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October 17, 2020

Chris:

I have enclosed our report “Evaluation of the Toxicity of Grasslands Bypass Project Ambient Water and Sediment Samples: Event 66” for the samples that were collected September 23, 2020. The results of this testing are summarized below.

| Toxicity summary for Grasslands Bypass Project ambient water and sediment samples. | | | | |
|--|---|----------------------|----------------|-----------------------|
| Sample Station | Toxicity relative to the Lab Control treatment? | | | |
| | <i>Selenastrum capricornutum</i> | <i>Daphnia magna</i> | Fathead Minnow | <i>Hyaella azteca</i> |
| | Growth | Survival | Survival | Survival |
| Site D | No | No | No | Yes |
| Site B3 | No | No | No | |
| Site F | No | No | No | |
| Site R | No | No | No | |

Chronic Toxicity of Grasslands Bypass Project Ambient Water to *Selenastrum capricornutum*

There were **no** significant reductions in algal growth in any of the Grasslands Bypass Project ambient water samples.

Acute Toxicity of Grasslands Bypass Project Ambient Water to *Daphnia magna*

There were **no** significant reductions in survival in any of the Grasslands Bypass Project ambient water samples.

Acute Toxicity of Grasslands Bypass Project Ambient Water to Fathead Minnows

There were **no** significant reductions in survival in any of the Grasslands Bypass Project ambient water samples.

Acute Toxicity of Grasslands Bypass Ambient Sediment to *Hyaella azteca*

There was a significant reduction in survival in the Site D sediment tested with *H. azteca*.

If you have any questions regarding the performance and interpretation of these tests, feel free to contact us at (707) 207-7760.

Sincerely,

Stevi Vasquez
Project Manager



Pacific EcoRisk is accredited in accordance with NELAP (ORELAP ID 4043). Pacific EcoRisk certifies that the test results reported herein conform to the most current NELAP requirements for parameters for which accreditation is required and available. Any exceptions to NELAP requirements are noted, where applicable, in the body of the report. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk. This testing was performed under Lab Order 22166.



Evaluation of the Toxicity of Grasslands Bypass Project Ambient Water and Sediment Samples: Event 66

Samples collected September 23, 2020

Prepared For:

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October 2020



Evaluation of the Toxicity of Grasslands Bypass Project Ambient Water and Sediment Samples: Event 66

Samples collected September 23, 2020

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1. INTRODUCTION

Pacific EcoRisk (PER) has been contracted by Summers Engineering to evaluate the acute and chronic toxicity of ambient water and sediment samples collected for the Grasslands Bypass Project (GBP). This evaluation consists of performing the following US EPA and modified-EPA short-term chronic and acute toxicity tests:

- 96-hour algal growth test with the green alga *Selenastrum capricornutum*;
- 96-hour survival test with the crustacean *Daphnia magna*;
- 96-hour survival test with larval fathead minnows (*Pimephales promelas*); and
- 10-day survival sediment toxicity test with the amphipod *Hyalella azteca*.

These toxicity tests were conducted on ambient water and sediment samples collected on September 23, 2020 (termed “Event 66”). In order to assess the sensitivity of the test organisms to toxic stress, reference toxicant tests were also performed. This report describes the performance and results of these tests.

2. TOXICITY TEST PROCEDURES

The methods used in conducting these toxicity tests followed US EPA guidelines:

- “Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition” (EPA-821-R-02-012);
- “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition” (EPA-821-R-02-013); and
- “Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates, Second Edition” (EPA/600/R-99/064).

2.1 Sample Receipt and Handling

On September 23, a San Luis and Delta-Mendota Water Authority staff member collected ambient water samples for aquatic toxicity testing from four stations and an ambient sediment sample from one station. The ambient water and sediment samples were transported on ice and under chain-of-custody to the PER laboratory facility in Fairfield, CA. Upon receipt at the testing laboratory, aliquots of each water sample were collected for analysis of initial water quality characteristics (Table 1). The remainders of the water samples were stored at 0-6°C, and were used to initiate testing within 36 hours of collection. The chain-of-custody record for the collection and delivery of the ambient water and sediment samples is presented in Appendix A.

Table 1. Initial water quality characteristics of the Grasslands Bypass Project ambient water samples.

| Date Sample Received | Sample ID | Temp (°C) | pH | D.O. (mg/L) | Alkalinity (mg/L) | Hardness (mg/L) | Conductivity (µS/cm) | Total Ammonia (mg/L N) |
|----------------------|--------------------------|-----------|------|-------------|-------------------|-----------------|----------------------|------------------------|
| 9/23/20 | GBP-66-D-TE | 4.5 | 7.79 | 8.2 | 222 | 459 | 1722 | <1.0 |
| | GBP-66-B3-TE | 5.5 | 8.00 | 9.2 | 264 | 697 | 2268 | <1.0 |
| | GBP-66-F-TE | 4.8 | 7.30 | 7.2 | 152 | 215 | 1129 | <1.0 |
| | GBP-66-R-TE | 5.3 | 7.99 | 9.2 | 174 | 279 | 1321 | <1.0 |
| | GBP-66-D-SE ^a | 0.6 | n/a | n/a | n/a | n/a | n/a | n/a |

a – Sediment sample. No log-in water quality measurements taken.

2.2 Algal Growth Toxicity Testing with *Selenastrum capricornutum*

The short-term chronic toxicity algal test consists of exposing *Selenastrum capricornutum* to the ambient water sample for approximately 96 hours, after which the effects on cell growth are evaluated. The specific procedures used in these tests are described below.

The Lab Water Control medium for these tests consisted of Type 1 lab water (reverse osmosis, filtered, de-ionized water) spiked with nutrients. The ambient water samples were tested at the 100% concentration only. The ambient water samples were filtered, using sterile 0.45 µm filters, and spiked with nutrients without EDTA before use in the algal test, as per EPA guidelines. “New” water quality characteristics (pH, dissolved oxygen [D.O.], and conductivity) were measured on the resulting test solutions prior to use in this testing.

There were 4 replicates at each test treatment, each replicate consisting of a 250-mL glass Erlenmeyer flask containing 100 mL of test solution. Each flask was inoculated to an initial algal cell density of 10,000 cells/mL from a laboratory culture of *S. capricornutum* that is maintained in log growth phase. These flasks were loosely capped and randomly positioned within a temperature-controlled room at 25°C, under continuous cool-white fluorescent illumination. Each day, the temperature and pH were measured and recorded from one randomly selected replicate at each treatment; each replicate flask was gently shaken three times daily and re-positioned within the temperature-controlled room.

After 96 (±2) hours exposure, the flasks were removed from the temperature-controlled room and the algal cell density in each was determined by spectrophotometric analysis. The resulting cell density data were analyzed to evaluate any impairment due to the ambient water samples. All statistical analyses were performed using CETIS® (TidePool Scientific Software, McKinleyville, CA).

2.2.1 Reference Toxicant Testing of the *Selenastrum capricornutum*

The reference toxicant test was performed similarly to the ambient water tests except that test solutions consisted of Lab Water Control medium spiked with NaCl at concentrations of 0.125, 0.25, 0.5, 1, 2, and 4 g/L. The resulting test response data were statistically analyzed to



determine key dose-response point estimates. All statistical analyses were made using CETIS. These response endpoints were then compared to the typical response range established by the mean \pm 2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

2.3 Acute Toxicity Testing with *Daphnia magna*

The acute *D. magna* test consists of exposing neonate organisms to the ambient water for approximately 96 hours, after which effects on survival are evaluated. The specific procedures used in these tests are described below.

The Lab Water Control medium for these tests consisted of modified EPA synthetic moderately hard water, prepared by addition of reagent grade chemicals to Type 1 lab water. The ambient water samples were tested at the 100% concentration only. New water quality characteristics (pH, D.O., and conductivity) were measured on the test treatment solutions prior to use in this testing.

There were 4 replicates for each test treatment, each replicate consisting of 50 mL of test solution in a 100-mL glass beaker. The test was initiated by allocating 5 neonate (<24 hours old) *D. magna*, from in-house laboratory cultures, into each replicate beaker. The replicate beakers were placed in a temperature-controlled room at 20°C, under cool-white fluorescent lighting on a 16L:8D photoperiod.

Each day of the test, fresh test solutions were prepared and characterized as before. At this time, small amounts of the green alga *S. capricornutum* and yeast-Cerophyll®-trout chow (YCT) food mixture were added to each test replicate to provide food for the test organisms. After a minimum of two hours (to allow for feeding) the test replicate beakers were examined, after which approximately 80% of the test media in each beaker was carefully poured out and replaced with fresh test solution. The test beakers were then returned to the temperature-controlled room. “Old” water quality characteristics (pH, D.O., and conductivity) were measured on the test solution that had been discarded from one randomly selected replicate at each test treatment.

After 96 (\pm 2) hours, the test was terminated and the number of surviving organisms in each replicate was determined. The resulting survival data were analyzed to evaluate any impairment due to the ambient waters. All statistical analyses were performed using CETIS.

2.3.1 Reference Toxicant Testing of the *Daphnia magna*

The reference toxicant test was performed similarly to the ambient water tests, except that test solutions consisted of Lab Water Control medium spiked with NaCl at concentrations of 1, 2, 4, 8, and 16 g/L. The resulting test response data were statistically analyzed to determine key dose-response point estimates. All statistical analyses were made using CETIS. These response

endpoints were then compared to the typical response range established by the mean \pm 2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

2.4 Acute Toxicity Testing with Larval Fathead Minnows

The acute fathead minnow test consists of exposing larval fish to the ambient water for 96 hours, after which effects on survival are evaluated. The specific procedures used in these tests are described below.

The fathead minnows used in these tests were obtained from a commercial supplier (Aquatox, Hot Springs, AR). These fish were maintained at 20°C in aerated aquaria containing EPA synthetic moderately hard water prior to their use in this testing. During this pre-test period, the fish were fed brine shrimp nauplii *ad libitum*.

The Lab Water Control medium for this testing consisted of EPA synthetic moderately hard water, prepared by addition of reagent grade chemicals to Type 1 lab water. The ambient water samples were tested at the 100% concentration only. Water quality characteristics (pH, D.O., and conductivity) were determined for each test solution prior to use in this testing.

There were 4 replicates for each test treatment, each replicate consisting of 200 mL of test media in a 600-mL glass beaker. The test was initiated by randomly allocating ten 8-day old larval fathead minnows into each replicate beaker. The beakers were placed in a temperature-controlled room at 20°C under a 16L:8D photoperiod.

Each day of the test, fresh test solutions were prepared and characterized as before. At this time, the test organisms were fed brine shrimp nauplii on Day 2 of the test only. The number of live fish in each replicate was then determined, after which approximately 80% of the test media in each beaker was carefully poured out and replaced with fresh test solution. The test beakers were then returned to the temperature-controlled room. “Old” water quality characteristics (pH, D.O., and conductivity) were measured on the test solution that had been discarded from one randomly selected replicate at each test treatment.

After 96 (\pm 2) hours, the test was terminated and the number of surviving organisms was determined. The resulting survival data were analyzed to evaluate any impairment due to the ambient waters. All statistical analyses were performed using CETIS.

2.4.1 Reference Toxicant Testing of the Fathead Minnows

The reference toxicant test was performed similarly to the ambient water tests except that test solutions consisted of Lab Water Control medium spiked with NaCl at concentrations of 1.5, 3, 6, 9, and 12 g/L. The resulting test response data were statistically analyzed to determine key dose-response point estimates. All statistical analyses were made using CETIS. These response

endpoints were then compared to the typical response range established by the mean \pm 2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

2.5 Sediment Toxicity Testing with *Hyaella azteca*

The freshwater sediment toxicity test with *H. azteca* consists of exposing the amphipods to the sediment for 10 days, after which effects on survival are evaluated. The specific procedures used in this test are described below.

The *H. azteca* used in this test were obtained from a commercial supplier (Aquatic Biosystems, Ft. Collins, CO). Upon receipt at the lab, the test organisms were held in tanks of SAM-5S at 23°C, and were fed *Spirulina*-amended YCT and *S. capricornutum*.

The sediment sample was tested at the 100% concentration only. The Lab Control treatment sediment consisted of a reference site sediment collected from Spring River, MO, which is also used by the USGS laboratory in Columbia, MO. There were eight replicates for each test treatment. Each replicate container consisted of a 300-mL tall-form glass beaker with a 3-cm ribbon of 540- μ m mesh NITEX attached to the top of the beaker with silicone sealant. Each of the sediment samples was re-homogenized immediately prior to introduction of the sediment into the test replicates. Approximately 100 mL of the homogenized sediment was loaded into each test replicate container. Each of the test replicates was then carefully filled with clean overlying water (SAM-5S). The replicates with sediments and clean overlying water were established 24 hours prior to the introduction of the amphipods.

After this initial 24-hour period, the overlying water in each replicate was flushed with one volume (approximately 150 mL) of fresh overlying water. A small aliquot of the renewed overlying water in each of the eight replicates per treatment was then collected and composited for measurement of initial water quality characteristics (pH, D.O., conductivity, alkalinity, hardness, and total ammonia). The test was initiated with the random allocation of ten 10-11-day old amphipods (within 1-2 days of age) into each replicate, followed by the addition of 1 mL of *Spirulina*-amended YCT food. The replicate chambers were placed in a temperature-controlled room at 23°C, under cool-white fluorescent lighting on a 16L:8D photoperiod.

Each test replicate was examined daily for the presence of any dead amphipods. A small aliquot of the overlying water in each of the 8 replicates (per treatment) was then collected and composited as before for measurement of “old” D.O., after which each replicate was flushed with one volume of fresh water. Another small aliquot of the overlying water in each of the 8 replicates was then collected and composited as before for measurement of “new” D.O., after which each replicate was fed 1 mL of *Spirulina*-amended YCT.

After 10 days exposure, an aliquot of overlying water was collected from each replicate and composited for analysis of the final water quality characteristics. The sediments in each replicate



were then carefully sorted and sieved, and the number of surviving amphipods determined. The resulting survival data were analyzed to evaluate any impairment due to the ambient sediment. All statistical analyses were performed using CETIS.

2.5.1 Reference Toxicant Testing of the *Hyalella azteca*

The reference toxicant test consisted of a static 96-hour water exposure to the reference toxicant. Test solutions were prepared by spiking Lab Water Control medium with KCl at concentrations of 0.1, 0.2, 0.4, 0.8, and 1.6 g/L. There were 10 replicates per treatment, each replicate consisting of a 30-mL cup containing 20 mL of test solution. The test was initiated with the random allocation of a single amphipod into each replicate cup. Routine water quality characteristics were measured at the time of test initiation and test termination. Each replicate was fed 0.1 mL of *Spirulina*-amended YCT on Day 2 of the test. At the end of the 96-hour exposure, each replicate cup was examined to determine the number of live organisms. The resulting survival data were statistically analyzed to determine key dose-response point estimates. All statistical analyses were performed using CETIS. These response endpoints were then compared to the typical response range established by the mean \pm 2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

3. RESULTS

3.1 Effects of the Grasslands Bypass Project Ambient Water on *Selenastrum capricornutum*

The results for these tests are summarized in Table 2. There were ***no*** significant reductions in algal growth in any of the Grasslands Bypass Project ambient water samples. The test data and summary of statistical analyses for these tests are presented in Appendix B.

| Table 2. Effects of Grasslands Bypass Project ambient water on <i>Selenastrum capricornutum</i> . | | |
|---|---------------------|--|
| Test Initiation Date (Time) | Treatment/Sample ID | Mean Algal Cell Density (cells/mL x 10 ⁶) |
| 9/24/20 (1458) | Lab Water Control | 2.69 |
| | GBP-66-D-TE | 7.43 |
| | GBP-66-B3-TE | 3.20 |
| | GBP-66-F-TE | 6.40 |
| | GBP-66-R-TE | 6.68 |

3.2 Effects of the Grasslands Bypass Project Ambient Water on *Daphnia magna*

The results for these tests are summarized in Table 3. There were ***no*** significant reductions in survival in any of the Grasslands Bypass Project ambient water samples. The test data and summary of statistical analyses for these tests are presented in Appendix C.

| Table 3. Effects of Grasslands Bypass Project ambient water on <i>Daphnia magna</i> . | | |
|---|---------------------|-----------------|
| Test Initiation Date (Time) | Treatment/Sample ID | Mean % Survival |
| 9/24/20 (1159) | Lab Water Control | 100 |
| | GBP-66-D-TE | 100 |
| | GBP-66-B3-TE | 100 |
| | GBP-66-F-TE | 100 |
| | GBP-66-R-TE | 100 |

3.3 Effects of the Grasslands Bypass Project Ambient Water on Fathead Minnows

The results for these tests are summarized in Table 4. There were ***no*** significant reductions in survival in any of the Grasslands Bypass Project ambient water samples. The test data and summary of statistical analyses for these tests are presented in Appendix D.

| Table 4. Effects of Grasslands Bypass Project ambient water on fathead minnows. | | |
|---|---------------------|-----------------|
| Test Initiation Date (Time) | Treatment/Sample ID | Mean % Survival |
| 9/24/20 (1210) | Lab Water Control | 100 |
| | GBP-66-D-TE | 100 |
| | GBP-66-B3-TE | 100 |
| | GBP-66-F-TE | 100 |
| | GBP-66-R-TE | 100 |

3.4 Effects of the Grasslands Bypass Project Sediment on *Hyalella azteca*

The results of this test are summarized in Table 5. There was a significant reduction in survival in the Grasslands Bypass Project sediment sample. The test data and summary of statistical analyses for this test is present in Appendix E.

| Table 5. Effects of Grasslands Bypass Project ambient sediment on <i>Hyalella azteca</i> . | | |
|--|---------------------|-----------------|
| Test Initiation Date (Time) | Treatment/Sample ID | Mean % Survival |
| 9/26/20 (1059) | Lab Control | 96.2 |
| | GBP-66-D-SE | 68.8* |

* The response at this test treatment was significantly less than the Lab Water Control response ($p < 0.05$).

4. AQUATIC TOXICITY DATA QUALITY CONTROL

Four QC measures were assessed during the toxicity testing:

- Maintenance of acceptable test conditions;
- Negative Control testing;
- Positive Control (reference toxicant) testing; and
- Concentration Response Relationship assessment.

4.1 Maintenance of Acceptable Test Conditions

All test conditions (pH, D.O., temperature, etc.) were within acceptable limits for these tests. All analyses were performed according to laboratory Standard Operating Procedures.

4.2 Negative Control Testing

The responses at all Lab Control treatments were within acceptable limits.

4.3 Positive Control Testing

4.3.1 Reference Toxicant Toxicity to *Selenastrum capricornutum*

The results of this test are summarized in Table 6. The IC₅₀ for this test was consistent with the typical response range established by the reference toxicant test database for this species, indicating that these organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are presented in Appendix F.

| Table 6. Reference toxicant testing: Effects of NaCl on <i>Selenastrum capricornutum</i> . | |
|--|---|
| NaCl Treatment (g/L) | Mean Algal Cell Density (cells/mL x 10 ⁶) |
| Lab Water Control | 2.94 |
| 0.125 | 3.18 |
| 0.25 | 3.07 |
| 0.5 | 2.12* |
| 1 | 2.41* |
| 2 | 1.78* |
| 4 | 0.52* |
| Summary of Statistics | |
| Algal Growth IC ₅₀ = | 2.39 g/L NaCl |
| Typical response range (mean ± 2 SD) | 1.15 - 2.51 g/L NaCl |

* The response at this test treatment was significantly less than the Lab Water Control response (p < 0.05).

4.3.2 Reference Toxicant Toxicity to *Daphnia magna*

The results of this test are summarized in Table 7. The EC₅₀ for this test was consistent with the typical response range established by the reference toxicant test database for this species, indicating that these organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are presented in Appendix G.

| Table 7. Reference toxicant testing: Effects of NaCl on <i>Daphnia magna</i> . | |
|--|----------------------|
| NaCl Treatment (g/L) | Mean % Survival |
| Lab Water Control | 100 |
| 1 | 100 |
| 2 | 100 |
| 4 | 95 |
| 8 | 0* |
| 16 | 0* |
| Summary of Statistics | |
| Survival EC ₅₀ = | 5.46 g/L NaCl |
| Typical response range (mean ± 2 SD) | 2.95 - 6.53 g/L NaCl |

* The response at this test treatment was significantly less than the Lab Water Control response ($p < 0.05$).

4.3.3 Reference Toxicant Toxicity to Fathead Minnows

The results of this test are summarized in Table 8. The survival EC₅₀ of 9.21 g/L NaCl is outside of the upper threshold of 8.25 g/L NaCl of the “typical response” range established by the mean \pm 2 SD from the 20 most recent previously performed reference toxicant tests; this indicates that these test organisms may have been slightly less sensitive to toxicant stress than is typical. However, it is important to note that the coefficient of variation (CV) for the Pacific EcoRisk reference toxicant database for this species is 6.7%, while the EPA 75th percentile (the recommended EPA CV limit) for this method is 19%. Normalizing PER’s “typical response” range ‘20-test mean \pm 2 SD’ to the EPA’s 75th percentile CV would result in a “normalized typical response” range of 4.51-10.0 g/L NaCl; the current EC₅₀ of 9.21 mg/L falls inside this “normalized typical response” range, indicating that these organisms were in fact responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are presented in Appendix H.

| Table 8. Reference toxicant testing: Effects of NaCl on fathead minnows. | |
|--|----------------------|
| NaCl Treatment (g/L) | Mean % Survival |
| Lab Water Control | 100 |
| 1.5 | 100 |
| 3 | 100 |
| 6 | 100 |
| 9 | 65* |
| 12 | 0* |
| Summary of Statistics | |
| Survival EC ₅₀ = | 9.21 g/L NaCl |
| Typical response range (mean \pm 2 SD) | 6.29 - 8.25 g/L NaCl |

* The response at this test treatment was significantly less than the Lab Water Control response ($p < 0.05$).

4.3.4 Reference Toxicant Toxicity to *Hyaella azteca*

The results of this test are summarized in Table 9. The EC₅₀ for this test was consistent with the typical response range established by the reference toxicant test database for this species, indicating that these organisms were responding to toxic stress in a typical fashion. The test data and summary of statistical analyses for this test are presented in Appendix I.

| Table 9. Reference toxicant testing: effects of KCl on <i>Hyaella azteca</i> survival. | |
|--|---------------------|
| KCl Treatment (g/L) | Mean% Survival |
| Lab Water Control | 100 |
| 0.1 | 100 |
| 0.2 | 100 |
| 0.4 | 20* |
| 0.8 | 0* |
| 1.6 | 0* |
| Summary of Statistics | |
| Survival EC ₅₀ = | 0.32 g/L KCl |
| Typical response range (mean ± 2 SD) | 0.23 - 0.44 g/L KCl |

* The response at this test treatment was significantly less than the Lab Water Control response ($p < 0.05$).

4.4 Concentration Response Relationships

The concentration-response relationships for the reference toxicant tests were evaluated as per EPA guidelines (EPA-821-B-00-005), and were determined to be acceptable.

5. SUMMARY & CONCLUSIONS

Chronic Toxicity of Grasslands Bypass Project Ambient Water to *Selenastrum capricornutum*

There were ***no*** significant reductions in algal growth in any of the Grasslands Bypass Project ambient water samples.

Acute Toxicity of Grasslands Bypass Project Ambient Water to *Daphnia magna*

There were ***no*** significant reductions in survival in any of the Grasslands Bypass Project ambient water samples.

Acute Toxicity of Grasslands Bypass Project Ambient Water to Fathead Minnows

There were ***no*** significant reductions in survival in any of the Grasslands Bypass Project ambient water samples.

Acute Toxicity of Grasslands Bypass Ambient Sediment to *Hyaella azteca*

There was a significant reduction in survival in the Site D sediment tested with *H. azteca*.

