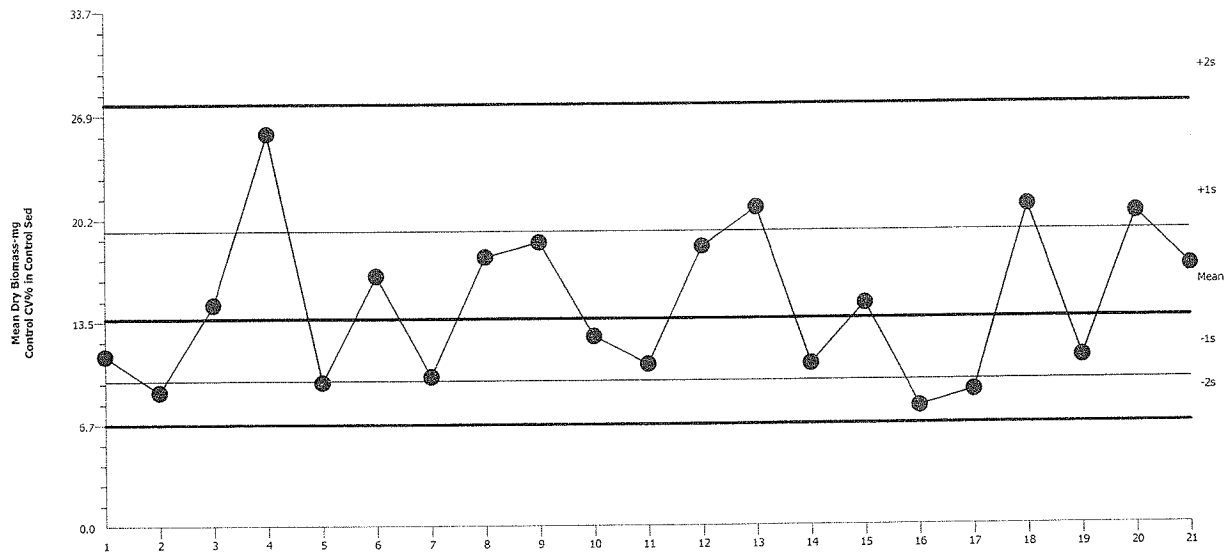
Rainier Environmental Laboratory

Test Type: Growth-Survival (7d)
Protocol: EPA/821/R-02-014 (2002)