Appendix A

Chain-of-Custody Record for the Collection and Delivery of the Grasslands Bypass Project Ambient Water and Sediment Samples





Pacific EcoRisk

ENVIRONMENTAL CONSULTING & TESTING

2250 Cordelia Road, Fairfield, CA 94553

(707) 207-7760 FAX 707 207-7916

CHAIN-OF-CUSTODY RECORD:

Pacific EcoRisk

| Client Name: Summers Engineering, Inc. | | | | REQUESTED ANALYSIS | | | | | | | |
|--|-------------|-------------|----------------|---|---|---|---|------------------------|---|--|--|
| Client Address: 887 N Irwin St Hanford, CA 93230 | | | | Chronic Tox: <i>Selenastrum capricornutum</i> EPA-821-R-02-013 | Acute Tox: <i>Daphnia magna</i> EPA-821-R-02-012 | Acute Tox: fathead minnow EPA-821-R-02-012 | Sediment Tox: <i>Hyaella azteca</i> EPA-600-R-94-024 | | | | |
| Sampled By: Panoche Water District | | | | | | | | | | | |
| Phone: (209) 587-0937 | | | | | | | | | | | |
| FAX: | | | | | | | | | | | |
| Project Manager: Chris Linneman | | | | | | | | | | | |
| Project Name: Grasslands Bypass Project | | | | | | | | | | | |
| PO Number: | | | | | | | | | | | |
| Client Sample ID | Sample Date | Sample Time | Sample Matrix* | Container | | | | | | | |
| | | | | Number | Type | | | | | | |
| 1 GBP-66-D-TE | 9/23/20 | 10:10 | FW | 4 | 1-gal Amber | X | X | X | | | |
| 2 GBP-66-B3-TE | 9/23/20 | 9:43 | FW | 4 | 1-gal Amber | X | X | X | | | |
| 3 GBP-66-F-TE | 9/23/20 | 8:53 | FW | 4 | 1-gal Amber | X | X | X | | | |
| 4 GBP-66-R-TE | 9/23/20 | 11:09 | FW | 4 | 1-gal Amber | X | X | X | | | |
| 5 GBP-66-D-SE | 9/23/20 | 10:32 | SED | 1 | 1-gal Glass Jar | | | | X | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| Correct Containers: | | Yes | No | | RELIQUISHED BY | | | | | | |
| Sample Temperature: | | Ambient | Cold | Warm | Signature: | <i>Mike Gonneler</i> | Signature: | <i>Don Richards</i> | | | |
| Sample Preservative: | | Yes | No | | Print: | Mike Gonneler | Print: | Don Richards | | | |
| Turnaround Time: | | STD | Specify: | | Organization: | KeMILF | Organization: | KeMILF | | | |
| Comments: TCF7 = 3.9°C | | | | | DATE: 9-23-20 | TIME: 1:01 | DATE: 9-23-20 | TIME: 1510 | | | |
| | | | | | RECEIVED BY | | | | | | |
| | | | | | Signature: | <i>Don Richards</i> | Signature: | <i>Raphael Quejada</i> | | | |
| | | | | | Print: | Don Richards | Print: | Raphael Quejada | | | |
| | | | | | Organization: | KeMILF | Organization: | PF7 | | | |
| | | | | | DATE: 9-23-20 | TIME: 1301 | DATE: 9/23/20 | TIME: 1510 | | | |

*MATRIX CODES: (SED = Sediment); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater)

Appendix B

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of Grasslands Bypass Project Ambient Water to *Selenastrum capricornutum*



CETIS Summary Report

Report Date: 12 Oct-20 15:50 (p 1 of 1)
 Test Code/ID: GBP_66SC_C1 / 18-2597-3461

Algal Growth Test

Pacific EcoRisk

| | | |
|-------------------------------------|---|---|
| Batch ID: 02-0304-8278 | Test Type: Cell Growth | Analyst: Stevi Vasquez |
| Start Date: 24 Sep-20 14:58 | Protocol: EPA-821-R-02-013 (2002) | Diluent: Not Applicable |
| Ending Date: 28 Sep-20 15:25 | Species: Selenastrum capricornutum | Brine: Not Applicable |
| Test Length: 4d 0h | Taxon: Chlorophyta | Source: In-House Culture Age: 6 |

| | | |
|--------------------------------------|------------------------------------|--|
| Sample ID: 05-8312-6926 | Code: GBP_66SC_C1 | Project: 22166 |
| Sample Date: 24 Sep-20 14:58 | Material: Lab Water | Source: Grasslands Bypass Project |
| Receipt Date: 24 Sep-20 14:58 | CAS (PC): | Station: LABQA |
| Sample Age: --- (24.2 °C) | Client: Summers Engineering | |

| Sample Code | Sample ID | Sample Date | Receipt Date | Sample Age | Client Name | Project |
|--------------|--------------|-----------------|-----------------|---------------|---------------------|---------|
| GBP_66SC_C1 | 05-8312-6926 | 24 Sep-20 14:58 | 24 Sep-20 14:58 | --- (24.2 °C) | Summers Engineering | 22166 |
| GBP-66-D-TE | 03-6461-0397 | 23 Sep-20 10:10 | 23 Sep-20 15:10 | 29h (4.5 °C) | | |
| GBP-66-B3-TE | 20-6422-4298 | 23 Sep-20 09:43 | 23 Sep-20 15:10 | 29h (5.5 °C) | | |
| GBP-66-F-TE | 04-5047-9373 | 23 Sep-20 08:53 | 23 Sep-20 15:10 | 30h (4.8 °C) | | |
| GBP-66-R-TE | 03-2435-3198 | 23 Sep-20 11:09 | 23 Sep-20 15:10 | 28h (5.3 °C) | | |

| Sample Code | Material Type | Sample Source | Station Location | Lat/Long |
|--------------|---------------|---------------------------|------------------|----------|
| GBP_66SC_C1 | Lab Water | Grasslands Bypass Project | LABQA | |
| GBP-66-D-TE | Ambient Water | Grasslands Bypass Project | 541MER542 | |
| GBP-66-B3-TE | Ambient Water | Grasslands Bypass Project | 5415LDGCR | |
| GBP-66-F-TE | Ambient Water | Grasslands Bypass Project | 541MER531 | |
| GBP-66-R-TE | Ambient Water | Grasslands Bypass Project | 541SJRACI | |

| Single Comparison Summary | | | | | | |
|---------------------------|-------------------------------|----------------------------------|---------|--|---|--|
| Analysis ID | Endpoint | Comparison Method | P-Value | Comparison Result | S | |
| 16-2689-4860 | 96h Cell Density-without EDTA | Equal Variance t Two-Sample Test | 1.0000 | GBP-66-D-TE passed 96h cell density-with | 1 | |
| 01-7347-9813 | 96h Cell Density-without EDTA | Equal Variance t Two-Sample Test | 0.9714 | GBP-66-B3-TE passed 96h cell density-wit | 1 | |
| 13-4439-0200 | 96h Cell Density-without EDTA | Equal Variance t Two-Sample Test | 1.0000 | GBP-66-F-TE passed 96h cell density-with | 1 | |
| 05-3480-6474 | 96h Cell Density-without EDTA | Equal Variance t Two-Sample Test | 1.0000 | GBP-66-R-TE passed 96h cell density-with | 1 | |

| 96h Cell Density-without EDTA Summary | | | | | | | | | | | |
|---------------------------------------|------|-------|---------|---------|---------|---------|---------|---------|---------|--------|----------|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| GBP_66SC_C1 | LW | 4 | 2.69E+6 | 2.40E+6 | 2.97E+6 | 2.46E+6 | 2.87E+6 | 8.94E+4 | 1.79E+5 | 6.65% | 0.00% |
| GBP-66-D-TE | | 4 | 7.43E+6 | 7.16E+6 | 7.70E+6 | 7.20E+6 | 7.60E+6 | 8.50E+4 | 1.70E+5 | 2.29% | -176.47% |
| GBP-66-B3-TE | | 4 | 3.20E+6 | 2.57E+6 | 3.84E+6 | 2.83E+6 | 3.77E+6 | 2.00E+5 | 4.00E+5 | 12.50% | -19.16% |
| GBP-66-F-TE | | 4 | 6.40E+6 | 5.95E+6 | 6.84E+6 | 6.02E+6 | 6.67E+6 | 1.40E+5 | 2.80E+5 | 4.38% | -138.05% |
| GBP-66-R-TE | | 4 | 6.68E+6 | 6.52E+6 | 6.84E+6 | 6.54E+6 | 6.78E+6 | 5.10E+4 | 1.02E+5 | 1.53% | -148.56% |

| 96h Cell Density-without EDTA Detail | | | | | | MD5: A93AFC71136085A94947C86D9BA708FF |
|--------------------------------------|------|---------|---------|---------|---------|---------------------------------------|
| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | |
| GBP_66SC_C1 | LW | 2.87E+6 | 2.78E+6 | 2.64E+6 | 2.46E+6 | |
| GBP-66-D-TE | | 7.20E+6 | 7.60E+6 | 7.42E+6 | 7.50E+6 | |
| GBP-66-B3-TE | | 3.08E+6 | 3.77E+6 | 2.83E+6 | 3.13E+6 | |
| GBP-66-F-TE | | 6.02E+6 | 6.67E+6 | 6.37E+6 | 6.53E+6 | |
| GBP-66-R-TE | | 6.54E+6 | 6.72E+6 | 6.68E+6 | 6.78E+6 | |

CETIS Analytical Report

Report Date: 09 Oct-20 13:29 (p 1 of 4)
 Test Code/ID: GBP_66SC_C1 / 18-2597-3461

| | | | | | |
|----------------------------|--|----------------------------|------------------------|--|--|
| Algal Growth Test | | | Pacific EcoRisk | | |
| Analysis ID: 16-2689-4860 | Endpoint: 96h Cell Density-without EDTA | CETIS Version: CETISv1.9.7 | | | |
| Analyzed: 09 Oct-20 13:28 | Analysis: Parametric-Two Sample | Status Level: 1 | | | |
| Edit Date: 09 Oct-20 13:27 | MD5 Hash: C52A1E30FF54F8CEF4C2835FD787954B | Editor ID: 001-771-848-3 | | | |

| | | | |
|-----------------------|----------------|--|-------------|
| Data Transform | Alt Hyp | Comparison Result | PMSD |
| Untransformed | C > T | GBP-66-D-TE passed 96h cell density-without edta endpo | 8.92% |

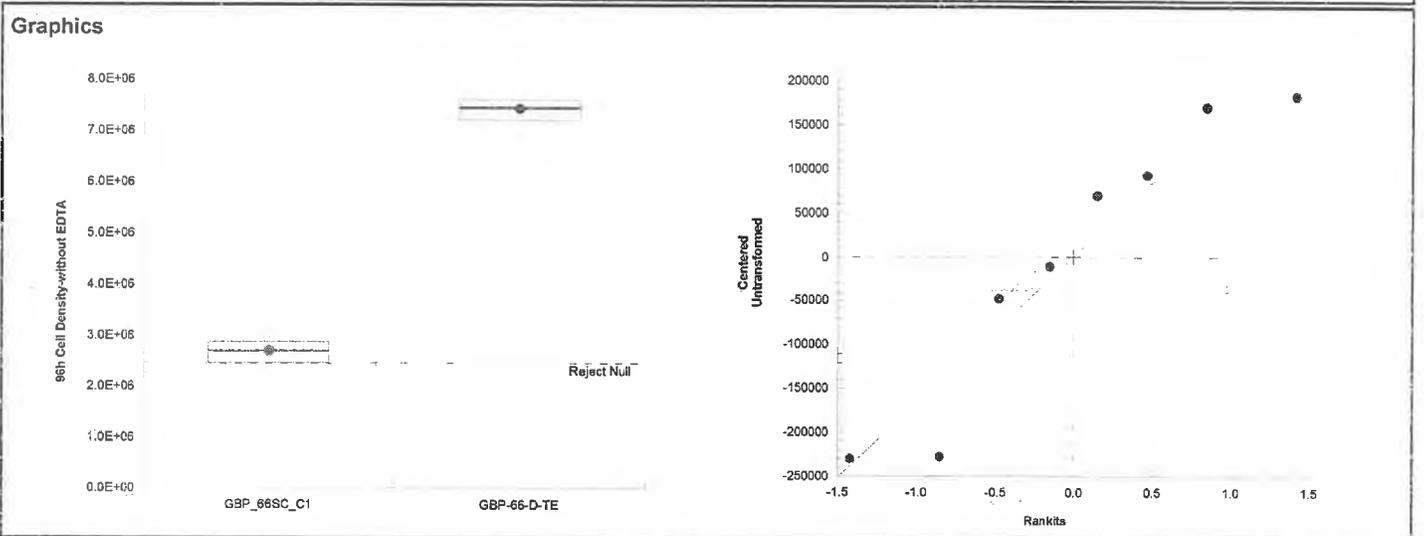
| | | | | | | | | | |
|---|-----------|------------------|------------------|-----------------|------------|-----------|---------------|----------------|------------------------|
| Equal Variance t Two-Sample Test | | | | | | | | | |
| Sample I | vs | Sample II | Test Stat | Critical | MSD | DF | P-Type | P-Value | Decision(α:5%) |
| Lab Water Control | | GBP-66-D-TE | -38.4 | 1.94 | 2E+05 | 6 | CDF | 1.0000 | Non-Significant Effect |

| | | | | | | |
|------------------------|-------------------------|------------------|-----------------|----------------|-----------------------|--|
| Auxiliary Tests | | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) | |
| Control Trend | Mann-Kendall Trend Test | | | 0.0435 | Indeterminate | |

| | | | | | | |
|--------------------|--------------------|--------------------|-----------|---------------|----------------|-----------------------|
| ANOVA Table | | | | | | |
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 4.498E+13 | 4.498E+13 | 1 | 1480 | <1.0E-05 | Significant Effect |
| Error | 1.827E+11 | 3.045E+10 | 6 | | | |
| Total | 4.517E+13 | | 7 | | | |

| | | | | | | |
|--------------------------------|-------------------------------|------------------|-----------------|----------------|-----------------------|--|
| ANOVA Assumptions Tests | | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) | |
| Variance | Variance Ratio F Test | 1.1 | 47.5 | 0.9368 | Equal Variances | |
| Distribution | Shapiro-Wilk W Normality Test | 0.895 | 0.645 | 0.2605 | Normal Distribution | |

| | | | | | | | | | | | |
|--|-------------|--------------|-------------|----------------|----------------|---------------|------------|------------|----------------|------------|----------------|
| 96h Cell Density-without EDTA Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66SC_C1 | LW | 4 | 2.69E+6 | 2.40E+6 | 2.97E+6 | 2.71E+6 | 2.46E+6 | 2.87E+6 | 8.94E+4 | 6.65% | 0.00% |
| GBP-66-D-TE | | 4 | 7.43E+6 | 7.16E+6 | 7.70E+6 | 7.46E+6 | 7.20E+6 | 7.60E+6 | 8.50E+4 | 2.29% | -176.47% |



Selenastrum capricornutum Algal Toxicity Test Data Sheet

Client: Summers Engineering Test Material: GBP-66-D-TE
 Test Start Date: 9/24/20 Test ID #: 89786 Project #: 22166
 Test End Date: 9/28/20 Control/Diluent: Type I w/o EDTA Shelf #: T6/R6/S1

| Treatment | Cell Density (cells/mL x 10 ⁶) | | | | |
|--|--|-------|---------|-------|----------|
| | Rep A | Rep B | Rep C | Rep D | |
| Lab Water Control | 2.87 | 2.78 | 2.64 | 2.46 | |
| 100% | 7.20 | 7.60 | 7.42 | 7.50 | |
| This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other issues of concern. | | | | | |
| Control Mean Density (cells/mL x 10 ⁶) | | % CV | Date: | Time: | Signoff: |
| | | | 9/28/20 | 1525 | KC |

Initial Count: 10,000 cells/mL Termination Time: 1525 Enumerating Scientist: KC

| Test Treatment | Temp (°C) | pH | D.O. (mg/L) | Conductivity (µS/cm) | Sign-Off |
|-------------------|-----------|------|-------------|----------------------|--------------------------|
| Lab Water Control | 24.2 | 7.50 | 8.6 | 92 | Date: 9/24/20 |
| 100% | 24.2 | 7.42 | 9.1 | 3200/1783 | Sample ID #: 57052 |
| | | | | | Test Solution Prep: R6 |
| | | | | | New WQ: R16 |
| | | | | | Innoculation Time: 1458 |
| | | | | | Innoculation Signoff: R6 |
| Meter ID | 86A | PH25 | RD13 | EC13 | Date: 9/25/20 |
| Lab Water Control | 24.8 | 8.11 | | | WQ Time: 0934 |
| 100% | 24.7 | 8.39 | | | WQ Signoff: MB |
| Meter ID | 86A | PH25 | | | Date: 9/26/20 |
| Lab Water Control | 24.5 | 8.42 | | | WQ Time: 0947 |
| 100% | 24.2 | 8.54 | | | WQ Signoff: CC |
| Meter ID | 86A | PH25 | | | Date: 9/27/20 |
| Lab Water Control | 24.5 | 9.36 | | | WQ Time: 1036 |
| 100% | 24.5 | 8.86 | | | WQ Signoff: J |
| Meter ID | 86A | PH25 | | | Date: 9/28/20 |
| Lab Water Control | 24.1 | 9.58 | 12.2 | 1523/91 | WQ Time: 1032 |
| 100% | 23.8 | 9.39 | 16.8 | 1522 | WQ Signoff: R16 |
| Meter ID | 86A | PH25 | RD11 | EC12 | |

| Initial Test Conditions | Alkalinity | Hardness | Light Intensity (ftc) |
|-------------------------|------------|----------|-----------------------|
| | 145 | 235/490 | 389 |

LWC: 11

R6 9/24/20
13

CETIS Analytical Report

Report Date: 09 Oct-20 13:29 (p 2 of 4)
 Test Code/ID: GBP_66SC_C1 / 18-2597-3461

Algal Growth Test Pacific EcoRisk

| | | |
|-----------------------------------|---|-----------------------------------|
| Analysis ID: 01-7347-9813 | Endpoint: 96h Cell Density-without EDTA | CETIS Version: CETISv1.9.7 |
| Analyzed: 09 Oct-20 13:28 | Analysis: Parametric-Two Sample | Status Level: 1 |
| Edit Date: 09 Oct-20 13:27 | MD5 Hash: BA7AA5DECB855FED7EC66247FA0F33 | Editor ID: 001-771-848-3 |

| | | | |
|-----------------------|----------------|--|-------------|
| Data Transform | Alt Hyp | Comparison Result | PMSD |
| Untransformed | C > T | GBP-66-B3-TE passed 96h cell density-without edta endp | 15.85% |

Equal Variance t Two-Sample Test

| Sample I | vs | Sample II | Test Stat | Critical | MSD | DF | P-Type | P-Value | Decision(α:5%) |
|-------------------|----|--------------|-----------|----------|-------|----|--------|---------|------------------------|
| Lab Water Control | | GBP-66-B3-TE | -2.35 | 1.94 | 4E+05 | 6 | CDF | 0.9714 | Non-Significant Effect |

Auxiliary Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
|---------------|-------------------------|-----------|----------|---------|----------------|
| Control Trend | Mann-Kendall Trend Test | | | 0.0435 | Indeterminate |

ANOVA Table

| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
|---------|-------------|-------------|----|--------|---------|------------------------|
| Between | 5.305E+11 | 5.305E+11 | 1 | 5.52 | 0.0572 | Non-Significant Effect |
| Error | 5.77E+11 | 9.616E+10 | 6 | | | |
| Total | 1.107E+12 | | 7 | | | |

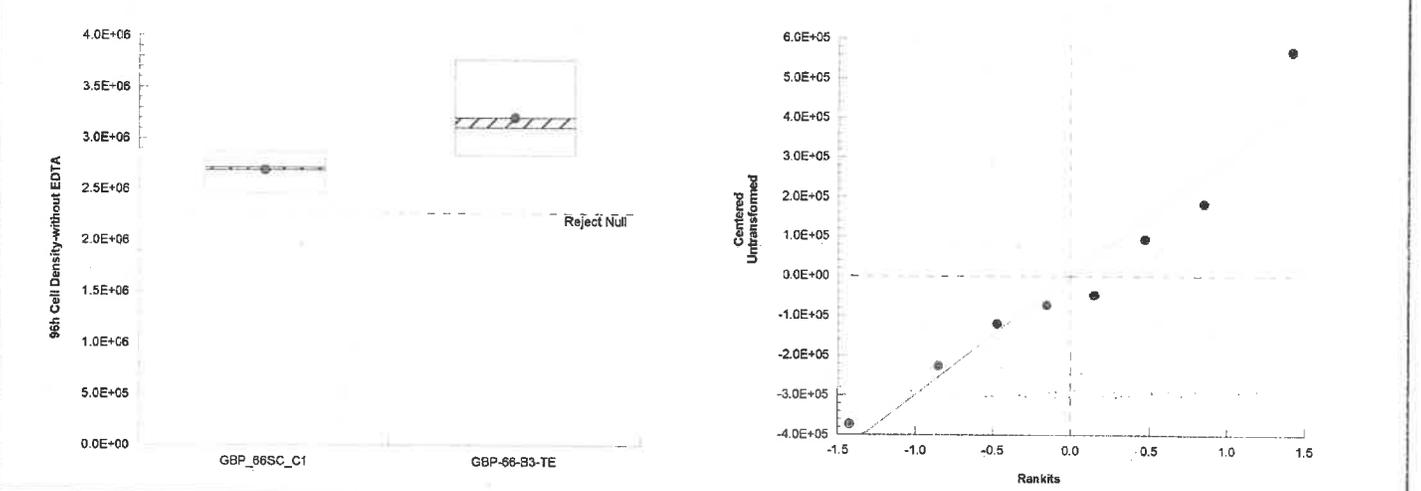
ANOVA Assumptions Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
|--------------|-------------------------------|-----------|----------|---------|---------------------|
| Variance | Variance Ratio F Test | 5.02 | 47.5 | 0.2182 | Equal Variances |
| Distribution | Shapiro-Wilk W Normality Test | 0.943 | 0.645 | 0.6381 | Normal Distribution |

96h Cell Density-without EDTA Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|--------------|------|-------|---------|---------|---------|---------|---------|---------|---------|--------|---------|
| GBP_66SC_C1 | LW | 4 | 2.69E+6 | 2.40E+6 | 2.97E+6 | 2.71E+6 | 2.46E+6 | 2.87E+6 | 8.94E+4 | 6.65% | 0.00% |
| GBP-66-B3-TE | | 4 | 3.20E+6 | 2.57E+6 | 3.84E+6 | 3.10E+6 | 2.83E+6 | 3.77E+6 | 2.00E+5 | 12.50% | -19.16% |

Graphics



Selenastrum capricornutum Algal Toxicity Test Data Sheet

Client: Summers Engineering Test Material: GBP-66-B3-TE
 Test Start Date: 9/24/20 Test ID #: 89787 Project #: 22166
 Test End Date: 9/28/20 Control/Diluent: Type I w/o EDTA Shelf #: T6/R6/S1

| Treatment | Cell Density (cells/mL x 10 ⁶) | | | | |
|--|--|-------|-------|-------|--|
| | Rep A | Rep B | Rep C | Rep D | |
| Lab Water Control | 2.87 | 2.78 | 2.64 | 2.46 | |
| 100% | 3.08 | 3.77 | 2.83 | 3.13 | |
| This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other issues of concern. | | | | | Control Mean Density (cells/mL x 10 ⁶) |
| | | | | | % CV |
| | | | | | Date: <u>9/28/20</u> |
| | | | | | Time: <u>1525</u> |
| | | | | | Signoff: <u>KL</u> |

Initial Count: 10,000 cells/mL Termination Time: 1525 Enumerating Scientist: KL

| Test Treatment | Temp (°C) | pH | D.O. (mg/L) | Conductivity (µS/cm) | Sign-Off |
|-------------------|------------|-------------|-------------|------------------------------|---------------------------------|
| Lab Water Control | 24.2 | 7.50 | 8.6 | 92 | Date: <u>9/24/20</u> |
| 100% | 24.2 | 8.01 | 9.7 | 2329 | Sample ID #: <u>57053</u> |
| | | | | | Test Solution Prep: <u>R6</u> |
| | | | | | New WQ: <u>RFL</u> |
| | | | | | Innoculation Time: <u>1458</u> |
| Meter ID | <u>86A</u> | <u>PH25</u> | <u>RDB</u> | <u>EC13</u> | Innoculation Signoff: <u>R6</u> |
| Lab Water Control | 24.0 | 8.11 | | | Date: <u>9/25/20</u> |
| 100% | 24.7 | 8.42 | | | WQ Time: <u>0934</u> |
| Meter ID | <u>86A</u> | <u>PH25</u> | | | WQ Signoff: <u>MB</u> |
| Lab Water Control | 24.5 | 8.42 | | | Date: <u>9/26/20</u> |
| 100% | 24.2 | 8.45 | | | WQ Time: <u>0947</u> |
| Meter ID | <u>86A</u> | <u>PH25</u> | | | WQ Signoff: <u>CC</u> |
| Lab Water Control | 24.5 | 8.36 | | | Date: <u>9/27/20</u> |
| 100% | 24.4 | 8.40 | | | WQ Time: <u>1036</u> |
| Meter ID | <u>86A</u> | <u>PH25</u> | | | WQ Signoff: <u>9</u> |
| Lab Water Control | 24.1 | 9.58 | 12.2 | 91823 ¹⁰⁰ 9/28/20 | Date: <u>9/28/20</u> |
| 100% | 23.9 | 8.76 | 13.7 | 2079 | WQ Time: <u>1032</u> |
| Meter ID | <u>86A</u> | <u>PH25</u> | <u>RD11</u> | <u>6713</u> | WQ Signoff: <u>RFL</u> |

| Initial Test Conditions | Alkalinity | Hardness | Light Intensity (ftc) |
|-------------------------|------------|------------|-----------------------|
| | | <u>250</u> | <u>748</u> |

CETIS Analytical Report

Report Date: 09 Oct-20 13:29 (p 3 of 4)
 Test Code/ID: GBP_66SC_C1 / 18-2597-3461

| | | | |
|----------------------------|---|----------------------------|--|
| Algal Growth Test | | Pacific EcoRisk | |
| Analysis ID: 13-4439-0200 | Endpoint: 96h Cell Density-without EDTA | CETIS Version: CETISv1.9.7 | |
| Analyzed: 09 Oct-20 13:29 | Analysis: Parametric-Two Sample | Status Level: 1 | |
| Edit Date: 09 Oct-20 13:27 | MD5 Hash: 9DE3C47BF0FDB9EDFC103F759AD5E9D | Editor ID: 001-771-848-3 | |

| | | | |
|-----------------------|----------------|---|-------------|
| Data Transform | Alt Hyp | Comparison Result | PMSD |
| Untransformed | C > T | GBP-66-F-TE passed 96h cell density-without edta endpoi | 12.01% |

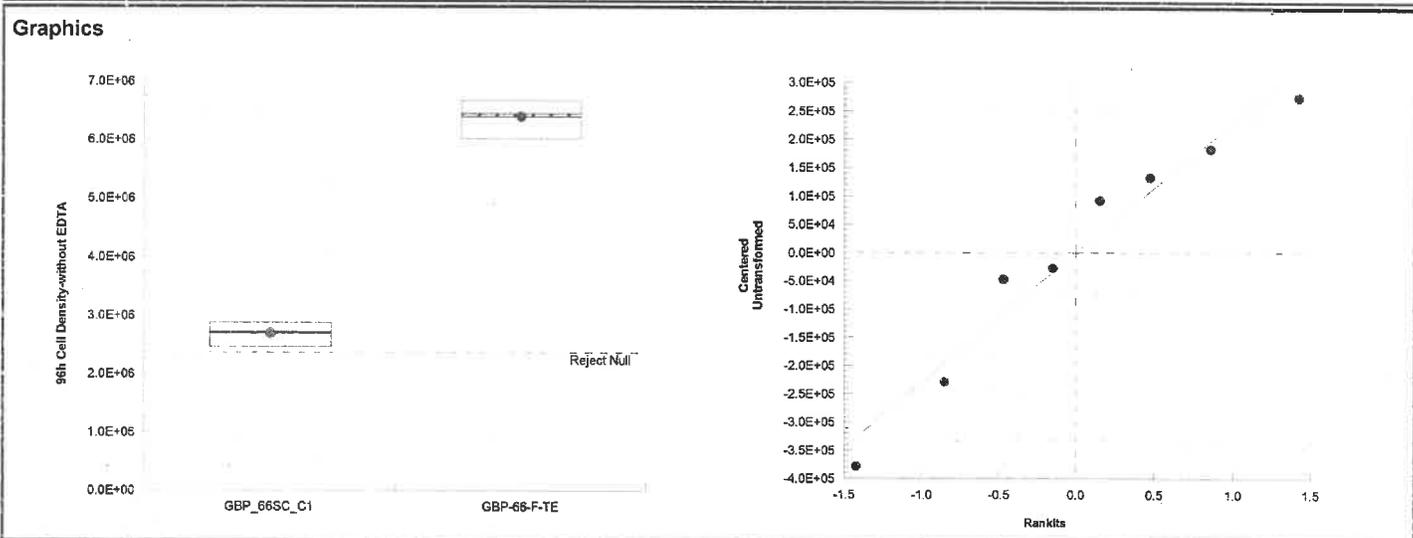
| | | | | | | | | | |
|---|----|-------------|-----------|----------|-------|----|--------|---------|------------------------|
| Equal Variance t Two-Sample Test | | | | | | | | | |
| Sample I | vs | Sample II | Test Stat | Critical | MSD | DF | P-Type | P-Value | Decision(α:5%) |
| Lab Water Control | | GBP-66-F-TE | -22.3 | 1.94 | 3E+05 | 6 | CDF | 1.0000 | Non-Significant Effect |

| | | | | | |
|------------------------|-------------------------|-----------|----------|---------|----------------|
| Auxiliary Tests | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
| Control Trend | Mann-Kendall Trend Test | | | 0.0435 | Indeterminate |

| | | | | | | |
|--------------------|-------------|-------------|----|--------|----------|--------------------|
| ANOVA Table | | | | | | |
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 2.753E+13 | 2.753E+13 | 1 | 499 | <1.0E-05 | Significant Effect |
| Error | 3.31E+11 | 5.516E+10 | 6 | | | |
| Total | 2.786E+13 | | 7 | | | |

| | | | | | |
|--------------------------------|-------------------------------|-----------|----------|---------|---------------------|
| ANOVA Assumptions Tests | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
| Variance | Variance Ratio F Test | 2.45 | 47.5 | 0.4807 | Equal Variances |
| Distribution | Shapiro-Wilk W Normality Test | 0.952 | 0.645 | 0.7302 | Normal Distribution |

| | | | | | | | | | | | |
|--|------|-------|---------|---------|---------|---------|---------|---------|---------|-------|----------|
| 96h Cell Density-without EDTA Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66SC_C1 | LW | 4 | 2.69E+6 | 2.40E+6 | 2.97E+6 | 2.71E+6 | 2.46E+6 | 2.87E+6 | 8.94E+4 | 6.65% | 0.00% |
| GBP-66-F-TE | | 4 | 6.40E+6 | 5.95E+6 | 6.84E+6 | 6.45E+6 | 6.02E+6 | 6.67E+6 | 1.40E+5 | 4.38% | -138.05% |



Selenastrum capricornutum Algal Toxicity Test Data Sheet

Client: Summers Engineering Test Material: GBP-66-F-TE
 Test Start Date: 9/24/20 Test ID #: 89788 Project #: 22166
 Test End Date: 9/28/20 Control/Diluent: Type I w/o EDTA Shelf #: T6/R6/51

| Treatment | Cell Density (cells/mL x 10 ⁶) | | | | |
|--|--|-------|--|-------|---------|
| | Rep A | Rep B | Rep C | Rep D | |
| Lab Water Control | 2.87 | 2.78 | 2.64 | 2.46 | |
| 100% | 6.02 | 6.67 | 6.37 | 6.53 | |
| This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other issues of concern. | | | | | |
| | | | Control Mean Density (cells/mL x 10 ⁶) | % CV | Date: |
| | | | | | 9/28/20 |
| | | | | | 1525 |
| | | | | | KL |

Initial Count: 10,000 cells/mL Termination Time: 1525 Enumerating Scientist: KL

| Test Treatment | Temp (°C) | pH | D.O. (mg/L) | Conductivity (µS/cm) | Sign-Off |
|-------------------|-----------|------|-------------|----------------------|--------------------------|
| Lab Water Control | 24.2 | 7.50 | 8.6 | 92 | Date: 9/24/20 |
| 100% | 24.2 | 7.68 | 8.8 | 1188 | Sample ID #: 57054 |
| | | | | | Test Solution Prep: RL |
| | | | | | New WQ: RTV |
| | | | | | Innoculation Time: 1458 |
| Meter ID | 86A | PH25 | R013 | EC13 | Innoculation Signoff: RB |
| Lab Water Control | 24.8 | 8.11 | | | Date: 9/25/20 |
| 100% | 24.9 | 8.33 | | | WQ Time: 0934 |
| Meter ID | 820A | PH25 | | | WQ Signoff: MB |
| Lab Water Control | 24.5 | 8.42 | | | Date: 9/26/20 |
| 100% | 24.1 | 8.55 | | | WQ Time: 0947 |
| Meter ID | 86X | PH25 | | | WQ Signoff: R |
| Lab Water Control | 24.5 | 9.36 | | | Date: 9/27/20 |
| 100% | 23.9 | 9.18 | | | WQ Time: 1037 |
| Meter ID | 86A | PH25 | | | WQ Signoff: V |
| Lab Water Control | 24.1 | 9.58 | 12.2 | 91823 | Date: 9/28/20 |
| 100% | 23.7 | 9.80 | 15.0 | 1096 | WQ Time: 1032 |
| Meter ID | 86A | PH25 | R011 | EC12 | WQ Signoff: RTL |

| Initial Test Conditions | Alkalinity | Hardness | Light Intensity (ftc) |
|-------------------------|------------|----------|-----------------------|
| | 153 | 235 | 389 |

CETIS Analytical Report

Report Date: 09 Oct-20 13:29 (p 4 of 4)
 Test Code/ID: GBP_66SC_C1 / 18-2597-3461

| | | | |
|--------------------------|--|------------------------|--|
| Algal Growth Test | | Pacific EcoRisk | |
|--------------------------|--|------------------------|--|

| | | |
|-----------------------------------|---|-----------------------------------|
| Analysis ID: 05-3480-6474 | Endpoint: 96h Cell Density-without EDTA | CETIS Version: CETISv1.9.7 |
| Analyzed: 09 Oct-20 13:29 | Analysis: Parametric-Two Sample | Status Level: 1 |
| Edit Date: 09 Oct-20 13:27 | MD5 Hash: 86430C36875DAD0EECC9F363B900B79C | Editor ID: 001-771-848-3 |

| | | | |
|-----------------------|----------------|--|-------------|
| Data Transform | Alt Hyp | Comparison Result | PMSD |
| Untransformed | C > T | GBP-66-R-TE passed 96h cell density-without edta endpo | 7.44% |

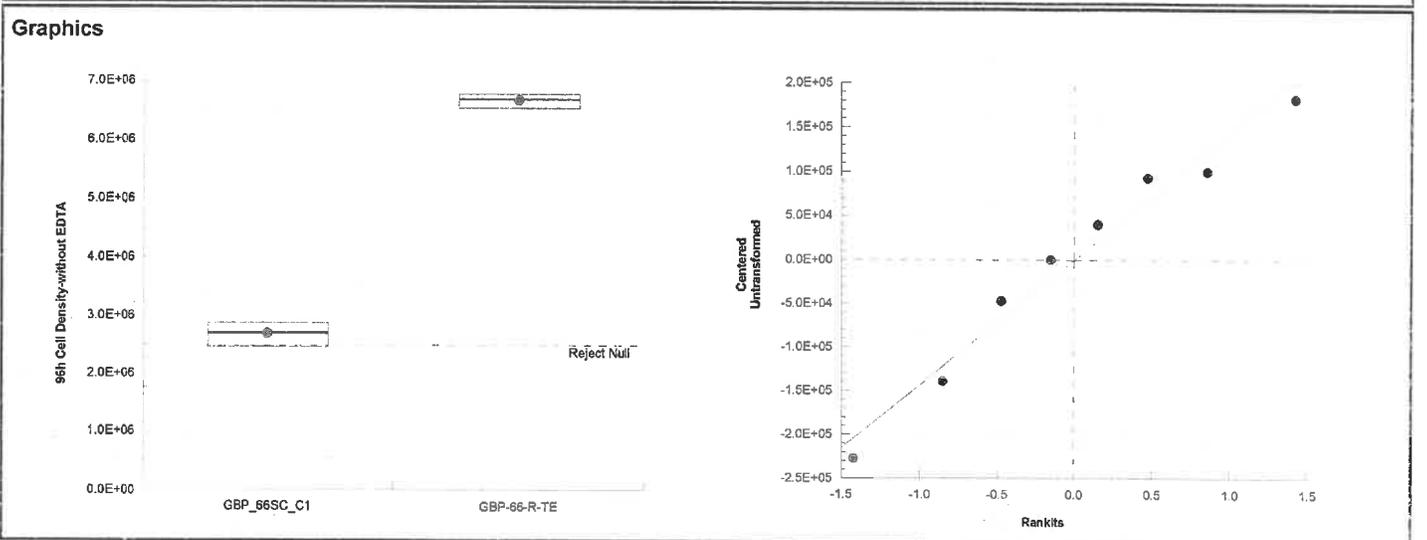
| Equal Variance t Two-Sample Test | | | | | | | | | |
|---|----|-------------|-----------|----------|-------|----|--------|---------|------------------------|
| Sample I | vs | Sample II | Test Stat | Critical | MSD | DF | P-Type | P-Value | Decision(α:5%) |
| Lab Water Control | | GBP-66-R-TE | -38.8 | 1.94 | 2E+05 | 6 | CDF | 1.0000 | Non-Significant Effect |

| Auxiliary Tests | | | | | | |
|------------------------|-------------------------|-----------|----------|---------|----------------|--|
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) | |
| Control Trend | Mann-Kendall Trend Test | | | 0.0435 | Indeterminate | |

| ANOVA Table | | | | | | |
|--------------------|-------------|-------------|----|--------|----------|--------------------|
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 3.188E+13 | 3.188E+13 | 1 | 1510 | <1.0E-05 | Significant Effect |
| Error | 1.271E+11 | 2.118E+10 | 6 | | | |
| Total | 3.201E+13 | | 7 | | | |

| ANOVA Assumptions Tests | | | | | | |
|--------------------------------|-------------------------------|-----------|----------|---------|---------------------|--|
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) | |
| Variance | Variance Ratio F Test | 3.07 | 47.5 | 0.3812 | Equal Variances | |
| Distribution | Shapiro-Wilk W Normality Test | 0.968 | 0.645 | 0.8835 | Normal Distribution | |

| 96h Cell Density-without EDTA Summary | | | | | | | | | | | | |
|--|------|-------|---------|---------|---------|---------|---------|---------|---------|-------|----------|--|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect | |
| GBP_66SC_C1 | LW | 4 | 2.69E+6 | 2.40E+6 | 2.97E+6 | 2.71E+6 | 2.46E+6 | 2.87E+6 | 8.94E+4 | 6.65% | 0.00% | |
| GBP-66-R-TE | | 4 | 6.68E+6 | 6.52E+6 | 6.84E+6 | 6.70E+6 | 6.54E+6 | 6.78E+6 | 5.10E+4 | 1.53% | -148.56% | |



Selenastrum capricornutum Algal Toxicity Test Data Sheet

Client: Summers Engineering Test Material: GBP-66-R-TE
 Test Start Date: 9/24/20 Test ID #: 89789 Project #: 22166
 Test End Date: 9/28/20 Control/Diluent: Type I w/o EDTA Shelf #: T6/R6/S1

| Treatment | Cell Density (cells/mL x 10 ⁶) | | | |
|--|---|-------|-------|--|
| | Rep A | Rep B | Rep C | Rep D |
| Lab Water Control | 2.87 | 2.78 | 2.64 | 2.46 |
| 100% | 6.54 | 6.72 | 6.68 | 6.78 |
| This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other issues of concern. | | | | Control Mean Density (cells/mL x 10 ⁶) |
| | | | | % CV |
| | | | | Date: |
| | | | | Time: |
| | | | | Signoff: |
| | | | | 9/28/20 |
| | | | | 1535 |
| | | | | KL |

Initial Count: 10,000 cells/mL Termination Time: 1535 Enumerating Scientist: KL

| Test Treatment | Temp (°C) | pH | D.O. (mg/L) | Conductivity (µS/cm) | Sign-Off |
|-------------------|-----------|------|-------------|------------------------------|--------------------------|
| Lab Water Control | 24.2 | 7.50 | 8.6 | 92 | Date: 9/24/20 |
| 100% | 24.2 | 8.00 | 9.6 | 1375 | Sample ID #: 57055 |
| | | | | | Test Solution Prep: R6 |
| | | | | | New WQ: R6 |
| | | | | | Innoculation Time: 1458 |
| Meter ID | 86A | PH25 | RD13 | EC13 | Innoculation Signoff: R6 |
| Lab Water Control | 24.8 | 8.11 | | | Date: 9/25/20 |
| 100% | 24.7 | 8.38 | | | WQ Time: 0934 |
| Meter ID | 86A | PH25 | | | WQ Signoff: MB |
| Lab Water Control | 24.5 | 8.42 | | | Date: 9/26/20 |
| 100% | 24.4 | 8.57 | | | WQ Time: 0947 |
| Meter ID | 86A | PH25 | | | WQ Signoff: CC |
| Lab Water Control | 24.5 | 9.36 | | | Date: 9/27/20 |
| 100% | 24.1 | 9.16 | | | WQ Time: 1038 |
| Meter ID | 86A | PH25 | | | WQ Signoff: Y |
| Lab Water Control | 24.1 | 9.58 | 12.2 | 91823 ^{1/2} 2/10/20 | Date: 9/28/20 |
| 100% | 23.9 | 9.75 | 15.8 | 1226 | WQ Time: 1032 |
| Meter ID | 86A | PH25 | RD11 | EC12 | WQ Signoff: R7L |

| Initial Test Conditions | Alkalinity | Hardness | Light Intensity (ftc) |
|-------------------------|------------|--------------------|-----------------------|
| | 206 | 305 305 | 389 |

R-6 9/24/20

Appendix C

Test Data and Summary of Statistics for the Evaluation of the Acute Toxicity of Grasslands Bypass Project Ambient Water to *Daphnia magna*



CETIS Summary Report

Report Date: 12 Oct-20 15:53 (p 1 of 1)
 Test Code/ID: GBP_66DM_C1 / 14-8648-1613

96-Hour Acute Daphnia Survival Test

Pacific EcoRisk

| | | |
|-------------------------------------|--|---|
| Batch ID: 09-6311-5281 | Test Type: Survival (96h) | Analyst: Stevi Vasquez |
| Start Date: 24 Sep-20 11:59 | Protocol: EPA-821-R-02-012 (2002) | Diluent: Not Applicable |
| Ending Date: 28 Sep-20 10:36 | Species: Daphnia magna | Brine: Not Applicable |
| Test Length: 95h | Taxon: Branchiopoda | Source: In-House Culture Age: 1 |

| | | |
|--------------------------------------|------------------------------------|--|
| Sample ID: 14-0297-8267 | Code: GBP_66DM_C1 | Project: 22166 |
| Sample Date: 24 Sep-20 11:59 | Material: Lab Water | Source: Grasslands Bypass Project |
| Receipt Date: 24 Sep-20 11:59 | CAS (PC): | Station: LABQA |
| Sample Age: --- (19.6 °C) | Client: Summers Engineering | |

| Sample Code | Sample ID | Sample Date | Receipt Date | Sample Age | Client Name | Project |
|--------------|--------------|-----------------|-----------------|---------------|---------------------|---------|
| GBP_66DM_C1 | 14-0297-8267 | 24 Sep-20 11:59 | 24 Sep-20 11:59 | --- (19.6 °C) | Summers Engineering | 22166 |
| GBP-66-D-TE | 03-6461-0397 | 23 Sep-20 10:10 | 23 Sep-20 15:10 | 26h (4.5 °C) | | |
| GBP-66-B3-TE | 20-6422-4298 | 23 Sep-20 09:43 | 23 Sep-20 15:10 | 26h (5.5 °C) | | |
| GBP-66-F-TE | 04-5047-9373 | 23 Sep-20 08:53 | 23 Sep-20 15:10 | 27h (4.8 °C) | | |
| GBP-66-R-TE | 03-2435-3198 | 23 Sep-20 11:09 | 23 Sep-20 15:10 | 25h (5.3 °C) | | |

| Sample Code | Material Type | Sample Source | Station Location | Lat/Long |
|--------------|---------------|---------------------------|------------------|----------|
| GBP_66DM_C1 | Lab Water | Grasslands Bypass Project | LABQA | |
| GBP-66-D-TE | Ambient Water | Grasslands Bypass Project | 541MER542 | |
| GBP-66-B3-TE | Ambient Water | Grasslands Bypass Project | 5415LDGCR | |
| GBP-66-F-TE | Ambient Water | Grasslands Bypass Project | 541MER531 | |
| GBP-66-R-TE | Ambient Water | Grasslands Bypass Project | 541SJRACI | |

| Single Comparison Summary | | | | | |
|---------------------------|-------------------|-----------------------------------|---------|---------------------------------------|---|
| Analysis ID | Endpoint | Comparison Method | P-Value | Comparison Result | S |
| 19-4678-2515 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-D-TE passed 96h survival rate | 1 |
| 04-6563-5162 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-B3-TE passed 96h survival rate | 1 |
| 02-7398-1126 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-F-TE passed 96h survival rate | 1 |
| 21-3552-4451 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-R-TE passed 96h survival rate | 1 |

| 96h Survival Rate Summary | | | | | | | | | | | |
|---------------------------|------|-------|-------|---------|---------|-------|-------|---------|---------|-----|---------|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| GBP_66DM_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-D-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-B3-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-F-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-R-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |

| 96h Survival Rate Detail | | | | | | MD5: 8BEE79FC4F42EB557EE7D432DFE762AB |
|--------------------------|------|-------|-------|-------|-------|---------------------------------------|
| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | |
| GBP_66DM_C1 | LW | 1.000 | 1.000 | 1.000 | 1.000 | |
| GBP-66-D-TE | | 1.000 | 1.000 | 1.000 | 1.000 | |
| GBP-66-B3-TE | | 1.000 | 1.000 | 1.000 | 1.000 | |
| GBP-66-F-TE | | 1.000 | 1.000 | 1.000 | 1.000 | |
| GBP-66-R-TE | | 1.000 | 1.000 | 1.000 | 1.000 | |

| 96h Survival Rate Binomials | | | | | |
|-----------------------------|------|-------|-------|-------|-------|
| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
| GBP_66DM_C1 | LW | 5/5 | 5/5 | 5/5 | 5/5 |
| GBP-66-D-TE | | 5/5 | 5/5 | 5/5 | 5/5 |
| GBP-66-B3-TE | | 5/5 | 5/5 | 5/5 | 5/5 |
| GBP-66-F-TE | | 5/5 | 5/5 | 5/5 | 4/4 |
| GBP-66-R-TE | | 5/5 | 5/5 | 5/5 | 5/5 |

CETIS Analytical Report

Report Date: 09 Oct-20 13:33 (p 1 of 4)
 Test Code/ID: GBP_66DM_C1 / 14-8648-1613

96-Hour Acute Daphnia Survival Test Pacific EcoRisk

| | | |
|----------------------------|--|----------------------------|
| Analysis ID: 19-4678-2515 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 |
| Analyzed: 09 Oct-20 13:32 | Analysis: Nonparametric-Two Sample | Status Level: 1 |
| Edit Date: 09 Oct-20 13:32 | MD5 Hash: 72DE7BCA4C64A7D3855A8476A7184F55 | Editor ID: 001-771-848-3 |

Wilcoxon Rank Sum Two-Sample Test

| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) |
|-------------------|----|-------------|-----------|----------|------|----|--------|---------|------------------------|
| Lab Water Control | | GBP-66-D-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect |

Auxiliary Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
|---------------|-------------------------|-----------|----------|---------|----------------|
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate |

ANOVA Table

| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
|---------|-------------|-------------|----|--------|---------|----------------|
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

ANOVA Assumptions Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
|--------------|-------------------------------|-----------|----------|---------|----------------|
| Variance | Variance Ratio F Test | | | | Indeterminate |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate |

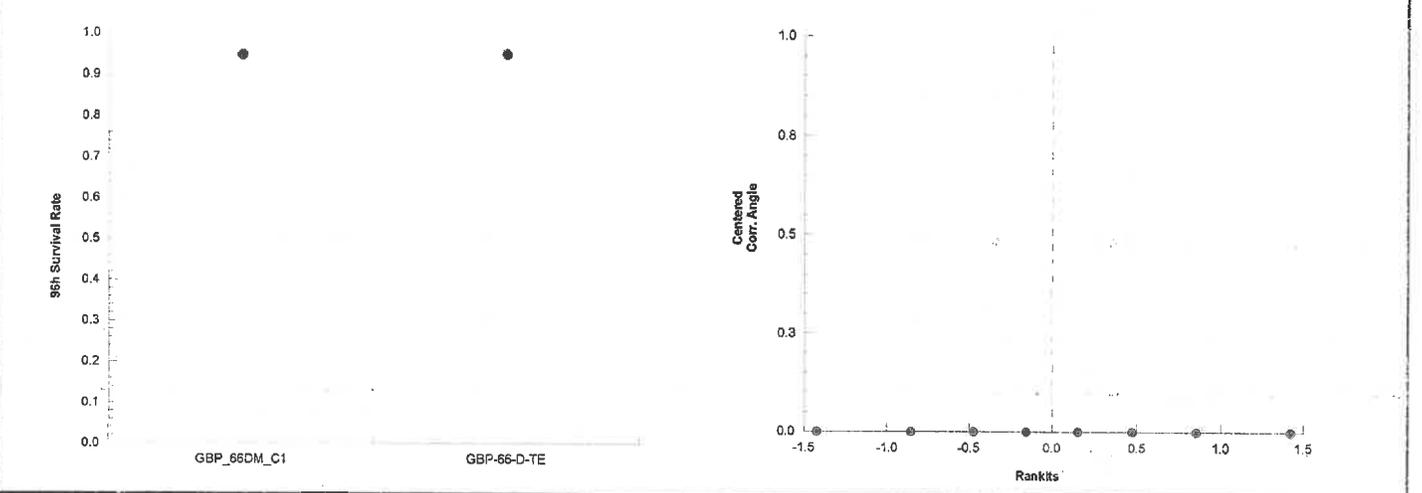
96h Survival Rate Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|-------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| GBP_66DM_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-D-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

Angular (Corrected) Transformed Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|-------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| GBP_66DM_C1 | LW | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% |
| GBP-66-D-TE | | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% |

Graphics



96 Hour Acute *Daphnia magna* Toxicity Test Data

| | | | |
|----------------|-------------------------------------|----------------------|------------------|
| Client: | <u>Summers Engineering</u> | Test Date: | <u>9/24/20</u> |
| Test Material: | <u>GBP-66-D-TE</u> | Control/Diluent: | <u>Mod EPAMH</u> |
| Test ID#: | <u>89790</u> Project # <u>22166</u> | Control Water Batch: | <u>414</u> |
| Randomization: | <u>4.6.2</u> | Organism Source: | <u>#658</u> |

| Treatment | Temp (°C) | pH | | D.O. | | Conductivity (µS/cm) | # Live Animals | | | | Sign-Off |
|-------------|-------------|-------------|-------------|-------------|-------------|--|----------------|---|---|---|---|
| | | New | Old | New | Old | | A | B | C | D | |
| Lab Control | 19.6 | 7.89 | | 8.9 | | 365 | 5 | 5 | 5 | 5 | Date: <u>9/24/20</u> Feeding Time: <u>0926</u> Feeding Signoff: <u>TA</u> |
| 100% | 19.3 | 7.87 | | 8.7 | | 1642 | 5 | 5 | 5 | 5 | Sample ID: <u>57052</u> Test Solution Prep: <u>JK</u> Initiation Time: <u>1159</u> Initiation Signoff: <u>JK</u> |
| Meter ID | <u>116A</u> | <u>PH25</u> | | <u>FD13</u> | | <u>EC13</u> | | | | | New WQ: <u>RIL</u> |
| Lab Control | 19.8 | 8.16 | 7.90 | 9.1 | 9.0 | 358 | 5 | 5 | 5 | 5 | Date: <u>9/25/20</u> Feeding Time: <u>0900</u> Feeding Signoff: <u>TIC</u> |
| 100% | 19.9 | 7.93 | 8.05 | 8.4 | 8.9 | 1703 <u>HP</u> <u>MP 9/25/20</u> | 5 | 5 | 5 | 5 | Sample ID: <u>57052</u> Test Solution Prep: <u>JR</u> New WQ: <u>JR</u> |
| Meter ID | <u>54A</u> | <u>PH26</u> | <u>PH25</u> | <u>FD14</u> | <u>RD11</u> | <u>ED1</u> | | | | | Count Time: <u>1000</u> Count Signoff: <u>MB</u> Old WQ: <u>TK</u> |
| Lab Control | 20.6 | 7.97 | 8.18 | 8.8 | 8.9 | 352 | 5 | 5 | 5 | 5 | Date: <u>9/26/20</u> Feeding Time: <u>0840</u> Feeding Signoff: <u>TF</u> |
| 100% | 20.5 | 7.88 | 8.29 | 8.8 | 8.5 | 1662 | 5 | 5 | 5 | 5 | Sample ID: <u>57052</u> Test Solution Prep: <u>TK</u> New WQ: <u>JA</u> |
| Meter ID | <u>991A</u> | <u>PH24</u> | <u>PH25</u> | <u>RD10</u> | <u>RD13</u> | <u>EC12</u> | | | | | Count Time: <u>1055</u> Count Signoff: <u>AK</u> Old WQ: <u>JR</u> |
| Lab Control | 19.5 | 7.94 | 7.79 | 8.8 | 8.3 | 353 <u>KL</u> 394 <u>JK 9/24/20</u> | 5 | 5 | 5 | 5 | Date: <u>9/27/20</u> Feeding Time: <u>0930</u> Feeding Signoff: <u>KL</u> |
| 100% | 19.6 | 7.94 | 8.28 | 9.3 | 8.4 | 1611 | 5 | 5 | 5 | 5 | Sample ID: <u>57052</u> Test Solution Prep: <u>JY</u> New WQ: <u>RIL</u> |
| Meter ID | <u>59A</u> | <u>PH24</u> | <u>PH24</u> | <u>RD13</u> | <u>RD13</u> | <u>EC13</u> | | | | | Count Time: <u>1105</u> Count Signoff: <u>KL</u> Old WQ: <u>RIL</u> |
| Lab Control | 20.0 | | 7.92 | | 8.5 | 357 | 5 | 5 | 5 | 5 | Date: <u>9/28/20</u> Termination Time: <u>1036</u> Termination Signoff: <u>JK</u> |
| 100% | 20.3 | | 8.34 | | 8.5 | 1686 | 5 | 5 | 5 | 5 | Old WQ: <u>RIL</u> |
| Meter ID | <u>116A</u> | | <u>PH26</u> | | <u>RD13</u> | <u>EC13</u> | | | | | |

CETIS Analytical Report

Report Date: 09 Oct-20 13:33 (p 2 of 4)
 Test Code/ID: GBP_66DM_C1 / 14-8648-1613

96-Hour Acute Daphnia Survival Test Pacific EcoRisk

| | | |
|----------------------------|--|----------------------------|
| Analysis ID: 04-6563-5162 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 |
| Analyzed: 09 Oct-20 13:32 | Analysis: Nonparametric-Two Sample | Status Level: 1 |
| Edit Date: 09 Oct-20 13:32 | MD5 Hash: 7A9CA4A59D8633FBED706735F4DBDA71 | Editor ID: 001-771-848-3 |

Wilcoxon Rank Sum Two-Sample Test

| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) |
|-------------------|----|--------------|-----------|----------|------|----|--------|---------|------------------------|
| Lab Water Control | | GBP-66-B3-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect |

Auxiliary Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
|---------------|-------------------------|-----------|----------|---------|----------------|
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate |

ANOVA Table

| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
|---------|-------------|-------------|----|--------|---------|----------------|
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

ANOVA Assumptions Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
|--------------|-------------------------------|-----------|----------|---------|----------------|
| Variance | Variance Ratio F Test | | | | Indeterminate |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate |

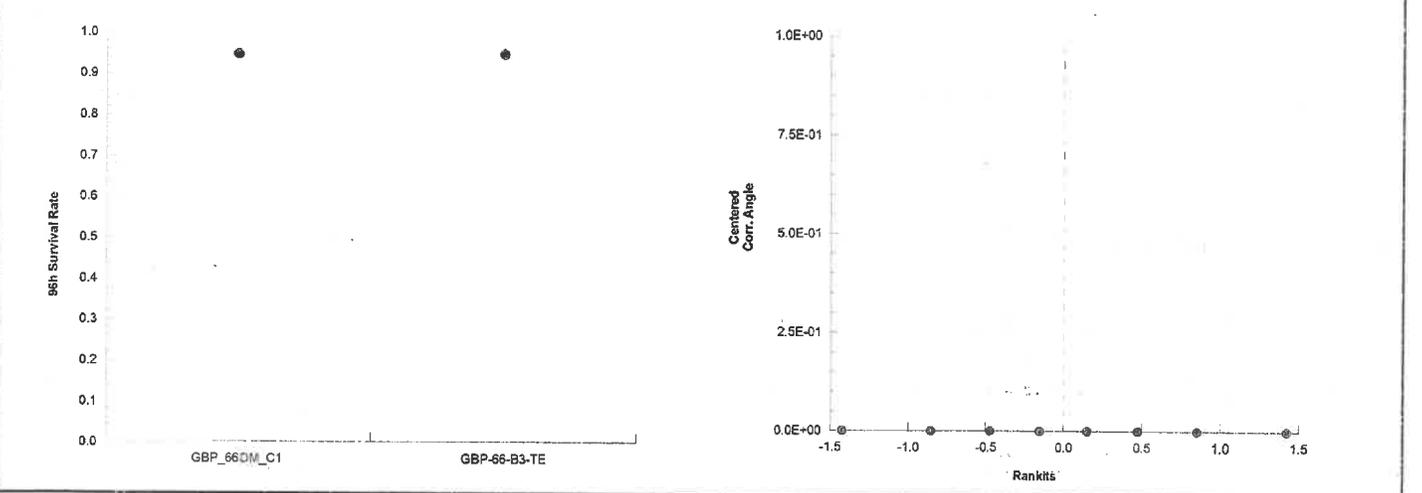
96h Survival Rate Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|--------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| GBP_66DM_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-B3-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