Organism: Mysidopsis bahia (Atlantic Mysid)
Endpoint: Mean Dry Biomass-mg

Material: All Materials
Source: All SampleID Sources

Mysidopsis 7-d Survival, Growth and Fecundity Test



Mean: 13.64

Count: 20

-1s Warning Limit: 9.581

-2s Action Limit: 6.73

Sigma: NA

CV: 42.40%

+1s Warning Limit: 19.42

+2s Action Limit: 27.64

Quality Control Data

| Point | Year | Month | Day | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|---------|--------|---------|---------|--------|--------------|-------------|
| 1 | 2022 | Aug | 30 | 11.21 | -2.43 | -0.5555 | | | 03-3763-1524 | |
| 2 | | | 30 | 8.847 | -4.793 | -1.226 | (-) | | 04-8469-4882 | |
| 3 | | Oct | 18 | 14.56 | 0.9201 | 0.1848 | | | 07-6505-9381 | |
| 4 | | | 18 | 25.74 | 12.1 | 1.798 | (+) | | 14-1722-5275 | |
| 5 | | | 18 | 9.478 | -4.162 | -1.031 | (-) | | 17-0962-9515 | |
| 6 | | Nov | 15 | 16.43 | 2.79 | 0.5269 | | | 10-4540-6015 | |
| 7 | | | 15 | 9.85 | -3.79 | -0.9217 | | | 16-8953-5320 | |
| 8 | 2023 | Feb | 14 | 17.67 | 4.03 | 0.7329 | | | 16-3174-0222 | |
| 9 | | | 14 | 18.64 | 5 | 0.8842 | | | 19-5181-2318 | |
| 10 | | Jun | 20 | 12.45 | -1.19 | -0.2584 | | | 11-6707-3060 | |
| 11 | | Sep | 19 | 10.63 | -3.01 | -0.7059 | | | 14-1206-6025 | |
| 12 | | | 19 | 18.35 | 4.71 | 0.8398 | | | 08-4328-9224 | |
| 13 | | | 19 | 20.95 | 7.31 | 1.215 | (+) | | 09-3046-9852 | |
| 14 | | Dec | 7 | 10.63 | -3.01 | -0.7059 | | | 19-4896-5773 | |
| 15 | | | 7 | 14.59 | 0.9501 | 0.1906 | | | 02-6887-3147 | |
| 16 | 2024 | Jan | 23 | 7.854 | -5.786 | -1.563 | (-) | | 07-5636-7580 | |
| 17 | | | 23 | 8.877 | -4.763 | -1.216 | (-) | | 07-7768-5247 | |
| 18 | | | 30 | 21.04 | 7.4 | 1.227 | (+) | | 06-6661-5863 | |
| 19 | | Feb | 13 | 11.04 | -2.6 | -0.5987 | | | 05-8904-3553 | |
| 20 | | | 13 | 20.55 | 6.91 | 1.16 | (+) | | 15-1428-5394 | |
| 21 | | | 27 | 16.99 | 3.35 | 0.6218 | | | 19-0175-0992 | |

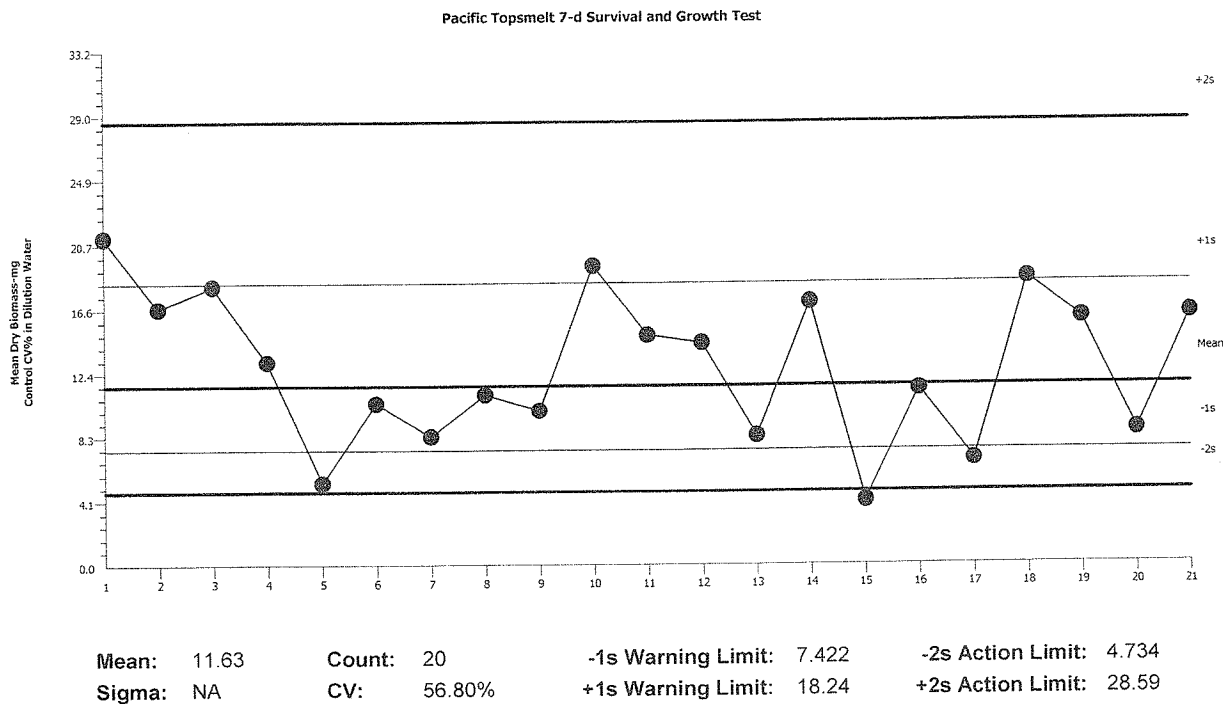
Pacific Topsmelt 7-d Survival and Growth Test