Angular (Corrected) Transformed Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|--------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| GBP_66DM_C1 | LW | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% |
| GBP-66-B3-TE | | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% |

Graphics



96 Hour Acute *Daphnia magna* Toxicity Test Data

Client: Summers Engineering
 Test Material: GBP-66-B3-TE
 Test ID#: 89791 Project #: 22166
 Randomization: 4.6.2

Test Date: 9/24/20
 Control/Diluent: Mod EPAMH
 Control Water Batch: 414
 Organism Source: #C58

| Treatment | Temp (°C) | pH | | D.O. | | Conductivity (µS/cm) | # Live Animals | | | | Sign-Off |
|-----------------|-----------|------|------|------|------|----------------------|----------------|---|---|---|--|
| | | New | Old | New | Old | | A | B | C | D | |
| Lab Control | 19.6 | 7.89 | | 8.9 | | 365 | 5 | 5 | 5 | 5 | Date: 9/24/20 Feeding Time: 1159 Feeding Signoff: TK |
| 100% | 20.3 | 8.08 | | 9.3 | | 2243 | 5 | 5 | 5 | 5 | Sample ID: 57053 Test Solution Prep: TK Initiation Time: 1159 Initiation Signoff: TK |
| Meter ID | 116A | PH75 | | RD13 | | EC13 | | | | | New WQ: RIL |
| Lab Control | 19.90 | 8.14 | 7.90 | 9.1 | 9.0 | 358 | 5 | 5 | 5 | 5 | Date: 9/25/20 Feeding Time: 0900 Feeding Signoff: TK |
| 100% | 20.0 | 8.06 | 8.36 | 9.6 | 8.7 | 2276 | 5 | 5 | 5 | 5 | Sample ID: 57053 Test Solution Prep: TK New WQ: TK Count Time: 1400 Count Signoff: MB |
| Meter ID | 5A54A | PH26 | PH25 | PD14 | RD11 | EC11 | | | | | Old WQ: TK |
| Lab Control | 20.4 | 7.97 | 8.18 | 8.8 | 8.9 | 352 | 5 | 5 | 5 | 5 | Date: 9/26/20 Feeding Time: 0840 Feeding Signoff: TK |
| 100% | 20.7 | 8.04 | 8.34 | 8.9 | 8.6 | 2228 | 5 | 5 | 5 | 5 | Sample ID: 57053 Test Solution Prep: TK New WQ: RIL Count Time: 1055 Count Signoff: TK |
| Meter ID | 99A | PH24 | PH25 | RD10 | RD13 | EC12 | | | | | Old WQ: TK |
| Lab Control | 19.5 | 7.94 | 7.79 | 8.8 | 8.3 | 353 | 5 | 5 | 5 | 5 | Date: 9/27/20 Feeding Time: 0830 Feeding Signoff: KL |
| 100% | 19.6 | 8.07 | 8.33 | 9.5 | 8.4 | 2184 | 5 | 5 | 5 | 5 | Sample ID: 57053 Test Solution Prep: TK New WQ: RIL Count Time: 1105 Count Signoff: KL |
| Meter ID | 57A | PH24 | PH24 | RD13 | RD13 | EC13 | | | | | Old WQ: RIL |
| Lab Control | 20.0 | | 7.92 | | 8.5 | 357 | 5 | 5 | 5 | 5 | Date: 9/28/20 Termination Time: 1036 Termination Signoff: TK |
| 100% | 20.4 | | 8.32 | | 8.6 | 2232 | 5 | 5 | 5 | 5 | Old WQ: RIL |
| Meter ID | 116A | | PH26 | | RD13 | EC13 | | | | | |

CETIS Analytical Report

Report Date: 09 Oct-20 13:33 (p 3 of 4)
 Test Code/ID: GBP_66DM_C1 / 14-8648-1613

| 96-Hour Acute Daphnia Survival Test | | | | | | | | | | Pacific EcoRisk | | |
|---|-------------------------------|---|-------------|----------|-----------|----------------------------|------------------------|-------------------------|------------------------|-----------------|---------|--|
| Analysis ID: 02-7398-1126 | | Endpoint: 96h Survival Rate | | | | CETIS Version: CETISv1.9.7 | | | | | | |
| Analyzed: 09 Oct-20 13:32 | | Analysis: Nonparametric-Two Sample | | | | Status Level: 1 | | | | | | |
| Edit Date: 09 Oct-20 13:32 | | MD5 Hash: 6B07C006AB6D05862E1D6170F1775EE8 | | | | Editor ID: 001-771-848-3 | | | | | | |
| Data Transform | Alt Hyp | Comparison Result | | | | | | | PMSD | | | |
| Angular (Corrected) | C > T | GBP-66-F-TE passed 96h survival rate endpoint | | | | | | | 5.59% | | | |
| Wilcoxon Rank Sum Two-Sample Test | | | | | | | | | | | | |
| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) | | | |
| Lab Water Control | | GBP-66-F-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect | | | |
| Auxiliary Tests | | | | | | | | | | | | |
| Attribute | Test | | | | Test Stat | Critical | P-Value | Decision(α:5%) | | | | |
| Control Trend | Mann-Kendall Trend Test | | | | | | 1.0000 | Indeterminate | | | | |
| ANOVA Table | | | | | | | | | | | | |
| Source | Sum Squares | | Mean Square | DF | F Stat | P-Value | Decision(α:5%) | | | | | |
| Between | 9.225E-05 | | 9.225E-05 | 1 | 1 | 0.3559 | Non-Significant Effect | | | | | |
| Error | 0.0005535 | | 9.225E-05 | 6 | | | | | | | | |
| Total | 0.0006458 | | | 7 | | | | | | | | |
| ANOVA Assumptions Tests | | | | | | | | | | | | |
| Attribute | Test | | | | Test Stat | Critical | P-Value | Decision(α:1%) | | | | |
| Variance | Variance Ratio F Test | | | | | | | Indeterminate | | | | |
| Distribution | Shapiro-Wilk W Normality Test | | | | 0.706 | 0.645 | 0.0027 | Non-Normal Distribution | | | | |
| 96h Survival Rate Summary | | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect | |
| GBP_66DM_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% | |
| GBP-66-F-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% | |
| Angular (Corrected) Transformed Summary | | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect | |
| GBP_66DM_C1 | LW | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% | |
| GBP-66-F-TE | | 4 | 1.340 | 1.320 | 1.360 | 1.350 | 1.320 | 1.350 | 0.007 | 1.01% | 0.50% | |
| Graphics | | | | | | | | | | | | |
| | | | | | | | | | | | | |

96 Hour Acute *Daphnia magna* Toxicity Test Data

| | | | |
|----------------|-------------------------------------|----------------------|------------------|
| Client: | <u>Summers Engineering</u> | Test Date: | <u>9/24/20</u> |
| Test Material: | <u>GBP-66-F-TE</u> | Control/Diluent: | <u>Mod EPAMH</u> |
| Test ID#: | <u>89792</u> Project # <u>22166</u> | Control Water Batch: | <u>414</u> |
| Randomization: | <u>46.2</u> | Organism Source: | <u>#658</u> |

| Treatment | Temp (°C) | pH | | D.O. | | Conductivity (µS/cm) | # Live Animals | | | | Sign-Off |
|-------------|-------------|-------------|-------------|-------------|-------------|----------------------------------|----------------|---|---|---|--|
| | | New | Old | New | Old | | A | B | C | D | |
| Lab Control | 19.6 | 7.89 | | 8.9 | | 365 | 5 | 5 | 5 | 5 | Date: <u>9/24/20</u> Feeding Time: <u>0926</u> Feeding Signoff: <u>TA</u> |
| 100% | 19.3 | 7.46 | | 8.1 | | 1103 | 5 | 5 | 5 | 5 | Sample ID: <u>57054</u> Test Solution Prep: <u>JK</u> Initiation Time: <u>1159</u> Initiation Signoff: <u>JK</u> |
| Meter ID | <u>116A</u> | <u>PH25</u> | | <u>DD13</u> | | <u>EC13</u> | | | | | New WQ: <u>RIL</u> |
| Lab Control | 19.9 | 8.16 | 7.90 | 9.1 | 9.0 | 358 | 5 | 5 | 5 | 5 | Date: <u>9/25/20</u> Feeding Time: <u>0900</u> Feeding Signoff: <u>TK</u> |
| 100% | 20.2 | 7.41 | 8.40 | 9.1 | 8.7 | 1121 | 5 | 5 | 5 | 5 | Sample ID: <u>57054</u> Test Solution Prep: <u>SR</u> New WQ: <u>APR</u> Count Time: <u>1500</u> Count Signoff: <u>APR</u> |
| Meter ID | <u>54A</u> | <u>PH26</u> | <u>PH25</u> | <u>RD14</u> | <u>RD11</u> | <u>EC11</u> | | | | | Old WQ: <u>TK</u> |
| Lab Control | 20.6 | 7.97 | 8.18 | 8.8 | 8.9 | 352 | 5 | 5 | 5 | 5 | Date: <u>9/26/20</u> Feeding Time: <u>0840</u> Feeding Signoff: <u>TC</u> |
| 100% | 20.5 | 7.71 | 8.35 | 10.4 | 8.9 | 1116 | 5 | 5 | 5 | 4 | Sample ID: <u>57054</u> Test Solution Prep: <u>TK</u> New WQ: <u>TK</u> Count Time: <u>1055</u> Count Signoff: <u>APR</u> |
| Meter ID | <u>99A</u> | <u>PH24</u> | <u>PH25</u> | <u>RD10</u> | <u>RD13</u> | <u>EC12</u> | | | | | Old WQ: <u>SR</u> |
| Lab Control | 19.5 | 7.94 | 7.79 | 8.8 | 8.3 | 353 ^{at 9/27/20} 349 | 5 | 5 | 5 | 5 | Date: <u>9/27/20</u> Feeding Time: <u>0830</u> Feeding Signoff: <u>KL</u> |
| 100% | 19.7 | 7.61 | 8.35 | 8.5 | 8.5 | 1078 | 5 | 5 | 5 | 4 | Sample ID: <u>57054</u> Test Solution Prep: <u>JK</u> New WQ: <u>RIL</u> Count Time: <u>1105</u> Count Signoff: <u>KL</u> |
| Meter ID | <u>59A</u> | <u>PH24</u> | <u>PH24</u> | <u>RD13</u> | <u>RD13</u> | <u>EC13</u> | | | | | Old WQ: <u>RIL</u> |
| Lab Control | 20.0 | | 7.92 | | | 357 | 5 | 5 | 5 | 5 | Date: <u>9/28/20</u> Termination Time: <u>1036</u> Termination Signoff: <u>JK</u> |
| 100% | 20.4 | | 8.34 | | | 1131 | 5 | 5 | 5 | 4 | Old WQ: <u>RIL</u> |
| Meter ID | <u>116A</u> | | <u>PH26</u> | | | <u>EC13</u> | | | | | |

* on 9/25/20, one organism in Site F - Rep D was dried to the side of the test chamber. Removed from statistics.

CETIS Analytical Report

Report Date: 09 Oct-20 13:33 (p 4 of 4)
 Test Code/ID: GBP_66DM_C1 / 14-8648-1613

96-Hour Acute Daphnia Survival Test Pacific EcoRisk

| | | |
|----------------------------|--|----------------------------|
| Analysis ID: 21-3552-4451 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 |
| Analyzed: 09 Oct-20 13:33 | Analysis: Nonparametric-Two Sample | Status Level: 1 |
| Edit Date: 09 Oct-20 13:32 | MD5 Hash: 3166FBFED386B00BDB067EE420E31F7F | Editor ID: 001-771-848-3 |

Wilcoxon Rank Sum Two-Sample Test

| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) |
|-------------------|----|-------------|-----------|----------|------|----|--------|---------|------------------------|
| Lab Water Control | | GBP-66-R-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect |

Auxiliary Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
|---------------|-------------------------|-----------|----------|---------|----------------|
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate |

ANOVA Table

| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
|---------|-------------|-------------|----|--------|---------|----------------|
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

ANOVA Assumptions Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
|--------------|-------------------------------|-----------|----------|---------|----------------|
| Variance | Variance Ratio F Test | | | | Indeterminate |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate |

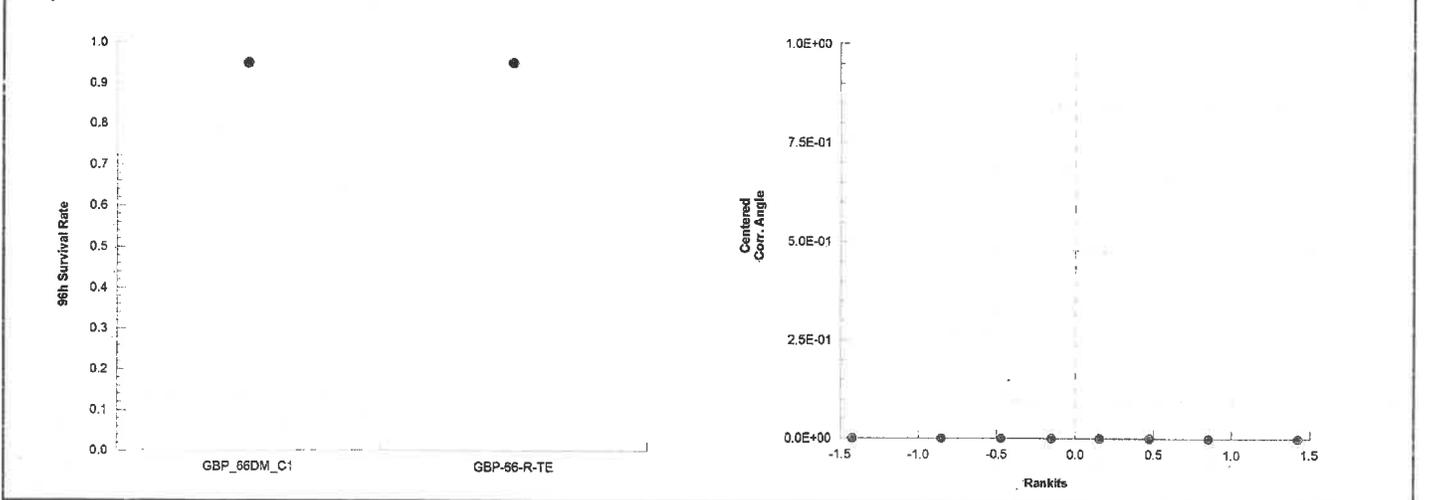
96h Survival Rate Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|-------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| GBP_66DM_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-R-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

Angular (Corrected) Transformed Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|-------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| GBP_66DM_C1 | LW | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% |
| GBP-66-R-TE | | 4 | 1.350 | 1.340 | 1.350 | 1.350 | 1.350 | 1.350 | 0.000 | 0.00% | 0.00% |

Graphics



96 Hour Acute *Daphnia magna* Toxicity Test Data

| | | | |
|----------------|-------------------------------------|----------------------|------------------|
| Client: | <u>Summers Engineering</u> | Test Date: | <u>9/24/20</u> |
| Test Material: | <u>GBP-66-R-TE</u> | Control/Diluent: | <u>Mod EPAMH</u> |
| Test ID#: | <u>89793</u> Project # <u>22166</u> | Control Water Batch: | <u>414</u> |
| Randomization: | <u>4.6.2</u> | Organism Source: | <u>#658</u> |

| Treatment | Temp (°C) | pH | | D.O. | | Conductivity (µS/cm) | # Live Animals | | | | Sign-Off |
|-------------|-----------|------|------|------|------|----------------------|----------------|---|---|---|---|
| | | New | Old | New | Old | | A | B | C | D | |
| Lab Control | 19.6 | 7.89 | | 8.9 | | 365 | 5 | 5 | 5 | 5 | Date: 9/24/20 Feeding Time: 0926 Feeding Signoff: TA |
| 100% | 19.7 | 8.00 | | 9.3 | | 1291 | 5 | 5 | 5 | 5 | Sample ID: 57055 Test Solution Prep: TA Initiation Time: 1159 Initiation Signoff: TA |
| Meter ID | 116A | PH25 | | RD13 | | EC13 | | | | | New WQ: RIL |
| Lab Control | 19.20 | 8.16 | 7.90 | 9.1 | 9.0 | 358 | 5 | 5 | 5 | 5 | Date: 9/25/20 Feeding Time: 0900 Feeding Signoff: TK |
| 100% | 20.2 | 8.00 | 8.38 | 9.9 | 8.7 | 1328 | 5 | 5 | 5 | 5 | Sample ID: 57055 Test Solution Prep: JR New WQ: TK |
| Meter ID | 54A | PH26 | PH25 | PD14 | RD11 | EC11 | | | | | Count Time: 1000 Count Signoff: TK Old WQ: TK |
| Lab Control | 20.6 | 7.97 | 8.18 | 8.8 | 8.9 | 352 | 5 | 5 | 5 | 5 | Date: 9/26/20 Feeding Time: 0840 Feeding Signoff: TF |
| 100% | 20.5 | 8.04 | 8.32 | 9.6 | 8.7 | 1302 | 5 | 5 | 5 | 5 | Sample ID: 57055 Test Solution Prep: TK New WQ: RO |
| Meter ID | 99A | PH24 | PH25 | RD10 | RD13 | EC12 | | | | | Count Time: 1055 Count Signoff: TF Old WQ: JR |
| Lab Control | 19.5 | 7.94 | 7.79 | 8.8 | 8.3 | 399 353 | 5 | 5 | 5 | 5 | Date: 9/27/20 Feeding Time: 0830 Feeding Signoff: KL |
| 100% | 19.5 | 8.03 | 8.28 | 9.3 | 8.3 | 1252 | 5 | 5 | 5 | 5 | Sample ID: 57055 Test Solution Prep: TA New WQ: RIL |
| Meter ID | 59A | PH24 | PH24 | RD15 | RD13 | EC13 | | | | | Count Time: 1105 Count Signoff: KL Old WQ: RIL |
| Lab Control | 20.0 | | 7.92 | | 8.5 | 357 | 5 | 5 | 5 | 5 | Date: 9/28/20 Termination Time: 1636 Termination Signoff: TA |
| 100% | 20.3 | | 8.35 | | 8.6 | 1320 | 5 | 5 | 5 | 5 | Old WQ: RIL |
| Meter ID | 116A | | PH26 | | RD13 | EC13 | | | | | |

Appendix D

Test Data and Summary of Statistics for the Evaluation of the Acute Toxicity of Grasslands Bypass Project Ambient Water to Fathead Minnows



CETIS Summary Report

Report Date: 12 Oct-20 15:59 (p 1 of 1)

Test Code/ID: GBP_66PP_C1 / 04-1882-4349

Acute Fish Survival Test

Pacific EcoRisk

| | | |
|-------------------------------------|--|--|
| Batch ID: 21-4413-5196 | Test Type: Survival (96h) | Analyst: Stevi Vasquez |
| Start Date: 24 Sep-20 12:10 | Protocol: EPA-821-R-02-012 (2002) | Diluent: Not Applicable |
| Ending Date: 28 Sep-20 10:15 | Species: Pimephales promelas | Brine: Not Applicable |
| Test Length: 94h | Taxon: Actinopterygii | Source: Aquatox, AR Age: 8 |

| | | |
|--------------------------------------|------------------------------------|--|
| Sample ID: 14-1796-3902 | Code: GBP_66PP_C1 | Project: 22166 |
| Sample Date: 24 Sep-20 12:10 | Material: Lab Water | Source: Grasslands Bypass Project |
| Receipt Date: 24 Sep-20 12:10 | CAS (PC): | Station: LABQA |
| Sample Age: --- (20.5 °C) | Client: Summers Engineering | |

| Sample Code | Sample ID | Sample Date | Receipt Date | Sample Age | Client Name | Project |
|--------------|--------------|-----------------|-----------------|---------------|---------------------|---------|
| GBP_66PP_C1 | 14-1796-3902 | 24 Sep-20 12:10 | 24 Sep-20 12:10 | --- (20.5 °C) | Summers Engineering | 22166 |
| GBP-66-D-TE | 03-6461-0397 | 23 Sep-20 10:10 | 23 Sep-20 15:10 | 26h (4.5 °C) | | |
| GBP-66-B3-TE | 20-6422-4298 | 23 Sep-20 09:43 | 23 Sep-20 15:10 | 26h (5.5 °C) | | |
| GBP-66-F-TE | 04-5047-9373 | 23 Sep-20 08:53 | 23 Sep-20 15:10 | 27h (4.8 °C) | | |
| GBP-66-R-TE | 03-2435-3198 | 23 Sep-20 11:09 | 23 Sep-20 15:10 | 25h (5.3 °C) | | |

| Sample Code | Material Type | Sample Source | Station Location | Lat/Long |
|--------------|---------------|---------------------------|------------------|----------|
| GBP_66PP_C1 | Lab Water | Grasslands Bypass Project | LABQA | |
| GBP-66-D-TE | Ambient Water | Grasslands Bypass Project | 541MER542 | |
| GBP-66-B3-TE | Ambient Water | Grasslands Bypass Project | 5415LDGCR | |
| GBP-66-F-TE | Ambient Water | Grasslands Bypass Project | 541MER531 | |
| GBP-66-R-TE | Ambient Water | Grasslands Bypass Project | 541SJRACI | |

Single Comparison Summary

| Analysis ID | Endpoint | Comparison Method | P-Value | Comparison Result | S |
|--------------|-------------------|-----------------------------------|---------|---------------------------------------|---|
| 03-7850-4116 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-D-TE passed 96h survival rate | 1 |
| 12-0473-5043 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-B3-TE passed 96h survival rate | 1 |
| 12-4503-5474 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-F-TE passed 96h survival rate | 1 |
| 15-5403-8996 | 96h Survival Rate | Wilcoxon Rank Sum Two-Sample Test | 1.0000 | GBP-66-R-TE passed 96h survival rate | 1 |

96h Survival Rate Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|--------------|------|-------|-------|---------|---------|-------|-------|---------|---------|-----|---------|
| GBP_66PP_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-D-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-B3-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-F-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| GBP-66-R-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |

96h Survival Rate Detail

MD5: 8BEE79FC4F42EB557EE7D432DFE762AB

| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|--------------|------|-------|-------|-------|-------|
| GBP_66PP_C1 | LW | 1.000 | 1.000 | 1.000 | 1.000 |
| GBP-66-D-TE | | 1.000 | 1.000 | 1.000 | 1.000 |
| GBP-66-B3-TE | | 1.000 | 1.000 | 1.000 | 1.000 |
| GBP-66-F-TE | | 1.000 | 1.000 | 1.000 | 1.000 |
| GBP-66-R-TE | | 1.000 | 1.000 | 1.000 | 1.000 |

96h Survival Rate Binomials

| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|--------------|------|-------|-------|-------|-------|
| GBP_66PP_C1 | LW | 10/10 | 10/10 | 10/10 | 10/10 |
| GBP-66-D-TE | | 10/10 | 10/10 | 10/10 | 10/10 |
| GBP-66-B3-TE | | 10/10 | 10/10 | 10/10 | 10/10 |
| GBP-66-F-TE | | 10/10 | 10/10 | 10/10 | 10/10 |
| GBP-66-R-TE | | 10/10 | 10/10 | 10/10 | 10/10 |

CETIS Analytical Report

Report Date: 09 Oct-20 13:36 (p 1 of 4)
 Test Code/ID: GBP_66PP_C1 / 04-1882-4349

| | | | | | |
|---------------------------------|--|----------------------------|------------------------|--|--|
| Acute Fish Survival Test | | | Pacific EcoRisk | | |
| Analysis ID: 03-7850-4116 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 | | | |
| Analyzed: 09 Oct-20 13:36 | Analysis: Nonparametric-Two Sample | Status Level: 1 | | | |
| Edit Date: 09 Oct-20 13:35 | MD5 Hash: 72DE7BCA4C64A7D3855A8476A7184F55 | Editor ID: 001-771-848-3 | | | |

| | | | | | | | | | |
|--|----|-------------|-----------|----------|------|----|--------|---------|------------------------|
| Wilcoxon Rank Sum Two-Sample Test | | | | | | | | | |
| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) |
| Lab Water Control | | GBP-66-D-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect |

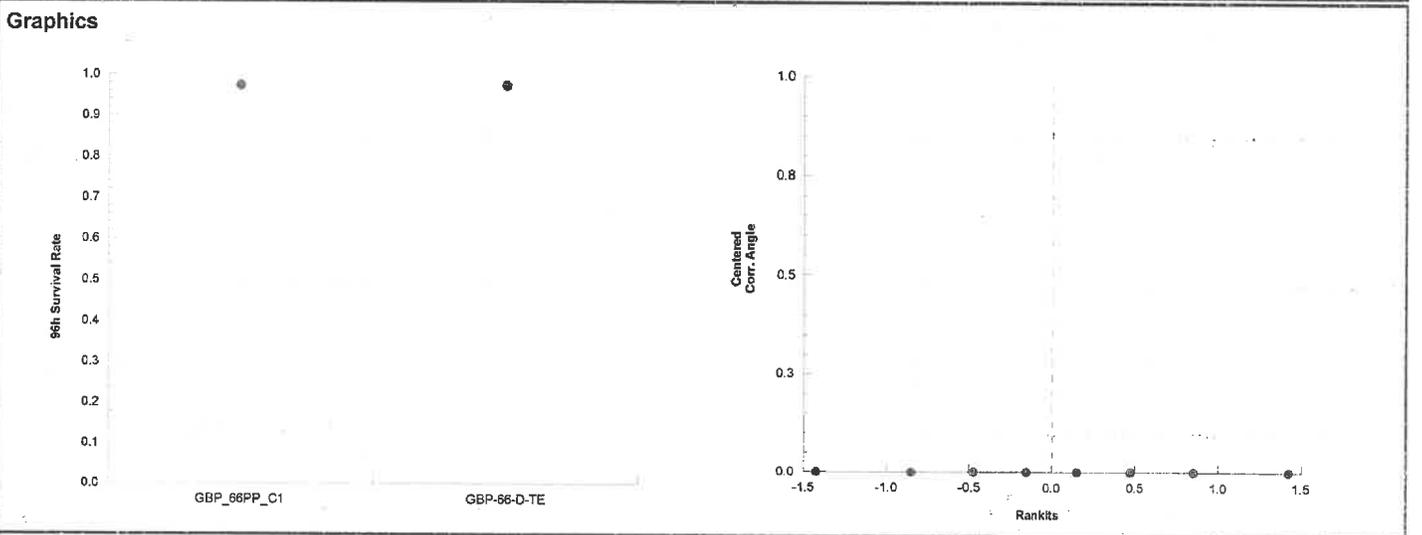
| | | | | | | |
|------------------------|-------------------------|-----------|----------|---------|----------------|--|
| Auxiliary Tests | | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) | |
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate | |

| | | | | | | |
|--------------------|-------------|-------------|----|--------|---------|----------------|
| ANOVA Table | | | | | | |
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

| | | | | | | |
|--------------------------------|-------------------------------|-----------|----------|---------|----------------|--|
| ANOVA Assumptions Tests | | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) | |
| Variance | Variance Ratio F Test | | | | Indeterminate | |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate | |

| | | | | | | | | | | | |
|----------------------------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| 96h Survival Rate Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-D-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

| | | | | | | | | | | | |
|--|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| Angular (Corrected) Transformed Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |
| GBP-66-D-TE | | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |



96 Hour Acute Fathead Minnow Toxicity Test

Client: Summers Engineering
 Test Material: GBP-66-D-TE
 Test ID#: 89794 Project # 22166
 Test Date: 9/24/20 Randomization: 5.4.3
 Feeding To Time: 0845 Initials: TF

Organism Log #: 12333 Age: 8d
 Organism Supplier: Aquatox
 Control: EPAMH
 Control Water Batch: 2295
 Feeding T46-hr Time: 0840 Initials: TF

| Treatment | Temp (°C) | pH | | D.O. (mg/L) | | Conductivity (µS/cm) | | # Live Organisms | | | | SIGN-OFF |
|-----------|-----------|------|------|-------------|------|-------------------------------------|------|------------------|-------|-------|-------|--|
| | | new | old | new | old | new | old | Rep A | Rep B | Rep C | Rep D | |
| Control | 20.5 | 7.65 | | 8.4 | | 351* | | 10 | 10 | 10 | 10 | Date: 9/24/20 Sample ID: 57052 Test Solution Prep: MK |
| 100% | 20.2 | 7.91 | | 8.5 | | 1662 | | 10 | 10 | 10 | 10 | New WQ: RIL Initiation Time: 1210 Initiation Signoff: ET |
| Meter ID | 113A | PH25 | | RD13 | | EC13 | | | | | | |
| Control | 19.4 | 7.81 | 7.97 | 8.4 | 8.3 | 305 | 299 | 10 | 10 | 10 | 10 | Date: 9/25/20 Sample ID: 57052 Test Solution Prep: RIL |
| 100% | 19.9 | 7.84 | 8.14 | 8.5 | 7.9 | 1676 | 1691 | 10 | 10 | 10 | 10 | New WQ: TF Renewal Time: 1235 Renewal Signoff: TK |
| Meter ID | 113A | PH26 | PH24 | RD14 | RD13 | EC11 | EC13 | | | | | Old WQ: JR |
| Control | 19.2 | 7.85 | 7.80 | 8.3 | 8.3 | 334 | 304 | 10 | 10 | 10 | 10 | Date: 9/26/20 Sample ID: 57052 Test Solution Prep: TK |
| 100% | 19.6 | 7.82 | 8.08 | 8.6 | 7.6 | 1651 | 1648 | 10 | 10 | 10 | 10 | New WQ: RIL Renewal Time: 1035 Renewal Signoff: RIL |
| Meter ID | 112A | PH24 | PH25 | RD10 | RD13 | EC12 | EC13 | | | | | Old WQ: JR |
| Control | 19.9 | 7.81 | 7.80 | 8.6 | 8.1 | 307 362 MK 9/24/20 | 346 | 10 | 10 | 10 | 10 | Date: 9/27/20 Sample ID: 57052 Test Solution Prep: MK |
| 100% | 20.0 | 7.82 | 8.20 | 9.9 | 8.1 | 1619 | 1729 | 10 | 10 | 10 | 10 | New WQ: RIL Renewal Time: 1034 Renewal Signoff: MK |
| Meter ID | 116A | PH24 | PH24 | RD13 | RD13 | EC13 | EC13 | | | | | Old WQ: RIL |
| Control | 19.8 | | 7.74 | | 8.2 | | 342 | 10 | 10 | 10 | 10 | Date: 9/28/20 Termination Time: 1013 Termination Signoff: MK |
| 100% | 19.5 | | 8.30 | | 8.2 | | 1727 | 10 | 10 | 10 | 10 | Old WQ: RIL |
| Meter ID | 116A | | PH26 | | RD13 | | EC13 | | | | | |

* Initial conductivity measurement considered anomalous. Day 1 "Old" conductivity measurement suggests initial control in range at initiation
 JVV 10/9/20

CETIS Analytical Report

Report Date: 09 Oct-20 13:36 (p 2 of 4)
 Test Code/ID: GBP_66PP_C1 / 04-1882-4349

| | | | | | |
|---------------------------------|--|----------------------------|------------------------|--|--|
| Acute Fish Survival Test | | | Pacific EcoRisk | | |
| Analysis ID: 12-0473-5043 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 | | | |
| Analyzed: 09 Oct-20 13:36 | Analysis: Nonparametric-Two Sample | Status Level: 1 | | | |
| Edit Date: 09 Oct-20 13:35 | MD5 Hash: 7A9CA4A59D8633FBED706735F4DBDA71 | Editor ID: 001-771-848-3 | | | |

| | | | | | | | | | | |
|--|-----------|------------------|------------------|-----------------|-------------|-----------|---------------|----------------|------------------------|--|
| Wilcoxon Rank Sum Two-Sample Test | | | | | | | | | | |
| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) | |
| Lab Water Control | | GBP-66-B3-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect | |

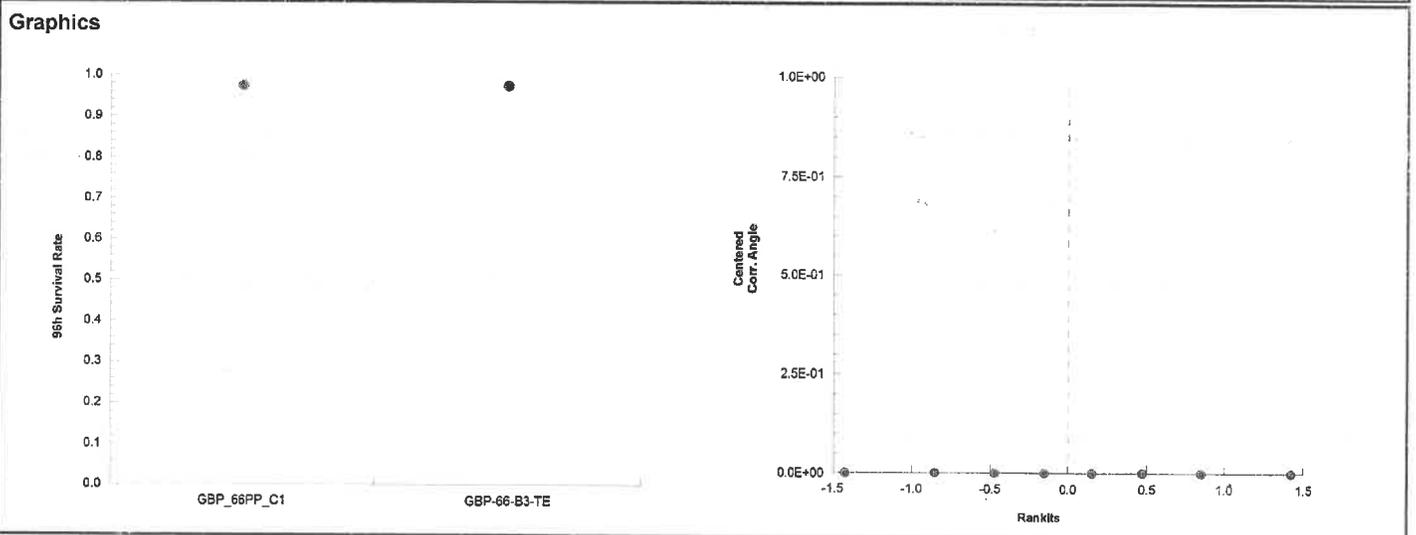
| | | | | | |
|------------------------|-------------------------|------------------|-----------------|----------------|-----------------------|
| Auxiliary Tests | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate |

| | | | | | | |
|--------------------|--------------------|--------------------|-----------|---------------|----------------|-----------------------|
| ANOVA Table | | | | | | |
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

| | | | | | |
|--------------------------------|-------------------------------|------------------|-----------------|----------------|-----------------------|
| ANOVA Assumptions Tests | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
| Variance | Variance Ratio F Test | | | | Indeterminate |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate |

| | | | | | | | | | | | |
|----------------------------------|-------------|--------------|-------------|----------------|----------------|---------------|------------|------------|----------------|------------|----------------|
| 96h Survival Rate Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-B3-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

| | | | | | | | | | | | |
|--|-------------|--------------|-------------|----------------|----------------|---------------|------------|------------|----------------|------------|----------------|
| Angular (Corrected) Transformed Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |
| GBP-66-B3-TE | | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |



96 Hour Acute Fathead Minnow Toxicity Test

Client: Summers Engineering Organism Log #: 12333 Age: 8d
 Test Material: GBP-66-B3-TE Organism Supplier: Aquatex
 Test ID#: 89795 Project #: 22166 Control: EPAMH
 Test Date: 9/24/20 Randomization: 5.4.3 Control Water Batch: 2295
 Feeding To Time: 0845 Initials: YF Feeding T46-hr Time: 0840 Initials: TF

| Treatment | Temp (°C) | pH | | D.O. (mg/L) | | Conductivity (µS/cm) | | # Live Organisms | | | | SIGN-OFF |
|-----------|-----------|------|------|-------------|------|-----------------------|------|------------------|-------|-------|-------|--|
| | | new | old | new | old | new | old | Rep A | Rep B | Rep C | Rep D | |
| Control | 20.5 | 7.65 | | 8.4 | | 351* | | 10 | 10 | 10 | 10 | Date: 9/24/20 Sample ID: 57053 Test Solution Prep: YF |
| 100% | 20.5 | 8.06 | | 9.3 | | 2238 | | 10 | 10 | 10 | 10 | New WQ: RIL Initiation Time: 1210 Initiation Signoff: ET |
| Meter ID | 113A | PH25 | | RD13 | | EC13 | | | | | | |
| Control | 19.4 | 7.81 | 7.97 | 8.4 | 8.3 | 305 | 299 | 10 | 10 | 10 | 10 | Date: 9/25/20 Sample ID: 57053 Test Solution Prep: RIL |
| 100% | 20.2 | 8.05 | 8.29 | 9.0 | 8.3 | 2289 | 2237 | 10 | 10 | 10 | 10 | New WQ: YF Renewal Time: 1235 Renewal Signoff: TK |
| Meter ID | 113A | PH24 | PH24 | RD14 | RD13 | EC11 | EC13 | | | | | Old WQ: JR |
| Control | 19.2 | 7.85 | 7.80 | 8.3 | 8.3 | 334 | 306 | 10 | 10 | 10 | 10 | Date: 9/26/20 Sample ID: 57053 Test Solution Prep: TK |
| 100% | 20.1 | 8.02 | 8.24 | 9.3 | 7.9 | 2245 | 2247 | 10 | 10 | 10 | 10 | New WQ: RIL Renewal Time: 1035 Renewal Signoff: RIL |
| Meter ID | 117A | PH24 | PH25 | RD10 | RD13 | EC12 | EC13 | | | | | Old WQ: YF |
| Control | 19.9 | 7.81 | 7.80 | 8.6 | 8.1 | 307 362 9/24/20 | 346 | 10 | 10 | 10 | 10 | Date: 9/27/20 Sample ID: 57053 Test Solution Prep: YF |
| 100% | 20.2 | 8.02 | 8.24 | 9.7 | 8.1 | 2262 | 2285 | 10 | 10 | 10 | 10 | New WQ: RIL Renewal Time: 1034 Renewal Signoff: YF |
| Meter ID | 116A | PH24 | PH24 | RD13 | RD13 | EC13 | EC13 | | | | | Old WQ: RIL |
| Control | 19.8 | | 7.74 | | 8.2 | | 342 | 10 | 10 | 10 | 10 | Date: 9/28/20 Termination Time: 1015 Termination Signoff: YF |
| 100% | 19.5 | | 8.25 | | 8.2 | | 2382 | 10 | 10 | 10 | 10 | Old WQ: RIL |
| Meter ID | 116A | | PH24 | | RD13 | | EC13 | | | | | |

*Initial conductivity measurement considered anomalous. Day 1 "old" conductivity measurement suggests control in range at initiation.

CETIS Analytical Report

Report Date: 09 Oct-20 13:36 (p 3 of 4)
 Test Code/ID: GBP_66PP_C1 / 04-1882-4349

| | | | | | |
|---------------------------------|--|----------------------------|------------------------|--|--|
| Acute Fish Survival Test | | | Pacific EcoRisk | | |
| Analysis ID: 12-4503-5474 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 | | | |
| Analyzed: 09 Oct-20 13:36 | Analysis: Nonparametric-Two Sample | Status Level: 1 | | | |
| Edit Date: 09 Oct-20 13:35 | MD5 Hash: 6B07C006AB6D05862E1D6170F1775EE8 | Editor ID: 001-771-848-3 | | | |

| Wilcoxon Rank Sum Two-Sample Test | | | | | | | | | |
|--|----|-------------|-----------|----------|------|----|--------|---------|------------------------|
| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) |
| Lab Water Control | | GBP-66-F-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect |

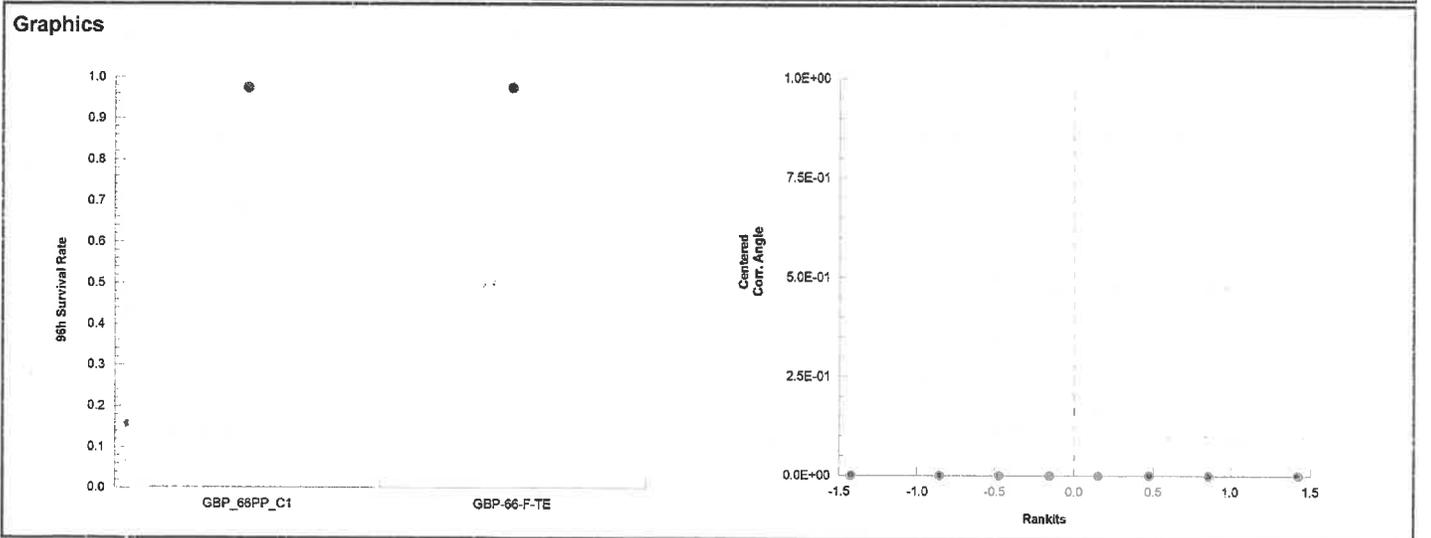
| Auxiliary Tests | | | | | |
|------------------------|-------------------------|-----------|----------|---------|----------------|
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate |

| ANOVA Table | | | | | | |
|--------------------|-------------|-------------|----|--------|---------|----------------|
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

| ANOVA Assumptions Tests | | | | | |
|--------------------------------|-------------------------------|-----------|----------|---------|----------------|
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
| Variance | Variance Ratio F Test | | | | Indeterminate |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate |

| 96h Survival Rate Summary | | | | | | | | | | | |
|----------------------------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-F-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

| Angular (Corrected) Transformed Summary | | | | | | | | | | | |
|--|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |
| GBP-66-F-TE | | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |



96 Hour Acute Fathead Minnow Toxicity Test

Client: Summers Engineering Organism Log #: 12333 Age: 8d
 Test Material: GBP-66-F-TE Organism Supplier: Aquatox
 Test ID#: 89796 Project #: 22166 Control: EPAMH
 Test Date: 9/24/20 Randomization: S.Y.3 Control Water Batch: 2295
 Feeding To Time: 0845 Initials: TF Feeding T46-hr Time: 0840 Initials: TF

| Treatment | Temp (°C) | pH | | D.O. (mg/L) | | Conductivity (µS/cm) | | # Live Organisms | | | | SIGN-OFF |
|-----------|-----------|------|------|-------------|------|-----------------------|------|------------------|-------|-------|-------|--|
| | | new | old | new | old | new | old | Rep A | Rep B | Rep C | Rep D | |
| Control | 20.5 | 7.65 | | 8.4 | | 351* | | 10 | 10 | 10 | 10 | Date: 9/24/20 Sample ID: 57054 Test Solution Prep: JK |
| 100% | 20.3 | 7.45 | | 7.8 | | 1112 | | 10 | 10 | 10 | 10 | New WQ: RIL Initiation Time: 1210 Initiation Signoff: EF |
| Meter ID | 113A | PH25 | | RD13 | | EC13 | | | | | | |
| Control | 19.4 | 7.81 | 7.97 | 8.4 | 8.3 | 305 | 299 | 10 | 10 | 10 | 10 | Date: 9/25/20 Sample ID: 57054 Test Solution Prep: JK |
| 100% | 19.8 | 7.28 | 8.25 | 9.3 | 8.5 | 1130 | 1139 | 10 | 10 | 10 | 10 | New WQ: JK Renewal Time: 1235 Renewal Signoff: TK |
| Meter ID | 113A | PH24 | PH24 | PD14 | RD13 | EC11 | EC13 | | | | | Old WQ: JR |
| Control | 19.2 | 7.85 | 7.80 | 8.3 | 8.3 | 334 | 300 | 10 | 10 | 10 | 10 | Date: 9/26/20 Sample ID: 57054 Test Solution Prep: TK |
| 100% | 19.7 | 7.56 | 8.24 | 8.8 | 8.0 | 1130 | 1150 | 10 | 10 | 10 | 10 | New WQ: 170 Renewal Time: 1035 Renewal Signoff: RQ |
| Meter ID | 112A | PH24 | PH25 | R910 | PD13 | EC12 | EC13 | | | | | Old WQ: APC |
| Control | 19.9 | 7.81 | 7.80 | 8.6 | 8.1 | 307 362 9/27/20 | 346 | 10 | 10 | 10 | 10 | Date: 9/27/20 Sample ID: 57054 Test Solution Prep: JK |
| 100% | 20.1 | 7.47 | 8.20 | 8.6 | 7.7 | 1104 | 1168 | 10 | 10 | 10 | 10 | New WQ: RIL Renewal Time: 1034 Renewal Signoff: JK |
| Meter ID | 116A | PH24 | PH24 | RD13 | RD13 | EC13 | EC13 | | | | | Old WQ: RIL |
| Control | 19.8 | | 7.74 | | 8.2 | | 342 | 10 | 10 | 10 | 10 | Date: 9/28/20 Termination Time: 1015 Termination Signoff: JK |
| 100% | 20.1 | | 8.22 | | 8.1 | | 1161 | 10 | 10 | 10 | 10 | Old WQ: RIL |
| Meter ID | 116A | | PH24 | | RD13 | | EC13 | | | | | |

*Initial conductivity measurement considered anomalous. Day 1 "old" conductivity measurement suggests control in range at initiation.
 48/72

CETIS Analytical Report

Report Date: 09 Oct-20 13:36 (p 4 of 4)
 Test Code/ID: GBP_66PP_C1 / 04-1882-4349

| | | | | | |
|---------------------------------|--|----------------------------|------------------------|--|--|
| Acute Fish Survival Test | | | Pacific EcoRisk | | |
| Analysis ID: 15-5403-8996 | Endpoint: 96h Survival Rate | CETIS Version: CETISv1.9.7 | | | |
| Analyzed: 09 Oct-20 13:36 | Analysis: Nonparametric-Two Sample | Status Level: 1 | | | |
| Edit Date: 09 Oct-20 13:35 | MD5 Hash: 3166FBFED386B00BDB067EE420E31F7F | Editor ID: 001-771-848-3 | | | |

| | | | | | | | | | |
|--|----|-------------|-----------|----------|------|----|--------|---------|------------------------|
| Wilcoxon Rank Sum Two-Sample Test | | | | | | | | | |
| Sample I | vs | Sample II | Test Stat | Critical | Ties | DF | P-Type | P-Value | Decision(α:5%) |
| Lab Water Control | | GBP-66-R-TE | 18 | --- | 1 | 6 | Exact | 1.0000 | Non-Significant Effect |

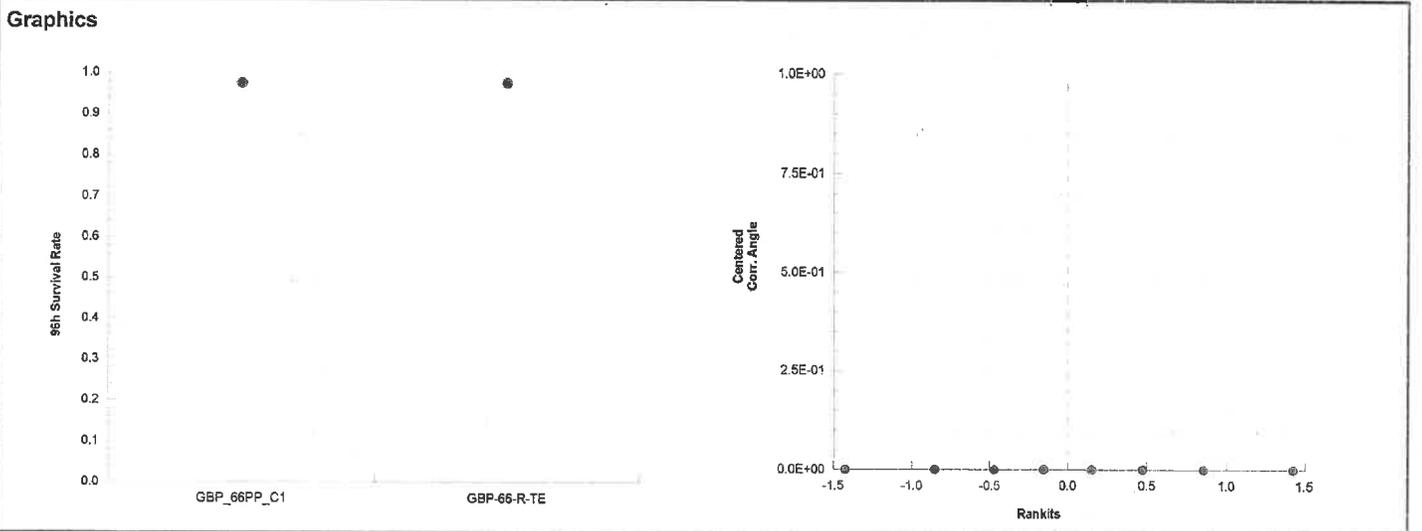
| | | | | | |
|------------------------|-------------------------|-----------|----------|---------|----------------|
| Auxiliary Tests | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:5%) |
| Control Trend | Mann-Kendall Trend Test | | | 1.0000 | Indeterminate |

| | | | | | | |
|--------------------|-------------|-------------|----|--------|---------|----------------|
| ANOVA Table | | | | | | |
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 0 | 0 | 1 | | | Indeterminate |
| Error | 0 | 0 | 6 | | | |
| Total | 0 | | 7 | | | |

| | | | | | |
|--------------------------------|-------------------------------|-----------|----------|---------|----------------|
| ANOVA Assumptions Tests | | | | | |
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
| Variance | Variance Ratio F Test | | | | Indeterminate |
| Distribution | Shapiro-Wilk W Normality Test | | | | Indeterminate |

| | | | | | | | | | | | |
|----------------------------------|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| 96h Survival Rate Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |
| GBP-66-R-TE | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.00% | 0.00% |

| | | | | | | | | | | | |
|--|------|-------|-------|---------|---------|--------|-------|-------|---------|-------|---------|
| Angular (Corrected) Transformed Summary | | | | | | | | | | | |
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66PP_C1 | LW | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |
| GBP-66-R-TE | | 4 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 1.410 | 0.000 | 0.00% | 0.00% |



96 Hour Acute Fathead Minnow Toxicity Test

Client: Summers Engineering Organism Log #: 12333 Age: 8d
 Test Material: GBP-66-R-TE Organism Supplier: Aquator
 Test ID#: 89797 Project #: 22166 Control: EPAMH
 Test Date: 9/24/20 Randomization: 5.4.3 Control Water Batch: 2295
 Feeding To Time: 0845 Initials: TF Feeding T46-hr Time: 0840 Initials: TF

| Treatment | Temp (°C) | pH | | D.O. (mg/L) | | Conductivity (µS/cm) | | # Live Organisms | | | | SIGN-OFF |
|-----------|-----------|------|------|-------------|------|-----------------------|------|------------------|-------|-------|-------|--|
| | | new | old | new | old | new | old | Rep A | Rep B | Rep C | Rep D | |
| Control | 20.5 | 7.65 | | 8.4 | | 351* | | 10 | 10 | 10 | 10 | Date: 9/24/20 Sample ID: 57055 Test Solution Prep: PA |
| 100% | 20.4 | 8.06 | | 9.3 | | 1298 | | 10 | 10 | 10 | 10 | New WQ: RIL Initiation Time: 1210 Initiation Signoff: ET |
| Meter ID | 1134 | PH25 | | RD13 | | EC13 | | | | | | |
| Control | 19.4 | 7.81 | 7.97 | 8.4 | 8.3 | 305 | 299 | 10 | 10 | 10 | 10 | Date: 9/25/20 Sample ID: 57055 Test Solution Prep: RA |
| 100% | 19.9 | 8.06 | 8.20 | 10.3 | 8.4 | 1344 | 1311 | 10 | 10 | 10 | 10 | New WQ: A Renewal Time: 1235 Renewal Signoff: TK |
| Meter ID | 113A | PH26 | PH24 | RD14 | RD13 | EC11 | EC13 | | | | | Old WQ: JR |
| Control | 19.2 | 7.85 | 7.80 | 8.3 | 8.3 | 334 | 306 | 10 | 10 | 10 | 10 | Date: 9/26/20 Sample ID: 57055 Test Solution Prep: TK |
| 100% | 20.0 | 8.03 | 8.19 | 9.4 | 7.9 | 1307 | 1305 | 10 | 10 | 10 | 10 | New WQ: RO Renewal Time: 1037 Renewal Signoff: RA |
| Meter ID | 112A | PH24 | PH25 | RD16 | RD13 | EC12 | EC13 | | | | | Old WQ: AEF |
| Control | 19.9 | 7.81 | 7.80 | 8.6 | 8.1 | 307 362 9/24/20 | 346 | 10 | 10 | 10 | 10 | Date: 9/27/20 Sample ID: 57055 Test Solution Prep: A |
| 100% | 20.1 | 7.96 | 8.20 | 9.5 | 8.2 | 1283 | 1328 | 10 | 10 | 10 | 10 | New WQ: RIL Renewal Time: 1034 Renewal Signoff: PA |
| Meter ID | 116A | PH24 | PH24 | RD13 | RD13 | EC13 | EC13 | | | | | Old WQ: RIL |
| Control | 19.8 | | 7.74 | | 8.2 | | 342 | 10 | 10 | 10 | 10 | Date: 9/28/20 Termination Time: 1015 Termination Signoff: PA |
| 100% | 19.6 | | 8.26 | | 8.2 | | 1338 | 10 | 10 | 10 | 10 | Old WQ: RIL |
| Meter ID | 116A | | PH26 | | RD13 | | EC13 | | | | | |

* Initial conductivity measurement considered anomalous. Day 1 "old" conductivity measurement suggests control in range at initiation.