Rainier Environmental Laboratory

Test Type: Growth-Survival (7d)
Protocol: EPA/600/R-95/136 (1995)

Organism: Atherinops affinis (Topsmelt)
Endpoint: Mean Dry Biomass-mg

Material: All Materials
Source: All SampleID Sources



Quality Control Data

| Point | Year | Month | Day | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|---------|---------|---------|---------|--------|--------------|-------------|
| 1 | 2022 | Jul | 26 | 21.16 | 9.525 | 1.33 | (+) | | 02-8736-4026 | |
| 2 | | Aug | 30 | 16.64 | 5.005 | 0.7958 | | | 04-8631-7953 | |
| 3 | | | 30 | 18.06 | 6.425 | 0.978 | | | 01-7642-5485 | |
| 4 | | Oct | 18 | 13.21 | 1.575 | 0.2824 | | | 18-9262-1368 | |
| 5 | | | 18 | 5.312 | -6.323 | -1.744 | (-) | | 06-3956-3589 | |
| 6 | | | 18 | 10.49 | -1.145 | -0.2304 | | | 16-0050-5061 | |
| 7 | | Nov | 15 | 8.322 | -3.313 | -0.7453 | | | 02-6388-3938 | |
| 8 | | | 15 | 11.05 | -0.5848 | -0.1147 | | | 19-7735-5874 | |
| 9 | 2023 | Feb | 14 | 10 | -1.635 | -0.3368 | | | 13-3851-4935 | |
| 10 | | | 14 | 19.33 | 7.695 | 1.129 | (+) | | 05-2095-0938 | |
| 11 | | Sep | 19 | 14.9 | 3.265 | 0.5502 | | | 01-4985-4309 | |
| 12 | | | 19 | 14.41 | 2.775 | 0.4758 | | | 04-2870-8687 | |
| 13 | | | 19 | 8.344 | -3.291 | -0.7395 | | | 18-5036-9464 | |
| 14 | | Dec | 7 | 17 | 5.365 | 0.8434 | | | 17-3680-6402 | |
| 15 | | | 7 | 4.144 | -7.491 | -2.296 | (-) | (-) | 12-7265-0591 | |
| 16 | 2024 | Jan | 23 | 11.39 | -0.2448 | -0.0473 | | | 17-5564-6480 | |
| 17 | | | 23 | 6.763 | -4.872 | -1.207 | (-) | | 16-5544-6742 | |
| 18 | | | 30 | 18.5 | 6.865 | 1.032 | (+) | | 12-9691-7398 | |
| 19 | | Feb | 13 | 15.95 | 4.315 | 0.7016 | | | 03-7083-2459 | |
| 20 | | | 13 | 8.647 | -2.988 | -0.6601 | | | 07-2326-5884 | |
| 21 | | | 27 | 16.2 | 4.565 | 0.7362 | | | 08-1584-0901 | |

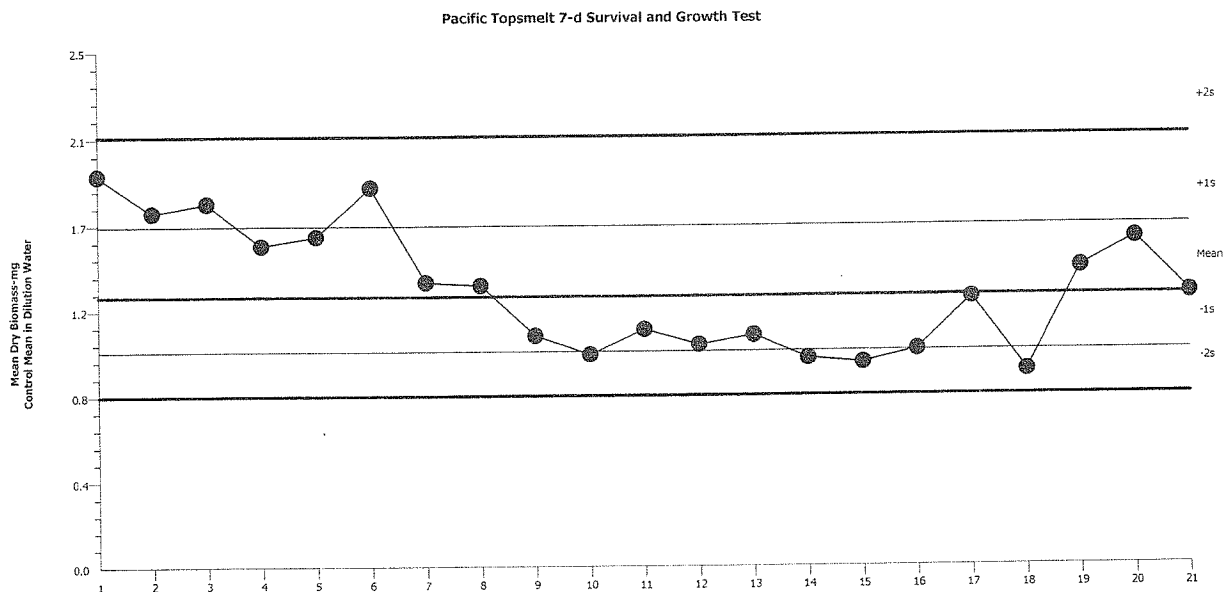
Pacific Topsmelt 7-d Survival and Growth Test

Rainier Environmental Laboratory

Test Type: Growth-Survival (7d)
Protocol: EPA/600/R-95/136 (1995)

Organism: Atherinops affinis (Topsmelt)
Endpoint: Mean Dry Biomass-mg

Material: All Materials
Source: All SampleID Sources



Mean: 1.313

Count: 20

-1s Warning Limit: 1.043

-2s Action Limit: 0.8285

Sigma: NA

CV: 25.90%

+1s Warning Limit: 1.652

+2s Action Limit: 2.08

Quality Control Data

| Point | Year | Month | Day | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|---------|----------|----------|---------|--------|--------------|-------------|
| 1 | 2022 | Jul | 26 | 1.895 | 0.5823 | 1.595 | (+) | | 02-8736-4026 | |
| 2 | | Aug | 30 | 1.718 | 0.4053 | 1.169 | (+) | | 04-8631-7953 | |
| 3 | | | 30 | 1.763 | 0.4503 | 1.282 | (+) | | 01-7642-5485 | |
| 4 | | Oct | 18 | 1.558 | 0.2453 | 0.7445 | | | 18-9262-1368 | |
| 5 | | | 18 | 1.603 | 0.2903 | 0.8682 | | | 06-3956-3589 | |
| 6 | | | 18 | 1.838 | 0.5253 | 1.463 | (+) | | 16-0050-5061 | |
| 7 | | Nov | 15 | 1.381 | 0.06828 | 0.2204 | | | 02-6388-3938 | |
| 8 | | | 15 | 1.366 | 0.05328 | 0.1729 | | | 19-7735-5874 | |
| 9 | 2023 | Feb | 14 | 1.12 | -0.1927 | -0.69 | | | 13-3851-4935 | |
| 10 | | | 14 | 1.028 | -0.2847 | -1.063 | (-) | | 05-2095-0938 | |
| 11 | | Sep | 19 | 1.149 | -0.1637 | -0.5789 | | | 01-4985-4309 | |
| 12 | | | 19 | 1.074 | -0.2387 | -0.8723 | | | 04-2870-8687 | |
| 13 | | | 19 | 1.12 | -0.1927 | -0.69 | | | 18-5036-9464 | |
| 14 | | Dec | 7 | 1.007 | -0.3057 | -1.152 | (-) | | 17-3680-6402 | |
| 15 | | | 7 | 0.9848 | -0.3279 | -1.249 | (-) | | 12-7265-0591 | |
| 16 | 2024 | Jan | 23 | 1.048 | -0.2647 | -0.9788 | | | 17-5564-6480 | |
| 17 | | | 23 | 1.3 | -0.01272 | -0.04231 | | | 16-5544-6742 | |
| 18 | | | 30 | 0.944 | -0.3687 | -1.433 | (-) | | 12-9691-7398 | |
| 19 | | Feb | 13 | 1.445 | 0.1323 | 0.4173 | | | 03-7083-2459 | |
| 20 | | | 13 | 1.585 | 0.2723 | 0.8191 | | | 07-2326-5884 | |
| 21 | | | 27 | 1.319 | 0.006282 | 0.02075 | | | 08-1584-0901 | |