Appendix E

Test Data and Summary of Statistics for the Evaluation of the Toxicity of the Grasslands Bypass Project Ambient Sediment to *Hyalella azteca*



CETIS Summary Report

Report Date: 12 Oct-20 16:01 (p 1 of 1)
 Test Code/ID: GBP_66HA_C1 / 13-5426-2904

Hyalella 10-d Survival and Growth Sediment Test

Pacific EcoRisk

| | | |
|------------------------------|-------------------------------------|--|
| Batch ID: 03-8405-6314 | Test Type: Survival-Growth (10 day) | Analyst: Stevi Vasquez |
| Start Date: 26 Sep-20 10:59 | Protocol: EPA/600/R-99/064 (2000) | Diluent: Not Applicable |
| Ending Date: 06 Oct-20 11:00 | Species: Hyalella azteca | Brine: Not Applicable |
| Test Length: 10d 0h | Taxon: Malacostraca | Source: Aquatic Biosystems, CO Age: 11 |

| | | |
|-------------------------------|-----------------------------|-----------------------------------|
| Sample ID: 19-8773-7227 | Code: GBP_66HA_C1 | Project: 22166 |
| Sample Date: 26 Sep-20 10:59 | Material: Control Sediment | Source: Grasslands Bypass Project |
| Receipt Date: 26 Sep-20 10:59 | CAS (PC): | Station: LABQA |
| Sample Age: --- (22.2 °C) | Client: Summers Engineering | |

| Sample Code | Sample ID | Sample Date | Receipt Date | Sample Age | Client Name | Project |
|-------------|--------------|-----------------|-----------------|---------------|---------------------|---------|
| GBP_66HA_C1 | 19-8773-7227 | 26 Sep-20 10:59 | 26 Sep-20 10:59 | --- (22.2 °C) | Summers Engineering | 22166 |
| GBP-66-D-SE | 01-0502-7939 | 23 Sep-20 10:32 | 23 Sep-20 15:10 | 72h (0.6 °C) | | |

| Sample Code | Material Type | Sample Source | Station Location | Lat/Long |
|-------------|------------------|---------------------------|------------------|----------|
| GBP_66HA_C1 | Control Sediment | Grasslands Bypass Project | LABQA | |
| GBP-66-D-SE | Sediment | Grasslands Bypass Project | 541MER542 | |

Single Comparison Summary

| Analysis ID | Endpoint | Comparison Method | P-Value | Comparison Result | S |
|--------------|---------------|------------------------------------|---------|----------------------------------|---|
| 03-6869-0325 | Survival Rate | Unequal Variance t Two-Sample Test | 0.0028 | GBP-66-D-SE failed survival rate | 1 |

Survival Rate Summary

| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|-------------|------|-------|-------|---------|---------|-------|-------|---------|---------|--------|---------|
| GBP_66HA_C1 | CS | 8 | 0.962 | 0.919 | 1.010 | 0.900 | 1.000 | 0.018 | 0.052 | 5.38% | 0.00% |
| GBP-66-D-SE | | 8 | 0.688 | 0.501 | 0.874 | 0.400 | 0.900 | 0.079 | 0.223 | 32.47% | 28.57% |

Survival Rate Detail

MD5: 323F682E0D4FED855B6ED46E9F2DFC76

| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 |
|-------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| GBP_66HA_C1 | CS | 0.900 | 1.000 | 0.900 | 1.000 | 1.000 | 0.900 | 1.000 | 1.000 |
| GBP-66-D-SE | | 0.900 | 0.900 | 0.700 | 0.400 | 0.500 | 0.400 | 0.900 | 0.800 |

Survival Rate Binomials

| Sample | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 |
|-------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| GBP_66HA_C1 | CS | 9/10 | 10/10 | 9/10 | 10/10 | 10/10 | 9/10 | 10/10 | 10/10 |
| GBP-66-D-SE | | 9/10 | 9/10 | 7/10 | 4/10 | 5/10 | 4/10 | 9/10 | 8/10 |

CETIS Analytical Report

Report Date: 07 Oct-20 14:48 (p 1 of 1)
 Test Code/ID: GBP_66HA_C1 / 13-5426-2904

Hyalella 10-d Survival and Growth Sediment Test Pacific EcoRisk

| | | |
|----------------------------|---|----------------------------|
| Analysis ID: 03-6869-0325 | Endpoint: Survival Rate | CETIS Version: CETISv1.9.7 |
| Analyzed: 07 Oct-20 14:48 | Analysis: Parametric-Two Sample | Status Level: 1 |
| Edit Date: 07 Oct-20 14:48 | MD5 Hash: 605D21D87C5C770E1EF2DCC87AA07C9 | Editor ID: 001-771-848-3 |

| Data Transform | Alt Hyp | Comparison Result | PMSD |
|---------------------|---------|---|--------|
| Angular (Corrected) | C > T | GBP-66-D-SE failed survival rate endpoint | 11.43% |

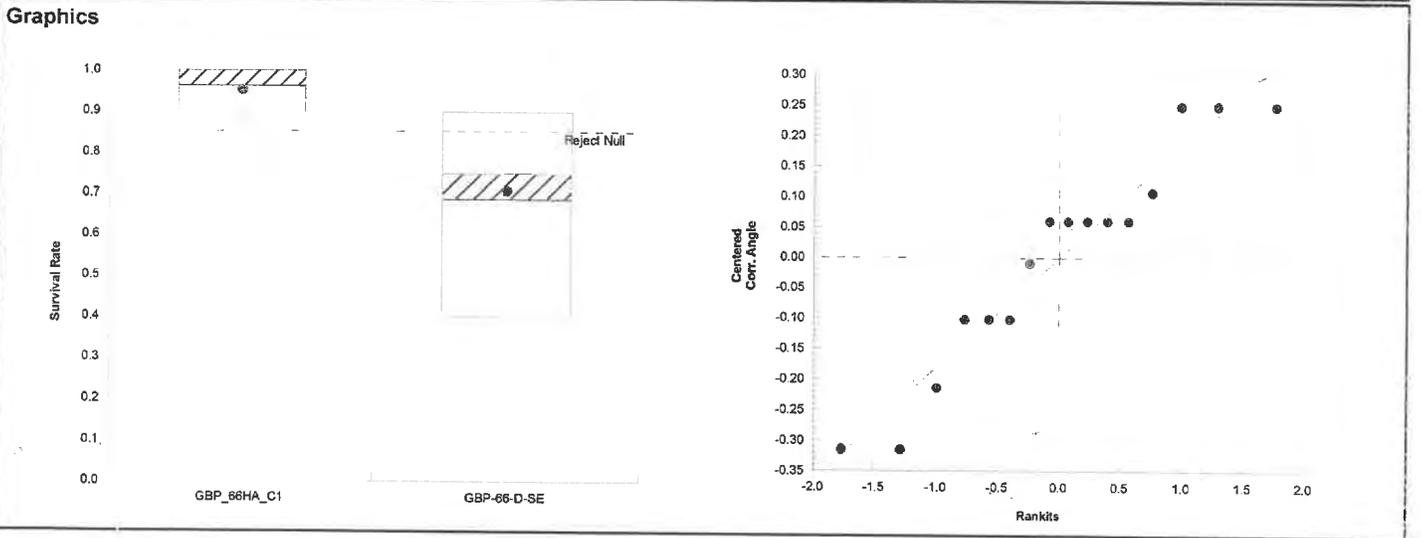
| Unequal Variance t Two-Sample Test | | | | | | | | | |
|------------------------------------|----|--------------|-----------|----------|-------|----|--------|---------|--------------------|
| Sample I | vs | Sample II | Test Stat | Critical | MSD | DF | P-Type | P-Value | Decision(α:5%) |
| Control Sed | | GBP-66-D-SE* | 3.74 | 1.86 | 0.174 | 8 | CDF | 0.0028 | Significant Effect |

| ANOVA Table | | | | | | |
|-------------|-------------|-------------|----|--------|---------|--------------------|
| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
| Between | 0.492432 | 0.492432 | 1 | 14 | 0.0022 | Significant Effect |
| Error | 0.492287 | 0.0351634 | 14 | | | |
| Total | 0.984719 | | 15 | | | |

| ANOVA Assumptions Tests | | | | | |
|-------------------------|-------------------------------|-----------|----------|---------|---------------------|
| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
| Variance | Variance Ratio F Test | 8.89 | 8.89 | 0.0100 | Unequal Variances |
| Distribution | Shapiro-Wilk W Normality Test | 0.919 | 0.841 | 0.1607 | Normal Distribution |

| Survival Rate Summary | | | | | | | | | | | |
|-----------------------|------|-------|-------|---------|---------|--------|-------|-------|---------|--------|---------|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66HA_C1 | CS | 8 | 0.962 | 0.919 | 1.000 | 1.000 | 0.900 | 1.000 | 0.018 | 5.38% | 0.00% |
| GBP-66-D-SE | | 8 | 0.687 | 0.501 | 0.874 | 0.750 | 0.400 | 0.900 | 0.079 | 32.47% | 28.57% |

| Angular (Corrected) Transformed Summary | | | | | | | | | | | |
|---|------|-------|-------|---------|---------|--------|-------|-------|---------|--------|---------|
| Sample | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
| GBP_66HA_C1 | CS | 8 | 1.350 | 1.280 | 1.420 | 1.410 | 1.250 | 1.410 | 0.030 | 6.24% | 0.00% |
| GBP-66-D-SE | | 8 | 1.000 | 0.790 | 1.210 | 1.050 | 0.685 | 1.250 | 0.089 | 25.14% | 25.97% |



10-Day *Hyalella azteca* Sediment Toxicity Test Data

Client: Summers Engineering
 Project#: 22166
 Test ID#: 89798

Org. Supplier: ABS
 Org. Log #: 12337
 Org. Age/Size: 10-11d

| Day | Date | Test Material | | | | Water Quality Measurements | | | Sign-off: |
|-----|---------|------------------|------|----------------|-------|----------------------------|--------------------|----------|---|
| | | Control Sediment | | | | Parameter | Value | Meter ID | |
| 0 | 9/26/20 | # Live Organisms | | | | pH | 7.58 | PH24 | AM Change: <u>JR</u> |
| | | A 10 | B 10 | C 10 | D 10 | D.O. (mg/L) | 8.3 | RD10 | WQ: <u>JR</u> |
| | | E 10 | F 10 | G 10 | H 10 | Conductivity (µS/cm) | 387 | EC12 | Initiation Time: <u>1059</u> |
| | | | | | | Alkalinity (mg/L) | 47.7 | DR3900 | Initiation Counts: <u>TF</u> |
| | | | | | | Hardness (mg/L) | 136 | DT11 | Confirmation Counts: <u>TIC</u> |
| | | | | Ammonia (mg/L) | 41.06 | DR3800 | PM Feed: <u>AF</u> | | |
| | | | | Temp. (°C) | 22.2 | 107A | | | |
| 1 | 9/27/20 | # of Mortalities | | | | Old D.O. (mg/L) | 7.1 | RD10 | AM Change: <u>BT</u> WQ: <u>BT</u> |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 7.7 | RD10 | Mortality Counts: <u>BT</u> |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 22.1 | 111A | PM Change: <u>BT</u> PM Feed: <u>BT</u> |
| | | | | | | Old D.O. (mg/L) | 6.7 | RD11 | AM Change: <u>BT</u> WQ: <u>BT</u> |
| | | | | | | New D.O. (mg/L) | 7.6 | RD11 | Mortality Counts: <u>BT</u> |
| 2 | 9/28/20 | # of Mortalities | | | | Temp. (°C) | 22.1 | 111A | PM Change: <u>BT</u> PM Feed: <u>BT</u> |
| | | A 0 | B 0 | C 0 | D 0 | Old D.O. (mg/L) | 5.3 | RD13 | AM Change: <u>BT</u> WQ: <u>BT</u> |
| | | E 0 | F 0 | G 0 | H 0 | New D.O. (mg/L) | 7.7 | RD13 | Mortality Counts: <u>BT</u> |
| | | | | | | Temp. (°C) | 22.3 | 111A | PM Change: <u>BT</u> PM Feed: <u>BT</u> |
| | | | | | | Old D.O. (mg/L) | 6.7 | RD14 | AM Change: <u>BT</u> WQ: <u>BT</u> |
| 3 | 9/29/20 | # of Mortalities | | | | New D.O. (mg/L) | 7.9 | RD14 | Mortality Counts: <u>BT</u> |
| | | A 0 | B 0 | C 0 | D 0 | Temp. (°C) | 22.0 | 111A | PM Change: <u>BT</u> PM Feed: <u>BT</u> |
| | | E 0 | F 0 | G 0 | H 0 | Old D.O. (mg/L) | 6.4 | RD13 | AM Change: <u>BT</u> WQ: <u>BT</u> |
| | | | | | | New D.O. (mg/L) | 7.9 | RD13 | Mortality Counts: <u>BT</u> |
| | | | | | | Temp. (°C) | 22.6 | 111A | PM Change: <u>CC</u> PM Feed: <u>CC</u> |
| 4 | 9/30/20 | # of Mortalities | | | | Old D.O. (mg/L) | 6.3 | RD11 | AM Change: <u>CC</u> WQ: <u>CC</u> |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 7.5 | RD11 | Mortality Counts: <u>CC</u> |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 22.8 | 111X | PM Change: <u>CC</u> PM Feed: <u>CC</u> |
| | | | | | | Old D.O. (mg/L) | 5.8 | RD11 | AM Change: <u>ET</u> WQ: <u>ET</u> |
| | | | | | | New D.O. (mg/L) | 7.7 | RD11 | Mortality Counts: <u>ET</u> |
| 5 | 10/1/20 | # of Mortalities | | | | Temp. (°C) | 22.5 | 111A | PM Change: <u>ET</u> PM Feed: <u>ET</u> |
| | | A 0 | B 0 | C 0 | D 0 | Old D.O. (mg/L) | 5.1 | RD10 | AM Change: <u>HD</u> WQ: <u>HD</u> |
| | | E 0 | F 0 | G 0 | H 0 | New D.O. (mg/L) | 7.8 | RD10 | Mortality Counts: <u>HD</u> |
| | | | | | | Temp. (°C) | 23.2 | 81A | PM Change: <u>HD</u> PM Feed: <u>HD</u> |
| | | | | | | Old D.O. (mg/L) | 7.0 | RD14 | AM Change: <u>DKB</u> WQ: <u>DKB</u> |
| 6 | 10/2/20 | # of Mortalities | | | | New D.O. (mg/L) | 8.1 | RD14 | Mortality Counts: <u>DKB</u> |
| | | A 0 | B 0 | C 0 | D 0 | Temp. (°C) | 23.2 | 111A | PM Change: <u>DKB</u> PM Feed: <u>DKB</u> |
| | | E 0 | F 0 | G 0 | H 0 | pH | 7.36 | PH25 | WQ: <u>CP</u> |
| | | | | | | D.O. (mg/L) | 7.1 | RD10 | Termination Counts: <u>KB</u> |
| | | | | | | Conductivity (µS/cm) | 435 | EC11 | Termination Time: <u>1100</u> |
| 7 | 10/3/20 | # of Mortalities | | | | Alkalinity (mg/L) | 36.6 | DR3900 | |
| | | A 0 | B 0 | C 0 | D 0 | Hardness (mg/L) | 129 | DT39 | |
| | | E 0 | F 0 | G 0 | H 0 | Ammonia (mg/L) | 41.00 | DR3800 | |
| | | | | | | Temp. (°C) | 22.7 | 111X | |
| | | | | | | | | | |
| 8 | 10/4/20 | # of Mortalities | | | | | | | |
| | | A 0 | B 0 | C 0 | D 0 | | | | |
| | | E 0 | F 0 | G 0 | H 0 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 9 | 10/5/20 | # of Mortalities | | | | | | | |
| | | A 0 | B 0 | C 0 | D 0 | | | | |
| | | E 0 | F 0 | G 0 | H 0 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 10 | 10/6/20 | # Alive | | | | | | | |
| | | A 9 | B 10 | C 9 | D 10 | | | | |
| | | E 10 | F 9 | G 10 | H 10 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

10-Day *Hyaella azteca* Sediment Toxicity Test Data

Client: Summers Engineering
 Project#: 22166
 Test ID#: 89798

Org. Supplier: ABS
 Org. Log #: 12337
 Org. Age/Size: 10-11 days

| Day | Date | Test Material | | | | Water Quality Measurements | | | Sign-off: |
|-----|---------|------------------|------|----------------|-------|----------------------------|-----------------------------|----------|-----------------------------|
| | | GBP-66-D-SE | | | | Parameter | Value | Meter ID | |
| 0 | 9/26/20 | # Live Organisms | | | | pH | 8.02 | PH24 | AM Change: JR |
| | | A 10 | B 10 | C 10 | D 10 | D.O. (mg/L) | 8.2 | RD10 | WQ: JR |
| | | E 10 | F 10 | G 10 | H 10 | Conductivity (µS/cm) | 2760 | EC12 | Initiation Time: 1059 |
| | | | | | | Alkalinity (mg/L) | 56.7 | DR3900 | Initiation Counts: TF |
| | | | | | | Hardness (mg/L) | 418 | DT11 | Confirmation Counts: TK |
| | | | | Ammonia (mg/L) | 11.00 | DR3800 | PM Feed: AP | | |
| | | | | Temp. (°C) | 22.1 | 107A | | | |
| 1 | 9/27/20 | # of Mortalities | | | | Old D.O. (mg/L) | 5.9 | RD10 | AM Change: BT WQ: BT |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 7.9 | RD10 | Mortality Counts: BT |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 22.3 | 111A | PM Change: dr PM Feed: dr |
| | | | | | | Old D.O. (mg/L) | 7.3 | RD11 | AM Change: dr WQ: dr |
| | | | | | | New D.O. (mg/L) | 7.8 | RD11 | Mortality Counts: dr |
| | | | | Temp. (°C) | 22.3 | 111A | PM Change: dr PM Feed: dr | | |
| 2 | 9/26/20 | # of Mortalities | | | | Old D.O. (mg/L) | 6.9 | RD13 | AM Change: BT WQ: B1 |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 9.1 | RD13 | Mortality Counts: BT |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 22.5 | 111A | PM Change: BT PM Feed: BT |
| | | | | | | Old D.O. (mg/L) | 7.2 | RD14 | AM Change: BT WQ: BT |
| | | | | | | New D.O. (mg/L) | 9.1 | RD14 | Mortality Counts: BT |
| | | | | Temp. (°C) | 23.1 | 111A | PM Change: BT PM Feed: BT | | |
| 3 | 9/29/20 | # of Mortalities | | | | Old D.O. (mg/L) | 7.3 | RD13 | AM Change: BT WQ: BT |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 9.1 | RD13 | Mortality Counts: BT |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 22.7 | 111A | PM Change: CC PM Feed: CC |
| | | | | | | Old D.O. (mg/L) | 7.2 | RD11 | AM Change: CC WQ: CC |
| | | | | | | New D.O. (mg/L) | 9.6 | RD11 | Mortality Counts: CC |
| | | | | Temp. (°C) | 22.7 | 111A | PM Change: CC PM Feed: CC | | |
| 4 | 9/30/20 | # of Mortalities | | | | Old D.O. (mg/L) | 7.2 | RD11 | AM Change: ET WQ: ET |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 7.6 | RD11 | Mortality Counts: ET |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 22.4 | 111A | PM Change: ET PM Feed: ET |
| | | | | | | Old D.O. (mg/L) | 6.1 | RD10 | AM Change: HTD WQ: HTD |
| | | | | | | New D.O. (mg/L) | 7.6 | RD10 | Mortality Counts: HTD |
| | | | | Temp. (°C) | 23.3 | 81A | PM Change: HTD PM Feed: HTD | | |
| 5 | 10/1/20 | # of Mortalities | | | | Old D.O. (mg/L) | 7.2 | RD14 | AM Change: DKB WQ: DKB |
| | | A 0 | B 0 | C 0 | D 0 | New D.O. (mg/L) | 8.1 | RD14 | Mortality Counts: DKB |
| | | E 0 | F 0 | G 0 | H 0 | Temp. (°C) | 23.3 | 111A | PM Change: DKB PM Feed: DKB |
| | | | | | | pH | 7.54 | PH25 | WQ: CC |
| | | | | | | D.O. (mg/L) | 7.5 | RD10 | Termination Counts: KB |
| 6 | 10/2/20 | # of Mortalities | | | | Conductivity (µS/cm) | 950 | EC11 | Termination Time: 1100 |
| | | A 0 | B 0 | C 0 | D 0 | Alkalinity (mg/L) | 51.5 | DR3900 | |
| | | E 0 | F 0 | G 0 | H 0 | Hardness (mg/L) | 176 | DT39 | |
| | | | | | | Ammonia (mg/L) | 11.00 | DR3800 | |
| | | | | | | Temp. (°C) | 22.6 | 111A | |
| 7 | 10/3/20 | # of Mortalities | | | | | | | |
| | | A 0 | B 0 | C 0 | D 0 | | | | |
| | | E 0 | F 0 | G 0 | H 0 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 8 | 10/4/20 | # of Mortalities | | | | | | | |
| | | A 0 | B 0 | C 0 | D 0 | | | | |
| | | E 0 | F 0 | G 0 | H 0 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 9 | 10/5/20 | # of Mortalities | | | | | | | |
| | | A 0 | B 0 | C 0 | D 0 | | | | |
| | | E 0 | F 0 | G 0 | H 0 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 10 | 10/6/20 | # Alive | | | | | | | |
| | | A 9 | B 9 | C 7 | D 4 | | | | |
| | | E 5 | F 4 | G 9 | H 8 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Appendix F

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Selenastrum capricornutum*



CETIS Summary Report

Report Date: 28 Sep-20 16:33 (p 1 of 1)
 Test Code/ID: 89691 / 02-7440-5865

Algal Growth Test

Pacific EcoRisk

| | | |
|-------------------------------------|---|---|
| Batch ID: 08-7743-4657 | Test Type: Cell Growth | Analyst: Stevi Vasquez |
| Start Date: 09 Sep-20 16:46 | Protocol: EPA-821-R-02-013 (2002) | Diluent: Laboratory Water |
| Ending Date: 13 Sep-20 16:25 | Species: Selenastrum capricornutum | Brine: Not Applicable |
| Test Length: 96h | Taxon: Chlorophyta | Source: In-House Culture Age: 7 |

| | | |
|--------------------------------------|-----------------------------------|-----------------------------------|
| Sample ID: 16-3542-9904 | Code: NaCl | Project: 32074 |
| Sample Date: 09 Sep-20 16:46 | Material: Sodium chloride | Source: Reference Toxicant |
| Receipt Date: 09 Sep-20 16:46 | CAS (PC): | Station: In House |
| Sample Age: --- (25.2 °C) | Client: Reference Toxicant | |

Multiple Comparison Summary

| Analysis ID | Endpoint | Comparison Method | ✓ NOEL | LOEL | TOEL | PMSD | S |
|--------------|-----------------------------|----------------------------------|--------|------|--------|-------|---|
| 14-4515-1862 | 96h Cell Density-without ED | Dunnett Multiple Comparison Test | 0.25 | 0.5 | 0.3536 | 8.69% | 1 |

Point Estimate Summary

| Analysis ID | Endpoint | Point Estimate Method | ✓ Level | g/L | 95% LCL | 95% UCL | S |
|--------------|-----------------------------|------------------------------|---------|-------|---------|---------|---|
| 01-4438-2589 | 96h Cell Density-without ED | Linear Interpolation (ICPIN) | IC10 | 0.346 | 0.273 | 0.365 | 1 |
| | | | IC15 | 0.393 | 0.33 | 0.422 | |
| | | | IC20 | 0.441 | 0.38 | 0.48 | |
| | | | IC25 | 0.489 | 0.433 | 1.48 | |
| | | | IC40 | 1.87 | 1.57 | 2.13 | |
| | | | IC50 | 2.39 | 2.18 | 2.57 | |

96h Cell Density-without EDTA Summary

| Conc-g/L | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|----------|------|-------|---------|---------|---------|---------|---------|---------|---------|-------|---------|
| 0 | LW | 4 | 2.94E+6 | 2.83E+6 | 3.06E+6 | 2.85E+6 | 3.01E+6 | 3.75E+4 | 7.51E+4 | 2.55% | 0.00% |
| 0.125 | | 4 | 3.18E+6 | 2.69E+6 | 3.68E+6 | 2.76E+6 | 3.50E+6 | 1.55E+5 | 3.09E+5 | 9.71% | -8.15% |
| 0.25 | | 4 | 3.07E+6 | 2.81E+6 | 3.33E+6 | 2.87E+6 | 3.22E+6 | 8.26E+4 | 1.65E+5 | 5.38% | -4.24% |
| 0.5 | | 4 | 2.12E+6 | 1.98E+6 | 2.26E+6 | 2.00E+6 | 2.19E+6 | 4.37E+4 | 8.73E+4 | 4.11% | 27.93% |
| 1 | | 4 | 2.41E+6 | 2.26E+6 | 2.56E+6 | 2.30E+6 | 2.53E+6 | 4.71E+4 | 9.43E+4 | 3.92% | 18.25% |
| 2 | | 4 | 1.78E+6 | 1.65E+6 | 1.90E+6 | 1.68E+6 | 1.85E+6 | 3.90E+4 | 7.80E+4 | 4.39% | 39.64% |
| 4 | | 4 | 5.25E+5 | 4.54E+5 | 5.96E+5 | 4.60E+5 | 5.60E+5 | 2.22E+4 | 4.43E+4 | 8.45% | 82.17% |

96h Cell Density-without EDTA Detail

MD5: B88649A9982EA344839454435235FA55

| Conc-g/L | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|----------|------|---------|---------|---------|---------|
| 0 | LW | 2.92E+6 | 3.00E+6 | 2.85E+6 | 3.01E+6 |
| 0.125 | | 2.76E+6 | 3.22E+6 | 3.50E+6 | 3.26E+6 |
| 0.25 | | 2.87E+6 | 3.00E+6 | 3.19E+6 | 3.22E+6 |
| 0.5 | | 2.18E+6 | 2.00E+6 | 2.19E+6 | 2.12E+6 |
| 1 | | 2.40E+6 | 2.40E+6 | 2.53E+6 | 2.30E+6 |
| 2 | | 1.83E+6 | 1.85E+6 | 1.68E+6 | 1.75E+6 |
| 4 | | 5.40E+5 | 5.40E+5 | 4.60E+5 | 5.60E+5 |