Appendix D
Sample Check-In Sheet

Client: BATTLE

Tests Performed: My-c ; Ag-c ; Cd-a ; Pb-a
Test ID No(s): 2402-067 ; 2402-068 ; 2402-069 ; 2402-070

| | | | | |
|---|------------------------|------------------------|------------------------|-----------------|
| Sample ID: | <u>EFFLUENT</u> | | <u>EFFluent</u> | <u>EFFLUENT</u> |
| Log-in No. (20-xxxx): | <u>24-037</u> | <u>24-040</u> | <u>24-041</u> | |
| Sample Collection Date & Time: | <u>2/26/24 0900</u> | <u>2/28/24 0730</u> | <u>2/28/24 0730</u> | |
| Sample Receipt Date & Time: | <u>2/26/24 1055</u> | <u>2/28/24 1030</u> | <u>2/28/24 1050</u> | |
| Check-in Temperature (°C) | <u>5.8</u> | <u>5.5</u> | <u>4.7</u> | |
| Temperature OK? | <u>Y</u> | <u>N</u> | <u>N</u> | <u>Y</u> |
| DO (mg/L) | <u>6.0</u> | <u>8.2</u> | <u>6.8</u> | |
| pH (units) | <u>7.08</u> | <u>7.06</u> | <u>7.11</u> | |
| Conductivity (µS/cm) | <u>698</u> | <u>320</u> | <u>333</u> | |
| Salinity (ppt) | <u>0.3</u> | <u>—</u> | <u>—</u> | |
| Tit. Vol / Sam. Vol. / Alkalinity (mg/L)* | <u>2.5 / 2.5 / 100</u> | <u>2.6 / 2.5 / 104</u> | <u>2.5 / 2.5 / 100</u> | <u>1</u> |
| Tit. Vol. / Sam. Vol. / Hardness (mg/L)* ^a | <u>2.5 / 2.5 / 100</u> | <u>2.7 / 2.5 / 108</u> | <u>2.6 / 2.5 / 104</u> | <u>1</u> |
| Total Chlorine (mg/L) | <u><0.03</u> | <u><0.03</u> | <u><0.03</u> | |
| Total Ammonia Nitrogen (mg/L) | <u>4.10</u> | <u>4.10</u> | <u>4.10</u> | |
| Technician Initials | <u>df</u> | <u>df</u> | <u>df</u> | |

* = mg/L as CaCO₃, ^a = Measured for freshwater samples only, NA = Not Applicable.
NM = Not Measured

Freshwater Tests:

PP-01

Control/Dilution Water Source: test type: Cd-a 8.2 (DMW) MHW Other: -020
Control/Dilution Water Source: test type: — 8.2 (DMW) MHW Other: —
Additional Control? Y N = —

Marine Tests:

AT-C

Control/Dilution Water Source: test type: MTC ART SW NAT SW
Control/Dilution Water Source: test type: — ART SW NAT SW
Additional Control? Y N = —

Sample Salted w/ artificial salt? Y N If yes, what ppt? — test type: —
Sample salted w/brine? Y N If yes, what ppt? — test type: —

Comments: Temperature for grab sample must be 0-20°C if received within 1 hour of collection time, 0-12°C if effluent received within

4 hours of collection time, and 0-6°C for all other samples.

Sample Description:

COC Complete? Y or N
1 Y 2 Y 3 Y

Filtration? Y N
Pore Size: —
Organisms or Debris: —

Aeration? Y N
Length of Time: —
Final DO: —
Final pH: —

Hardness Adjustment? Y N
If adjusted, please see worksheet for details.

Sub-samples for additional chemistry:

QC Check: df

Appendix E
Chain-of-Custody Forms

Receipt Temperature (°C)

Sample Collection By:

Date _____ Page _____ of _____

Report to:

Company Light house Point
Address 272 Marine Dr
City/State/Zip Blaire WA 98230
Contact Matt Leftrell
Phone 360 332-3718
Email mleftrell@cityofblair.com

Invoice To:

Company _____
Address _____
City/State/Zip _____
Contact _____
Phone _____
Email _____

ANALYSES REQUIRED

Receipt Temperature (°C)

SAMPLE ID

DATE

TIME

MATRIX

CONTAINER TYPE

NO. OF CONTAINERS

COMMENTS

Effluent

2/28/24

07:30 AM

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

PROJECT INFORMATION

SAMPLE RECEIPT

RELINQUISHED BY (CLIENT)

RELINQUISHED BY (COURIER)

Client:

Total No. of Containers

1

PO No.:

Received Good Condition?

Y

Shipped Via:

Matches Test Schedule?

Y

SPECIAL INSTRUCTIONS/COMMENTS:

RECEIVED BY (COURIER)

RECEIVED BY (LABORATORY)

(Signature)

(Time)

(Signature)

(Time)

(Printed Name)

(Date)

(Printed Name)

(Date)

(Company)

(Log in #)

Tonya Engert

10:36

Tonya Engert

2/28/24

Tonya Engert

2/28/24

Tonya Engert

2/28/24

Erin Tolman

10:30

FRTC TOLMAN

2/28/24

24-040

Sample Collection By:

Date _____ Page _____ of _____

Report to: **Light house Point**
Company: **272 Marine Dr**
Address: **Blaire WA 98230**
City/State/Zip: **Blaine WA 98230**
Contact: **Matt Luffrell**
Phone: **360 332-3718**
Email: **m.luffrell@cityofblaine.com**

Invoice To: **City of Blaine**
Company: **City of Blaine**
Address: **City of Blaine**
City/State/Zip: **City of Blaine**
Contact: **City of Blaine**
Phone: **City of Blaine**
Email: **City of Blaine**

Receipt Temperature (°C)

| SAMPLE ID | DATE | TIME | MATRIX | CONTAINER TYPE | NO. OF CONTAINERS | COMMENTS | ANALYSES REQUIRED |
|-----------|--------|-------|--------|----------------|-------------------|----------|-------------------|
| Effluent | 3/1/18 | 07:30 | | 1 | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |

| PROJECT INFORMATION | | SAMPLE RECEIPT | | RELINQUISHED BY (CLIENT) | | RELINQUISHED BY (COURIER) | |
|---------------------|--------|--------------------------|---|--------------------------|--------|---------------------------|--------|
| Client: | | Total No. of Containers | 1 | (Signature) | (Time) | (Signature) | (Time) |
| PO No.: | | Received Good Condition? | Y | (Printed Name) | (Date) | (Printed Name) | (Date) |
| Shipped Via: | CLIENT | Matches Test Schedule? | Y | (Company) | | (Company) | |

SPECIAL INSTRUCTIONS/COMMENTS:

| RECEIVED BY (COURIER) | | RECEIVED BY (LABORATORY) | |
|-----------------------|--------|--------------------------|--------|
| (Signature) | (Time) | (Signature) | (Time) |
| (Printed Name) | (Date) | (Printed Name) | (Date) |
| (Company) | | (Company) | |

Received by (Laboratory): **Eric Tuller** 1050
DRIC TULLERSON 3/1/18
 (Long in #) **24-041**