Algal Growth Test

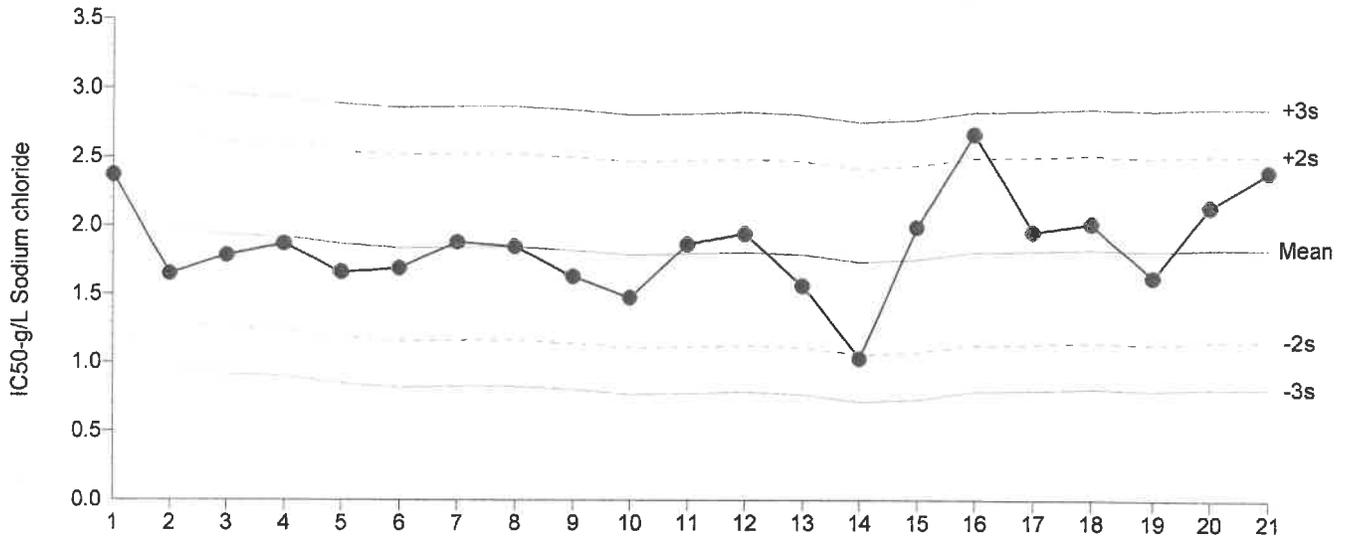
Pacific EcoRisk

Test Type: Cell Growth
 Protocol: EPA-821-R-02-013 (2002)

Organism: Selenastrum capricornutum
 Endpoint: 96h Cell Density-without EDTA

Material: Sodium chloride
 Source: Reference Toxicant-REF

Algal Growth Test



Mean: 1.83 Count: 20 -2s Warning Limit: 1.151 -3s Action Limit: 0.812
 Sigma: 0.3392 CV: 18.50% +2s Warning Limit: 2.508 +3s Action Limit: 2.847

Quality Control Data

| Point | Year | Month | Day | Time | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|-------|---------|----------|---------|---------|--------|--------------|--------------|
| 1 | 2019 | Jan | 17 | 16:05 | 2.369 | 0.5388 | 1.589 | | | 13-4137-3420 | 19-4246-3841 |
| 2 | | Feb | 20 | 14:39 | 1.648 | -0.1818 | -0.536 | | | 18-1149-6891 | 00-2572-0827 |
| 3 | | Mar | 13 | 14:31 | 1.782 | -0.04818 | -0.142 | | | 03-4077-2435 | 09-3059-0392 |
| 4 | | Apr | 10 | 15:30 | 1.868 | 0.03782 | 0.1115 | | | 01-9003-1896 | 03-3563-6611 |
| 5 | | May | 7 | 14:39 | 1.658 | -0.172 | -0.5072 | | | 12-2797-3265 | 14-0485-9709 |
| 6 | | Jun | 13 | 14:10 | 1.686 | -0.1438 | -0.4238 | | | 12-8846-7324 | 14-0882-5927 |
| 7 | | Jul | 17 | 13:55 | 1.88 | 0.04995 | 0.1472 | | | 09-8121-5362 | 14-6005-4282 |
| 8 | | Aug | 22 | 15:06 | 1.844 | 0.01442 | 0.04251 | | | 20-7379-7444 | 09-7956-3779 |
| 9 | | Sep | 11 | 12:51 | 1.625 | -0.2054 | -0.6054 | | | 19-1640-6321 | 15-1626-9437 |
| 10 | | Oct | 16 | 14:48 | 1.473 | -0.3569 | -1.052 | | | 00-7367-7737 | 15-3967-2306 |
| 11 | | Nov | 27 | 14:28 | 1.862 | 0.0321 | 0.09463 | | | 01-1147-5711 | 00-1846-5155 |
| 12 | | Dec | 18 | 17:14 | 1.938 | 0.1079 | 0.318 | | | 17-6199-5775 | 11-2757-2306 |
| 13 | 2020 | Jan | 15 | 12:00 | 1.558 | -0.2724 | -0.8031 | | | 09-7886-2268 | 16-1562-4309 |
| 14 | | Feb | 19 | 14:32 | 1.026 | -0.8039 | -2.37 | (-) | | 21-1131-5658 | 05-7993-4649 |
| 15 | | Mar | 11 | 15:50 | 1.988 | 0.1581 | 0.4661 | | | 08-6401-9204 | 06-8138-9828 |
| 16 | | Apr | 22 | 17:40 | 2.661 | 0.8308 | 2.449 | (+) | | 11-1280-3322 | 19-7387-1658 |
| 17 | | May | 20 | 14:20 | 1.954 | 0.1244 | 0.3669 | | | 04-7831-2537 | 09-7976-5155 |
| 18 | | Jun | 16 | 13:50 | 2.013 | 0.1835 | 0.541 | | | 06-9811-0348 | 14-4549-5283 |
| 19 | | Jul | 22 | 15:36 | 1.62 | -0.2096 | -0.6181 | | | 13-6698-7494 | 20-7244-6282 |
| 20 | | Aug | 12 | 16:35 | 2.137 | 0.3075 | 0.9065 | | | 04-1327-5307 | 20-7747-5792 |
| 21 | | Sep | 9 | 16:46 | 2.39 | 0.5599 | 1.651 | | | 02-7440-5865 | 01-4438-2589 |

Selenastrum capricornutum Algal Toxicity Test Water Quality Data

Client: Reference Toxicant Test ID #: 89691 Test Date: 9/9/20
 Test Material: NaCl Project #: 32074 Control/Diluent: Type 1 (w/o EDTA)

| Treatment (g/L NaCl) | Temp (°C) | pH | D.O. (mg/L) | Conductivity (µS/cm) | Sign-Off |
|----------------------|-----------|-------|-------------|----------------------|-------------------------|
| Lab Water Control | 25.2 | 7.50 | 7.7 | 312 91 | Date: 9/9/20 |
| 0.125 | 25.2 | 8.08 | 8.5 | 347 | Test Solution Prep: JF |
| 0.25 | 25.2 | 7.93 | 8.6 | 564 | New WQ: JS |
| 0.5 | 25.2 | 7.68 | 8.4 | 1070 | Inoculation Time: 16:46 |
| 1 | 25.2 | 7.58 | 8.4 | 2005 | Inoculation Signoff: JF |
| 2 | 25.2 | 7.48 | 8.4 | 3931 | Shelf ID: TR6/RZ/S1 |
| 4 | 25.2 | 7.42 | 8.5 | 7544 | |
| Meter ID: | 20A | PH24 | RD10 | EC13 | |
| Lab Water Control | 25.6 | 7.87 | | | Date: 9/10/20 |
| 0.125 | 25.2 | 7.40 | | | WQ Time: 0916 |
| 0.25 | 25.1 | 7.17 | | | WQ Signoff: CC |
| 0.5 | 25.1 | 7.14 | | | |
| 1 | 25.5 | 7.10 | | | |
| 2 | 25.2 | 7.11 | | | |
| 4 | 25.4 | 7.07 | | | |
| Meter ID: | 20X | PH25 | | | |
| Lab Water Control | 25.6 | 8.52 | | | Date: 9/11/20 |
| 0.125 | 25.9 | 8.44 | | | WQ Time: 1100 |
| 0.25 | 25.2 | 8.33 | | | WQ Signoff: JR |
| 0.5 | 25.7 | 8.40 | | | |
| 1 | 25.7 | 8.22 | | | |
| 2 | 25.2 | 8.03 | | | |
| 4 | 25.5 | 7.73 | | | |
| Meter ID: | 20A | PH24 | | | |
| Lab Water Control | 25.7 | 9.60 | | | Date: 9/12/20 |
| 0.125 | 25.9 | 9.62 | | | WQ Time: 0951 |
| 0.25 | 25.5 | 9.50 | | | WQ Signoff: MP |
| 0.5 | 25.0 | 9.50 | | | |
| 1 | 25.9 | 9.29 | | | |
| 2 | 25.9 | 9.00 | | | |
| 4 | 25.9 | 8.21 | | | |
| Meter ID: | 20A | PH26 | | | |
| Lab Water Control | 26.0 | 10.08 | 13.2 | 115 | Date: 9/13/20 |
| 0.125 | 25.8 | 10.00 | 12.2 | 366 | Termination Time: 1625 |
| 0.25 | 26.0 | 9.93 | 12.4 | 589 | Termination Signoff: JF |
| 0.5 | 26.1 | 9.84 | 12.0 | 1086 | WQ Time: 0910 |
| 1 | 26.4 | 9.44 | 11.2 | 2037 | WQ Signoff: DKB |
| 2 | 26.3 | 9.28 | 10.9 | 3954 | |
| 4 | 25.7 | 8.92 | 9.6 | 7607 | |
| Meter ID: | 20A | PH25 | RD11 | EC11 | |

| Initial Test Conditions | | | |
|-----------------------------|------------|----------|-----------------------|
| Target: 8.000 g NaCl in 2 L | Alkalinity | Hardness | Light Intensity (ftc) |
| Actual: 8.001 ✓ | 15 | ✓ 14.4 | 408 |

Selenastrum capricornutum Cell Density Enumeration Data

Client: Reference Toxicant Initial Count: 10,000 cells/mL
 Test Material: NaCl Enumerating Scientist: Zg
 Test Start Date: 9/9/20 Start Time: 1646 Project #: 32074
 Test End Date: 9/13/20 End Time: 1625 Test ID #: 89691

| Treatment | Cell Density (cells/mL x 10 ⁶) | | | | |
|--|--|-------|---------|-------|----------|
| | Rep A | Rep B | Rep C | Rep D | Mean |
| Lab Water Control | 2.92 | 3.00 | 2.85 | 3.01 | |
| 0.125 | 2.76 | 3.22 | 3.50 | 3.26 | |
| 0.25 | 2.87 | 3.00 | 3.19 | 3.22 | |
| 0.5 | 2.18 | 2.00 | 2.19 | 2.12 | |
| 1 | 2.40 | 2.40 | 2.53 | 2.30 | |
| 2 | 1.83 | 1.85 | 1.68 | 1.75 | |
| 4 | 0.54 | 0.54 | 0.46 | 0.56 | |
| This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other issues of concern. | Control Mean Density (cells/mL x 10 ⁶) | % CV | Date: | Time: | Signoff: |
| | | | 9/13/20 | 1625 | Zg |

Appendix G

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Daphnia magna*



CETIS Summary Report

Report Date: 06 Oct-20 09:17 (p 1 of 1)
 Test Code/ID: 89684 / 01-1577-8772

Acute Daphnid Survival Test

Pacific EcoRisk

| | | |
|------------------------------|-----------------------------------|---------------------------|
| Batch ID: 14-3936-2830 | Test Type: Survival (96h) | Analyst: Ashleigh Findley |
| Start Date: 25 Sep-20 11:45 | Protocol: EPA-821-R-02-012 (2002) | Diluent: Laboratory Water |
| Ending Date: 29 Sep-20 12:29 | Species: Daphnia magna | Brine: Not Applicable |
| Test Length: 4d 1h | Taxon: Branchiopoda | Source: In-House Culture |
| | | Age: 1 |

| | | |
|-------------------------------|---------------------------|----------------------------|
| Sample ID: 02-0401-6212 | Code: NaCl | Project: 32089 |
| Sample Date: 25 Sep-20 11:45 | Material: Sodium chloride | Source: Reference Toxicant |
| Receipt Date: 25 Sep-20 11:45 | CAS (PC): | Station: In House |
| Sample Age: --- (20.5 °C) | Client: Pacific EcoRisk | |

Multiple Comparison Summary

| Analysis ID | Endpoint | Comparison Method | ✓ NOEL | LOEL | TOEL | PMSD | S |
|--------------|-------------------|------------------------------|--------|------|------|-------|---|
| 01-6665-3579 | 96h Survival Rate | Steel Many-One Rank Sum Test | 4 | >4 | --- | 10.0% | 1 |

Point Estimate Summary

| Analysis ID | Endpoint | Point Estimate Method | ✓ Level | g/L | 95% LCL | 95% UCL | S |
|--------------|-------------------|-----------------------|---------|------|---------|---------|---|
| 05-4554-2371 | 96h Survival Rate | Spearman-Kärber | EC50 | 5.46 | 5.11 | 5.85 | 1 |

96h Survival Rate Summary

| Conc-g/L | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|----------|------|-------|-------|---------|---------|-------|-------|---------|---------|--------|---------|
| 0 | LW | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 1 | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 2 | | 4 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 4 | | 4 | 0.950 | 0.791 | 1.110 | 0.800 | 1.000 | 0.050 | 0.100 | 10.53% | 5.00% |
| 8 | | 4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | --- | 100.00% |
| 16 | | 4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | --- | 100.00% |

96h Survival Rate Detail

MD5: CA0CA082194332DE6AC2B9DA9BA81772

| Conc-g/L | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|----------|------|-------|-------|-------|-------|
| 0 | LW | 1.000 | 1.000 | 1.000 | 1.000 |
| 1 | | 1.000 | 1.000 | 1.000 | 1.000 |
| 2 | | 1.000 | 1.000 | 1.000 | 1.000 |
| 4 | | 1.000 | 0.800 | 1.000 | 1.000 |
| 8 | | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | | 0.000 | 0.000 | 0.000 | 0.000 |

96h Survival Rate Binomials

| Conc-g/L | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|----------|------|-------|-------|-------|-------|
| 0 | LW | 5/5 | 5/5 | 5/5 | 5/5 |
| 1 | | 5/5 | 5/5 | 5/5 | 5/5 |
| 2 | | 5/5 | 5/5 | 5/5 | 5/5 |
| 4 | | 5/5 | 4/5 | 5/5 | 5/5 |
| 8 | | 0/5 | 0/5 | 0/5 | 0/5 |
| 16 | | 0/5 | 0/5 | 0/5 | 0/5 |

Acute Daphnid Survival Test

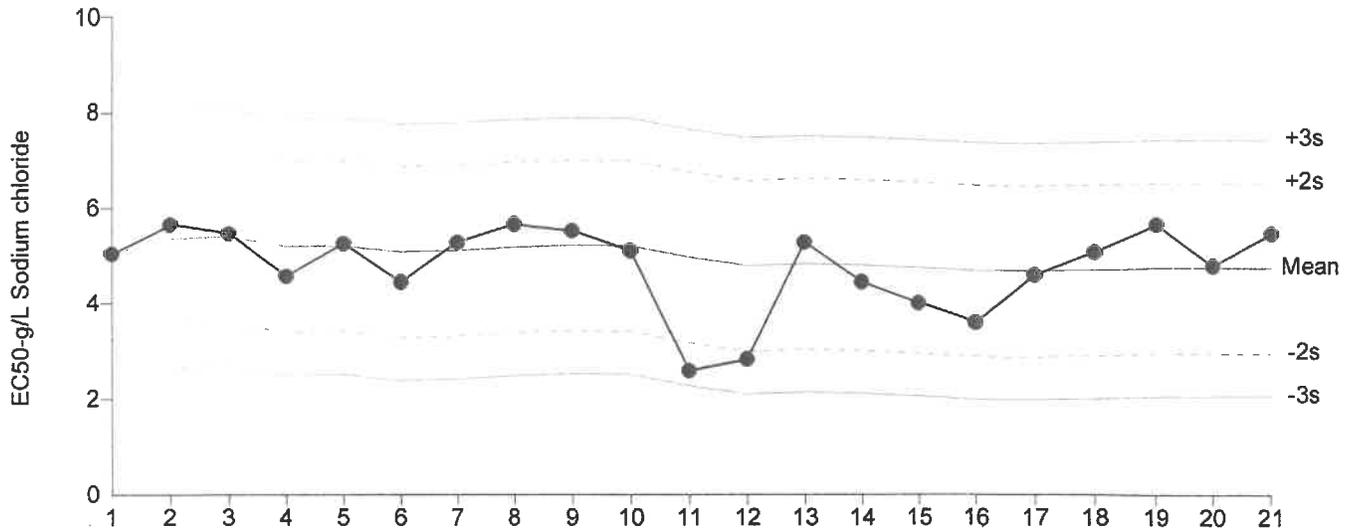
Pacific EcoRisk

Test Type: Survival (96h)
Protocol: EPA-821-R-02-012 (2002)

Organism: Daphnia magna
Endpoint: 96h Survival Rate

Material: Sodium chloride
Source: Reference Toxicant-REF

Acute Daphnid Survival Test



Mean: 4.74 Count: 20 -2s Warning Limit: 2.949 -3s Action Limit: 2.054
 Sigma: 0.8954 CV: 18.90% +2s Warning Limit: 6.531 +3s Action Limit: 7.426

Quality Control Data

| Point | Year | Month | Day | Time | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|-------|---------|---------|---------|---------|--------|--------------|--------------|
| 1 | 2019 | Feb | 20 | 15:20 | 5.04 | 0.2997 | 0.3347 | | | 17-3140-8057 | 14-0649-9511 |
| 2 | | Mar | 16 | 14:02 | 5.657 | 0.9169 | 1.024 | | | 08-0977-9031 | 11-2163-8894 |
| 3 | | May | 22 | 14:31 | 5.464 | 0.7242 | 0.8088 | | | 05-3926-9576 | 11-2318-7257 |
| 4 | | Jun | 15 | 13:04 | 4.57 | -0.1696 | -0.1895 | | | 01-0972-4940 | 05-8784-4052 |
| 5 | | Jul | 13 | 13:57 | 5.259 | 0.5188 | 0.5794 | | | 20-0246-9405 | 04-5213-7812 |
| 6 | | | 18 | 14:12 | 4.438 | -0.3017 | -0.337 | | | 09-8933-0587 | 15-1584-7905 |
| 7 | | | 25 | 15:17 | 5.278 | 0.538 | 0.6009 | | | 02-1250-5986 | 05-7024-3030 |
| 8 | | Aug | 27 | 15:33 | 5.657 | 0.9169 | 1.024 | | | 00-7793-1680 | 07-8036-5198 |
| 9 | | Sep | 24 | 14:35 | 5.525 | 0.7855 | 0.8772 | | | 10-7823-3713 | 13-2783-6540 |
| 10 | | Oct | 24 | 14:53 | 5.098 | 0.3582 | 0.4001 | | | 10-9155-2857 | 02-3766-9512 |
| 11 | | Nov | 21 | 15:45 | 2.588 | -2.152 | -2.403 | (-) | | 09-5319-9237 | 15-6581-9636 |
| 12 | | Dec | 18 | 15:25 | 2.828 | -1.912 | -2.135 | (-) | | 17-0438-6418 | 09-3770-4426 |
| 13 | 2020 | Jan | 8 | 15:25 | 5.278 | 0.538 | 0.6009 | | | 04-1117-3564 | 19-3780-6625 |
| 14 | | Feb | 19 | 15:12 | 4.438 | -0.3017 | -0.337 | | | 20-3469-8213 | 09-2820-1588 |
| 15 | | Mar | 7 | 15:09 | 4 | -0.74 | -0.8264 | | | 09-8879-7926 | 15-8455-0406 |
| 16 | | Apr | 9 | 15:30 | 3.588 | -1.152 | -1.287 | | | 04-3265-1387 | 03-8554-2828 |
| 17 | | May | 22 | 14:05 | 4.582 | -0.1575 | -0.1759 | | | 02-6846-5133 | 03-5198-2433 |
| 18 | | Jun | 16 | 13:37 | 5.066 | 0.3262 | 0.3643 | | | 14-8865-3679 | 10-4374-3353 |
| 19 | | Jul | 9 | 15:27 | 5.657 | 0.9169 | 1.024 | | | 07-0996-0033 | 06-7849-9610 |
| 20 | | Aug | 25 | 10:25 | 4.785 | 0.04467 | 0.04989 | | | 17-6737-3879 | 05-0747-9477 |
| 21 | | Sep | 25 | 11:45 | 5.464 | 0.7242 | 0.8088 | | | 01-1577-8772 | 05-4554-2371 |

96 Hour Acute *Daphnia magna* Reference Toxicant Toxicity Test Data

| | | | |
|------------------|-----------------------|----------------------|-------------------|
| Client: | Reference Toxicant | Test Date: | 9/25/20 |
| Test Material: | Sodium chloride | Control/Diluent: | Mod EPAMH |
| Test ID#: | 89684 Project # 32089 | Control Water Batch: | 414 |
| Randomization: | 7 4 3 | Organism Source: | 1057A |
| Feeding To Time: | 1920 Initials: ET | Feeding T46-hr Time: | 0930 Initials: KL |

| Treatment g/L | Temp (°C) | pH | | D.O. | | Conductivity (µS/cm) | | # Live Animals | | | | Sign-Off |
|---------------|-----------|------|------|------|------|----------------------|-------|----------------|---|---|---|-------------------------|
| | | New | Old | New | Old | New | Old | A | B | C | D | |
| Control | 20.5 | 7.85 | | 9.0 | | 47353 | | 5 | 5 | 5 | 5 | Date: 9/25/20 |
| 1 | 20.0 | 7.84 | | 9.0 | | 2214 | | 5 | 5 | 5 | 5 | Test Solution Prep: MB |
| 2 | 19.5 | 7.81 | | 9.2 | | 4197 | | 5 | 5 | 5 | 5 | RT Batch #: 49 |
| 4 | 19.0 | 7.95 | | 9.4 | | 7759 | | 5 | 5 | 5 | 5 | New WQ: RL |
| 8 | 19.0 | 7.79 | | 9.9 | | 14770 | | 5 | 5 | 5 | 5 | Initiation Time: 11:45 |
| 16 | 19.1 | 7.68 | | 10.2 | | 27640 | | 5 | 5 | 5 | 5 | Initiation Signoff: MB |
| Meter ID | 5414 | PH24 | | RD13 | | EC13 | | | | | | |
| Control | 19.7 | | 7.99 | | 8.8 | | 344 | 5 | 5 | 5 | 5 | Date: 9/26/20 |
| 1 | 19.7 | | 8.03 | | 8.7 | | 2294 | 5 | 5 | 5 | 5 | Count Time: 0935 |
| 2 | 19.8 | | 8.01 | | 8.8 | | 4341 | 5 | 5 | 5 | 5 | Count Signoff: TK |
| 4 | 19.9 | | 8.01 | | 8.8 | | 7969 | 5 | 5 | 5 | 5 | Old WQ: JPR |
| 8 | 20.0 | | 7.98 | | 8.8 | | 15180 | 0 | 0 | 0 | 0 | |
| 16 | 20.0 | | 7.91 | | 8.8 | | 28550 | 0 | 0 | 0 | 0 | |
| Meter ID | 114A | | PH25 | | RD13 | | EC13 | | | | | |
| Control | 20.5 | 7.86 | 7.81 | 8.8 | 8.4 | 40858 | 427 | 5 | 5 | 5 | 5 | Date: 9/27/20 |
| 1 | 20.5 | 7.99 | 7.80 | 8.8 | 8.4 | 2174 | 2318 | 5 | 5 | 5 | 5 | Test Solution Prep: KL |
| 2 | 20.6 | 8.00 | 7.82 | 9.0 | 8.4 | 4237 | 4356 | 5 | 5 | 5 | 5 | RT Batch #: 49 |
| 4 | 20.6 | 7.99 | 7.78 | 9.1 | 8.4 | 7787 | 8073 | 5 | 4 | 5 | 5 | New WQ: RIL |
| 8 | - | - | - | - | - | - | - | - | - | - | - | Renewal Time: 10:51 |
| 16 | - | - | - | - | - | - | - | - | - | - | - | Renewal Signoff: JPR |
| Meter ID | 116A | PH24 | PH24 | RD13 | RD13 | EC13 | EC13 | | | | | Old WQ: RIL |
| Control | 19.6 | | 7.89 | | 8.6 | | 364 | 5 | 5 | 5 | 5 | Date: 9/28/20 |
| 1 | 19.7 | | 7.93 | | 8.5 | | 2297 | 5 | 5 | 5 | 5 | Count Time: 10:55 |
| 2 | 19.7 | | 7.88 | | 8.5 | | 4425 | 5 | 5 | 5 | 5 | Count Signoff: KL |
| 4 | 19.8 | | 7.84 | | 8.5 | | 8064 | 5 | 4 | 5 | 5 | Old WQ: RIL |
| 8 | - | | - | | - | | - | - | - | - | - | |
| 16 | - | | - | | - | | - | - | - | - | - | |
| Meter ID | 59A | | PH26 | | RD13 | | EC13 | | | | | |
| Control | 19.9 | | 7.90 | | 8.7 | | 421 | 5 | 5 | 5 | 5 | Date: 9/29/20 |
| 1 | 19.9 | | 7.95 | | 8.7 | | 2347 | 5 | 5 | 5 | 5 | Termination Time: 12:29 |
| 2 | 19.9 | | 7.89 | | 8.5 | | 4493 | 5 | 5 | 5 | 5 | Termination Signoff: KL |
| 4 | 19.9 | | 7.87 | | 8.6 | | 8149 | 5 | 4 | 5 | 5 | Old WQ: RIL |
| 8 | - | | - | | - | | - | - | - | - | - | |
| 16 | - | | - | | - | | - | - | - | - | - | |
| Meter ID | 81A | | PH26 | | RD13 | | EC13 | | | | | |

Appendix H

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the Fathead Minnows



CETIS Summary Report

Report Date: 23 Sep-20 11:24 (p 1 of 1)
 Test Code/ID: 89693 / 01-4216-0764

Acute Fish Survival Test

Pacific EcoRisk

| | | |
|-------------------------------------|--|--|
| Batch ID: 15-3942-1355 | Test Type: Survival (96h) | Analyst: Stevi Vasquez |
| Start Date: 09 Sep-20 17:05 | Protocol: EPA-821-R-02-012 (2002) | Diluent: Laboratory Water |
| Ending Date: 13 Sep-20 16:03 | Species: Pimephales promelas | Brine: Not Applicable |
| Test Length: 95h | Taxon: Actinopterygii | Source: Aquatox, AR Age: 8 |

| | | |
|--------------------------------------|----------------------------------|-----------------------------------|
| Sample ID: 11-8981-9477 | Code: NaCl | Project: 32076 |
| Sample Date: 09 Sep-20 17:05 | Material: Sodium chloride | Source: Reference Toxicant |
| Receipt Date: 09 Sep-20 17:05 | CAS (PC): | Station: In House |
| Sample Age: --- (19.9 °C) | Client: Pacific EcoRisk | |

Multiple Comparison Summary

| Analysis ID | Endpoint | Comparison Method | ✓ NOEL | LOEL | TOEL | PMSD | S |
|--------------|-------------------|----------------------------------|--------|------|-------|-------|---|
| 19-8376-4371 | 96h Survival Rate | Dunnett Multiple Comparison Test | 6 | 9 | 7.348 | 18.8% | 1 |

Point Estimate Summary

| Analysis ID | Endpoint | Point Estimate Method | ✓ Level | g/L | 95% LCL | 95% UCL | S |
|--------------|-------------------|-----------------------|---------|------|---------|---------|---|
| 03-2740-1328 | 96h Survival Rate | Spearman-Kärber | EC50 | 9.21 | 8.55 | 9.91 | 1 |

96h Survival Rate Summary

| Conc-g/L | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|----------|------|-------|-------|---------|---------|-------|-------|---------|---------|--------|---------|
| 0 | LW | 2 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 1.5 | | 2 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 3 | | 2 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 6 | | 2 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 9 | | 2 | 0.650 | -1.260 | 2.560 | 0.500 | 0.800 | 0.150 | 0.212 | 32.64% | 35.00% |
| 12 | | 2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | --- | 100.00% |

96h Survival Rate Detail

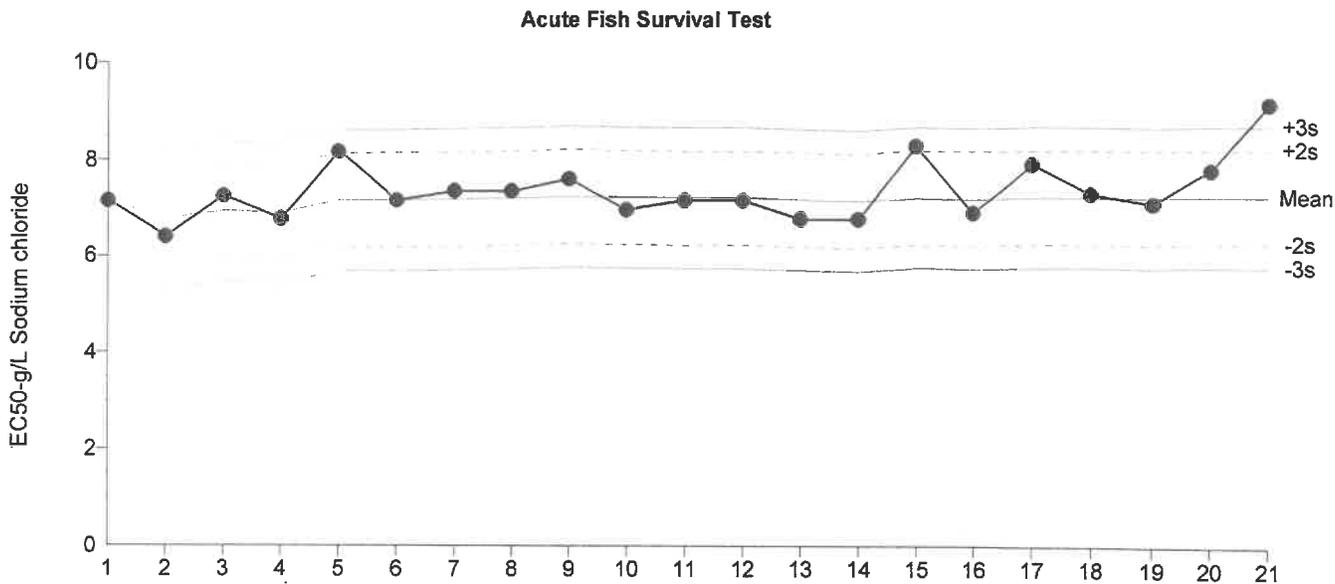
MD5: 395DB05C84FDB1AEC6AF7F058F5B0738

| Conc-g/L | Code | Rep 1 | Rep 2 |
|----------|------|-------|-------|
| 0 | LW | 1.000 | 1.000 |
| 1.5 | | 1.000 | 1.000 |
| 3 | | 1.000 | 1.000 |
| 6 | | 1.000 | 1.000 |
| 9 | | 0.500 | 0.800 |
| 12 | | 0.000 | 0.000 |

96h Survival Rate Binomials

| Conc-g/L | Code | Rep 1 | Rep 2 |
|----------|------|-------|-------|
| 0 | LW | 10/10 | 10/10 |
| 1.5 | | 10/10 | 10/10 |
| 3 | | 10/10 | 10/10 |
| 6 | | 10/10 | 10/10 |
| 9 | | 5/10 | 8/10 |
| 12 | | 0/10 | 0/10 |

| | | | |
|-----------------------------------|-------------------------------|--------------------------------|--|
| Acute Fish Survival Test | | Pacific EcoRisk | |
| Test Type: Survival (96h) | Organism: Pimephales promelas | Material: Sodium chloride | |
| Protocol: EPA-821-R-02-012 (2002) | Endpoint: 96h Survival Rate | Source: Reference Toxicant-REF | |



Mean: 7.269 **Count:** 20 **-2s Warning Limit:** 6.291 **-3s Action Limit:** 5.802
Sigma: 0.4891 **CV:** 6.73% **+2s Warning Limit:** 8.247 **+3s Action Limit:** 8.737

Quality Control Data

| Point | Year | Month | Day | Time | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|-------|---------|----------|----------|---------|--------|--------------|--------------|
| 1 | 2019 | May | 7 | 14:05 | 7.149 | -0.1196 | -0.2446 | | | 19-5335-8910 | 08-9418-6746 |
| 2 | | | 16 | 14:46 | 6.406 | -0.8634 | -1.765 | | | 03-1744-1380 | 10-3380-9448 |
| 3 | | Jun | 4 | 14:56 | 7.248 | -0.02076 | -0.04244 | | | 14-4042-5878 | 08-8092-7918 |
| 4 | | Jul | 9 | 13:39 | 6.767 | -0.5017 | -1.026 | | | 16-0350-9806 | 08-1597-4036 |
| 5 | | Aug | 6 | 15:54 | 8.164 | 0.8954 | 1.831 | | | 05-3715-6690 | 10-5321-4888 |
| 6 | | | 16 | 14:05 | 7.149 | -0.1196 | -0.2446 | | | 08-6204-5114 | 00-9022-6511 |
| 7 | | Sep | 10 | 15:46 | 7.348 | 0.07947 | 0.1625 | | | 21-2169-4909 | 04-3724-6993 |
| 8 | | Oct | 8 | 13:08 | 7.348 | 0.07947 | 0.1625 | | | 04-4422-4735 | 18-2603-1606 |
| 9 | | Nov | 5 | 15:30 | 7.608 | 0.3386 | 0.6923 | | | 11-5059-3187 | 19-0348-2032 |
| 10 | | | 19 | 16:27 | 6.956 | -0.3133 | -0.6406 | | | 06-3666-4365 | 14-9955-7348 |
| 11 | | Dec | 3 | 17:05 | 7.149 | -0.1196 | -0.2446 | | | 14-7376-3422 | 07-7668-8622 |
| 12 | 2020 | Jan | 7 | 15:48 | 7.149 | -0.1196 | -0.2446 | | | 02-9152-2845 | 16-1240-4259 |
| 13 | | Feb | 4 | 15:25 | 6.767 | -0.5017 | -1.026 | | | 01-7285-3430 | 16-7468-9738 |
| 14 | | | 19 | 13:24 | 6.767 | -0.5017 | -1.026 | | | 19-9139-6727 | 05-9605-1875 |
| 15 | | Mar | 3 | 16:40 | 8.296 | 1.027 | 2.1 | (+) | | 16-0332-4059 | 00-8522-7097 |
| 16 | | Apr | 7 | 15:48 | 6.906 | -0.3631 | -0.7425 | | | 17-2666-9331 | 12-9827-1983 |
| 17 | | May | 20 | 18:49 | 7.929 | 0.6596 | 1.349 | | | 14-7429-3696 | 09-1248-4144 |
| 18 | | Jun | 2 | 15:35 | 7.323 | 0.05426 | 0.1109 | | | 11-4961-4873 | 05-2689-6425 |
| 19 | | Jul | 8 | 17:06 | 7.124 | -0.1453 | -0.297 | | | 00-7940-4341 | 04-8703-7107 |
| 20 | | Aug | 19 | 16:30 | 7.83 | 0.5605 | 1.146 | | | 00-2650-5952 | 07-3949-7698 |
| 21 | | Sep | 9 | 17:05 | 9.205 | 1.936 | 3.959 | (+) | (+) | 01-4216-0764 | 03-2740-1328 |

96 Hour Acute Fathead Minnow Reference Toxicant Test

Client: Reference Toxicant
 Test Material: Sodium Chloride
 Test ID#: SYD-89692-89693 Project # 32076
 Test Date: 9/9/20 Randomization: 6-2-8
 Feeding T-2 hr Time: 0900 Initials: TF

Organism Log #: 12316 Age: 8d
 Organism Supplier: Aquatox
 Control/Diluent: EPAMH
 Control Water Batch: 2493
 Feeding T46-hr Time: 0900 Initials: RG

| Treatment (g NaCl/L) | Temp (°C) | pH | | D.O. (mg/L) | | Conductivity (µS/cm) | | # Live Organisms | | SIGN-OFF |
|----------------------|-----------|------|------|-------------|------|----------------------|-------|------------------|----|-------------------------|
| | | new | old | new | old | new | old | A | B | |
| Control | 19.9 | 8.07 | | 8.3 | | 298 | | 10 | 10 | Date: 9/9/20 |
| 1.5 | 19.9 | 7.96 | | 8.3 | | 2993 | | 10 | 10 | Test Solution: JS |
| 3 | 19.9 | 7.82 | | 8.4 | | 5676 | | 10 | 10 | RT Batch ID: 462 |
| 6 | 19.9 | 7.79 | | 8.7 | | 10650 | | 10 | 10 | New WQ: JS |
| 9 | 19.8 | 7.71 | | 9.6 | | 16005 | | 10 | 10 | Initiation Time: 1705 |
| 12 | 19.9 | 7.65 | | 9.9 | | 20940 | | 10 | 10 | Initiation Signoff: MB |
| Meter ID: | 96A | PH26 | | RD14 | | EC12 | | | | |
| Control | 20.4 | | 7.58 | | 8.5 | | 310 | 10 | 10 | Date: 9/10/20 |
| 1.5 | 20.3 | | 7.67 | | 8.4 | | 2825 | 10 | 10 | Count Time: 1115 |
| 3 | 19.7 | | 7.68 | | 8.4 | | 5790 | 10 | 10 | Count Signoff: MB |
| 6 | 19.5 | | 7.66 | | 8.5 | | 10790 | 10 | 10 | Old WQ: JS |
| 9 | 19.7 | | 7.64 | | 8.5 | | 16230 | 10 | 10 | |
| 12 | 20.0 | | 7.61 | | 8.4 | | 20980 | 0 | 0 | |
| Meter ID: | 96A | | PH26 | | RD13 | | EC13 | | | |
| Control | 20.0 | 8.72 | 7.73 | 8.2 | 7.6 | 371 | 313 | 10 | 10 | Date: 9/11/20 |
| 1.5 | 19.8 | 8.35 | 7.68 | 8.2 | 7.9 | 2884 | 2817 | 10 | 10 | Test Solution: JS |
| 3 | 19.8 | 8.19 | 7.54 | 8.4 | 7.1 | 5658 | 5932 | 10 | 10 | RT Batch ID: 462 |
| 6 | 19.5 | 7.96 | 7.44 | 8.4 | 6.4 | 10640 | 10700 | 10 | 10 | New WQ: JS |
| 9 | 19.8 | 7.86 | 7.42 | 8.4 | 6.5 | 15380 | 15980 | 9 | 9 | Renewal Time: 1710 |
| 12 | - | - | - | - | - | - | - | - | - | Renewal Signoff: MB |
| Meter ID: | 112A | PH25 | PH25 | RD14 | RD14 | EC13 | EC14 | | | Old WQ: JS |
| Control | 20.4 | | 7.98 | | 7.8 | | 308 | 10 | 10 | Date: 9/12/20 |
| 1.5 | 20.3 | | 7.72 | | 7.8 | | 2880 | 10 | 10 | Count Time: 1124 |
| 3 | 20.3 | | 8.59 | | 7.7 | | 5842 | 10 | 10 | Count Signoff: JS |
| 6 | 20.0 | | 8.27 | | 7.9 | | 11000 | 10 | 10 | Old WQ: JS |
| 9 | 20.1 | | 7.92 | | 8.0 | | 15870 | 5 | 9 | |
| 12 | - | | - | | - | | - | - | - | |
| Meter ID: | 99A | | PH24 | | RD14 | | EC14 | | | |
| Control | 19.9 | | 7.65 | | 8.0 | | 422 | 10 | 10 | Date: 9/13/20 |
| 1.5 | 20.1 | | 7.63 | | 7.8 | | 2893 | 10 | 10 | Termination Time: 1605 |
| 3 | 20.2 | | 7.57 | | 7.8 | | 1028 | 10 | 10 | Termination Signoff: JS |
| 6 | 20.3 | | 7.57 | | 7.9 | | 10880 | 10 | 10 | Old WQ: JS |
| 9 | 20.3 | | 7.55 | | 8.1 | | 15970 | 5 | 8 | |
| 12 | - | | - | | - | | - | - | - | |
| Meter ID: | 113A | | PH25 | | RD11 | | EC11 | | | |

Appendix I

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Hyaella azteca*



CETIS Summary Report

Report Date: 28 Sep-20 17:23 (p 1 of 1)
 Test Code/ID: 89682 / 08-4321-5173

Hyalella Reference Toxicant Survival Test

Pacific EcoRisk

| | | |
|------------------------------|-----------------------------------|--------------------------------|
| Batch ID: 10-5471-2963 | Test Type: Survival (96h) | Analyst: Stevi Vasquez |
| Start Date: 18 Sep-20 16:45 | Protocol: EPA-821-R-02-012 (2002) | Diluent: Laboratory Water |
| Ending Date: 22 Sep-20 15:50 | Species: Hyalella azteca | Brine: Not Applicable |
| Test Length: 95h | Taxon: Malacostraca | Source: Aquatic Biosystems, CO |
| | | Age: 11 |

| | | |
|-------------------------------|------------------------------|----------------------------|
| Sample ID: 04-2148-4584 | Code: KCl | Project: 32071 |
| Sample Date: 18 Sep-20 16:45 | Material: Potassium chloride | Source: Reference Toxicant |
| Receipt Date: 18 Sep-20 16:45 | CAS (PC): | Station: In House |
| Sample Age: --- (23.4 °C) | Client: Reference Toxicant | |

| Multiple Comparison Summary | | | | | | | |
|-----------------------------|-------------------|-----------------------------------|--------|------|--------|------|---|
| Analysis ID | Endpoint | Comparison Method | ✓ NOEL | LOEL | TOEL | PMSD | S |
| 06-5209-8451 | 96h Survival Rate | Fisher Exact/Bonferroni-Holm Test | 0.2 | 0.4 | 0.2828 | --- | 1 |

| Point Estimate Summary | | | | | | | |
|------------------------|-------------------|-----------------------|---------|-------|---------|---------|---|
| Analysis ID | Endpoint | Point Estimate Method | ✓ Level | g/L | 95% LCL | 95% UCL | S |
| 05-3767-5735 | 96h Survival Rate | Spearman-Kärber | EC50 | 0.325 | 0.273 | 0.387 | 1 |

| 96h Survival Rate Summary | | | | | | | | | | | |
|---------------------------|------|-------|-------|---------|---------|-------|-------|---------|---------|---------|---------|
| Conc-g/L | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
| 0 | LW | 10 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 0.1 | | 10 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 0.2 | | 10 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | --- | 0.00% |
| 0.4 | | 10 | 0.200 | -0.102 | 0.502 | 0.000 | 1.000 | 0.133 | 0.422 | 210.82% | 80.00% |
| 0.8 | | 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | --- | 100.00% |
| 1.6 | | 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | --- | 100.00% |

| 96h Survival Rate Detail | | | | | | | | | | | |
|---------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| MD5: FDFC2685545FF9B4CEA1A47362887E67 | | | | | | | | | | | |
| Conc-g/L | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Rep 9 | Rep 10 |
| 0 | LW | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 0.1 | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 0.2 | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 0.4 | | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| 0.8 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.6 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| 96h Survival Rate Binomials | | | | | | | | | | | |
|-----------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Conc-g/L | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Rep 9 | Rep 10 |
| 0 | LW | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| 0.1 | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| 0.2 | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| 0.4 | | 0/1 | 0/1 | 0/1 | 1/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 1/1 |
| 0.8 | | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 |
| 1.6 | | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 | 0/1 |

Hyalella Reference Toxicant Survival Test

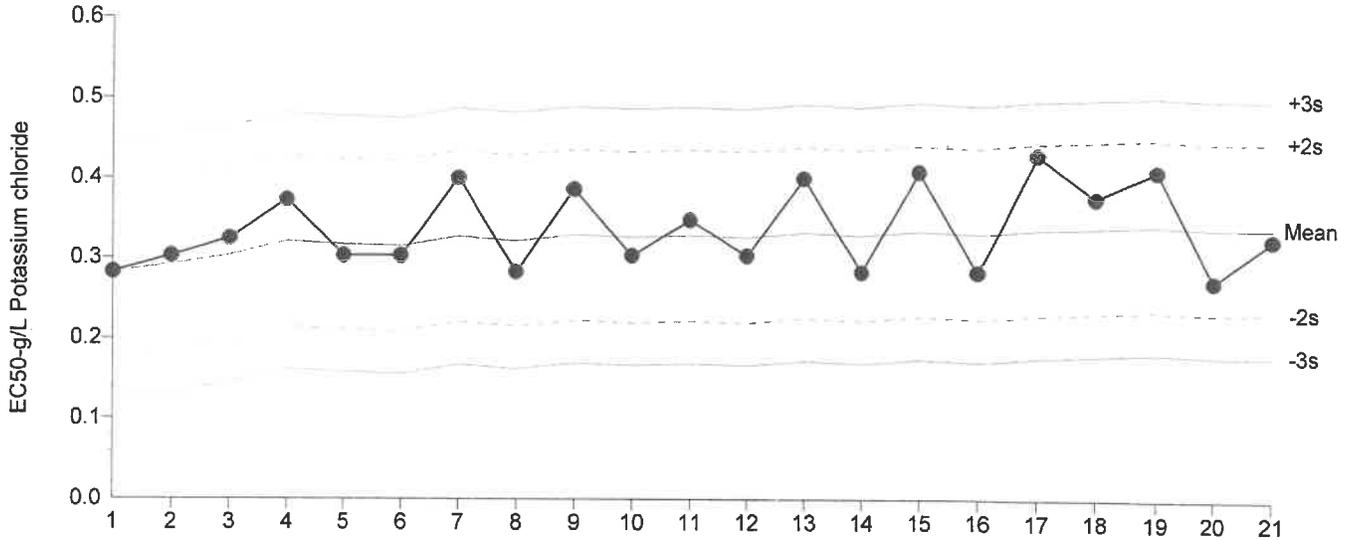
Pacific EcoRisk

Test Type: Survival (96h)
Protocol: EPA-821-R-02-012 (2002)

Organism: Hyalella azteca
Endpoint: 96h Survival Rate

Material: Potassium chloride
Source: Reference Toxicant-REF

Hyalella Reference Toxicant Survival Test



Mean: 0.3387 Count: 20 -2s Warning Limit: 0.2322 -3s Action Limit: 0.1789
 Sigma: 0.05327 CV: 15.70% +2s Warning Limit: 0.4453 +3s Action Limit: 0.4986

Quality Control Data

| Point | Year | Month | Day | Time | QC Data | Delta | Sigma | Warning | Action | Test ID | Analysis ID |
|-------|------|-------|-----|-------|---------|----------|---------|---------|--------|--------------|--------------|
| 1 | 2019 | Sep | 14 | 15:11 | 0.2828 | -0.05586 | -1.049 | | | 11-9956-0671 | 18-8145-6648 |
| 2 | | | 21 | 14:09 | 0.3031 | -0.03556 | -0.6675 | | | 06-0150-3267 | 12-0429-3125 |
| 3 | | | 30 | 13:05 | 0.3249 | -0.0138 | -0.259 | | | 11-3316-8813 | 09-5107-4861 |
| 4 | | Oct | 5 | 13:55 | 0.3732 | 0.03451 | 0.6479 | | | 12-7682-7015 | 16-9846-3174 |
| 5 | | | 12 | 13:56 | 0.3031 | -0.03556 | -0.6675 | | | 13-1110-8922 | 03-8774-6579 |
| 6 | | | 13 | 17:15 | 0.3031 | -0.03556 | -0.6675 | | | 11-4344-1031 | 15-9392-7380 |
| 7 | | Nov | 20 | 14:27 | 0.4 | 0.0613 | 1.151 | | | 14-6792-3922 | 19-2541-2120 |
| 8 | | Dec | 10 | 14:34 | 0.2828 | -0.05586 | -1.049 | | | 06-8480-0846 | 07-1949-6099 |
| 9 | 2020 | Feb | 5 | 14:50 | 0.3864 | 0.04767 | 0.895 | | | 03-7254-3793 | 15-4627-4867 |
| 10 | | Mar | 11 | 16:55 | 0.3031 | -0.03556 | -0.6675 | | | 04-6213-7995 | 19-1768-7105 |
| 11 | | | 14 | 14:45 | 0.3482 | 0.00952 | 0.1787 | | | 01-7235-4028 | 20-0538-7393 |
| 12 | | Apr | 25 | 14:36 | 0.3031 | -0.03556 | -0.6675 | | | 09-8998-9996 | 15-6156-5389 |
| 13 | | May | 23 | 15:21 | 0.4 | 0.0613 | 1.151 | | | 02-6409-0045 | 06-5418-1562 |
| 14 | | Jun | 16 | 17:07 | 0.2828 | -0.05586 | -1.049 | | | 07-1060-6712 | 04-1262-3295 |
| 15 | | | 17 | 16:45 | 0.4082 | 0.06954 | 1.305 | | | 04-2992-2928 | 02-3535-8811 |
| 16 | | | 18 | 15:56 | 0.2828 | -0.05586 | -1.049 | | | 19-0961-8868 | 20-3359-9625 |
| 17 | | Jul | 23 | 16:11 | 0.4287 | 0.09001 | 1.69 | | | 19-7153-3603 | 09-0517-8745 |
| 18 | | Aug | 20 | 12:26 | 0.376 | 0.03735 | 0.7011 | | | 12-8503-6411 | 07-8299-1905 |
| 19 | | | 29 | 15:20 | 0.41 | 0.07133 | 1.339 | | | 19-3874-3189 | 15-0808-4942 |
| 20 | | Sep | 5 | 16:47 | 0.2722 | -0.06654 | -1.249 | | | 21-3298-3025 | 13-8781-2487 |
| 21 | | | 18 | 16:45 | 0.3249 | -0.0138 | -0.259 | | | 08-4321-5173 | 05-3767-5735 |

96 Hour *Hyalella azteca* Reference Toxicant Test Data

Client: Reference Toxicant
 Test Material: Potassium Chloride
 Test ID#: 89682 Project # 32071
 Test Date: 9/18/20 Randomization: 1069
 Feeding T0 Time: 0915 Initials: RG

Organism Log #: 12328 Age: 10-11d
 Organism Supplier: ABS
 Control/Diluent: SAM-5
 Control Water Batch: 572
 Feeding T0 Time: 1650 Initials: JL
48 (0918)

| Treatment (g/L) | Temp (°C) | pH | D.O. (mg/L) | Conductivity (µS/cm) | # Live Animals | | | | | | | | | | Sign-Off |
|-----------------|-----------|-------|-------------|----------------------|----------------|---|---|---|---|---|---|---|---|---|----------------------------------|
| | | | | | A | B | C | D | E | F | G | H | I | J | |
| Control | 23.4 | 7.58 | 8.6 | 398 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Test Solution Prep: |
| 0.1 | 23.3 | 7.57 | 8.6 | 577 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | New WQ: |
| 0.2 | 23.1 | 7.64 | 8.9 | 754 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Initiation Date: <u>9/18/20</u> |
| 0.4 | 23.1 | 7.66 | 9.2 | 1129 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Initiation Time: <u>1615</u> |
| 0.8 | 23.2 | 7.64 | 9.7 | 1849 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Initiation Signoff: |
| 1.6 | 23.2 | 7.60 | 10.0 | 3297 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | RT Batch #: <u>22</u> |
| Meter ID | 40A | pH 24 | PD13 | EC13 | | | | | | | | | | | |
| Control | 22.7 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Date: <u>9/18/20</u> |
| 0.1 | 22.8 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Time: <u>0936</u> |
| 0.2 | 22.8 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Signoff: |
| 0.4 | 22.8 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 0.8 | 22.8 | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1.6 | 22.8 | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Meter ID | 90A | | | | | | | | | | | | | | |
| Control | 22.6 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Date: <u>9/20/20</u> |
| 0.1 | 22.8 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Time: <u>0949 0849</u> |
| 0.2 | 22.7 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Signoff: <u>SL</u> |
| 0.4 | 22.7 | | | | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | |
| 0.8 | 22.7 | | | | - | - | - | - | - | - | - | - | - | - | |
| 1.6 | 20.7 | | | | - | - | - | - | - | - | - | - | - | - | |
| Meter ID | 113A | | | | | | | | | | | | | | |
| Control | 22.8 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Date: <u>9/21/20</u> |
| 0.1 | 22.8 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Time: <u>0940</u> |
| 0.2 | 22.8 | | | | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Count Signoff: <u>KL</u> |
| 0.4 | 22.8 | | | | - | - | - | 1 | 0 | - | 1 | - | - | 1 | |
| 0.8 | - | | | | - | - | - | - | - | - | - | - | - | - | |
| 1.6 | - | | | | - | - | - | - | - | - | - | - | - | - | |
| Meter ID | 59A | | | | | | | | | | | | | | |
| Control | 22.7 | 7.55 | 7.0 | 611 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Termination Date: <u>9/22/20</u> |
| 0.1 | 22.0 | 7.59 | 6.9 | 611 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Termination Time: <u>1550</u> |
| 0.2 | 22.0 | 7.59 | 6.8 | 789 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | Termination Signoff: <u>KL</u> |
| 0.4 | 22.7 | 7.58 | 6.9 | 1216 | - | - | - | 1 | - | - | 0 | - | - | 1 | Old WQ: <u>RTL</u> |
| 0.8 | - | 7.57 | 6.9 | 1933 | - | - | - | - | - | - | - | - | - | - | |
| 1.6 | - | 7.52 | 6.5 | 3400 | - | - | - | - | - | - | - | - | - | - | |
| Meter ID | SU1A | PH25 | RD11 | EC12 | | | | | | | | | | | |