



The Boeing Company  
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Via CIWQS

15 May 2024

In reply refer to SHEA-116796

Information Technology Unit  
Los Angeles Regional Water Quality Control Board  
320 West 4th Street, Suite 200  
Los Angeles, California 90013

Subject: First Quarter 2024 NPDES Discharge Monitoring Report  
Compliance File CI-6027 and NPDES No. CA0001309  
Santa Susana Field Laboratory  
Ventura County, California

The Boeing Company (Boeing) hereby submits this Discharge Monitoring Report (DMR) for the Santa Susana Field Laboratory (Santa Susana Site) for the period of 1 January through 31 March 2024 (First Quarter 2024). This DMR was prepared as required by, and in accordance with, the National Pollutant Discharge Elimination System Permit No. CA0001309 (NPDES Permit) issued by the Los Angeles California Regional Water Quality Control Board (Regional Board) in 2023 (California Regional Water Quality Control Board, Los Angeles Region, 2023). The NPDES Permit covers the entire Santa Susana Site, which includes approximately 2,400 acres owned by Boeing, approximately 450 acres owned by the United States and administered by the National Aeronautics and Space Administration (NASA), and approximately 472 acres of Boeing's land for which the Department of Energy (DOE) has assumed responsibility for soil remediation.

An electronic version of this DMR is located at: <http://www.boeing.com/principles/environment/santa-susana/monitoring-reports.page>.

## **FIRST QUARTER 2024 DMR COVER LETTER CONTENTS**

This DMR cover letter includes the following sections and appendices:

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## STORMWATER TREATMENT SYSTEM ACTIVITIES

The Stormwater Treatment System (SWTS) located near R-1 Pond (SWTS 011) discharges through Outfall 011. The SWTS located at Silvernale Pond (SWTS 018) discharges through Outfall 018. SWTS maintenance activities completed in the First Quarter 2024 are included in Table 1.

SWTS 011 operated four times and SWTS 018 operated six times during the First Quarter 2024. Operational activities are summarized in Table 2.

## DISCHARGE AND SAMPLE COLLECTION SUMMARY

Eight qualifying rain events occurred during the First Quarter 2024 (Appendix A). All eight qualifying rain events produced stormwater discharges. Stormwater samples were collected at Outfalls 001, 002, 004, 006, 008, 009, 011, and 018 in one or more rain events or SWTS discharge events this quarter. There were no changes in the discharge as described in the NPDES Permit during the reporting period.

In addition to outfall sampling, SWTS influent samples and receiving water samples were also collected. Four influent samples were collected at SWTS 011 (INF-001) and seven influent samples were collected at SWTS 018 (INF-002). An on-site receiving water sample was collected at the Bell Creek location (RSW-001, Outfall 002, see Figure 1) and off-site receiving water samples were collected at the Arroyo Simi locations RSW-002 [downstream] and RSW-003 [upstream]; see Figure 2).

Table 3 summarizes the First Quarter 2024 sampling record by outfall or location, sample frequency, and sample type collected per NPDES Permit requirements. Sample results are included in Appendix C.

Boeing affirms that “With the exception of field tests, all analyses were conducted at a laboratory certified for such analyses by the State Water Board, Division of Drinking Water, Environmental Laboratory Accreditation Program or approved by the Executive Officer and in accordance with current U.S. EPA guideline procedures or as specified in this [Monitoring and Reporting Program] MRP.” Toxicity laboratory reports and validation reports (if validation was performed), are included in Appendix F.

### ***Pending Data***

Over 100 laboratory reports were not transmitted to Boeing from the laboratory by the deadline of this report. Boeing will update the First Quarter 2024 DMR in California Integrated Water Quality System (CIWQS) once these data have been received. Details are included in Appendix C.

## SUMMARY OF EXCEEDANCES AND/OR NON-COMPLIANCE

As summarized in Appendix D, the First Quarter 2024 exceedances of Daily Maximum Permit limits, Receiving Water limits, or other non-compliance for the data received within the timeframe of this report included:

- Aluminum at Outfalls 001, 006, 008, 009, and 011;
- Lead at Outfall 009;
- pH and sulfate at Outfall 002;
- Mercury at Outfalls 004, 006, and 009;
- Dioxins (TCDD) toxic equivalent (TEQ) at Outfalls 002 and 009;
- Escherichia coli (E. coli) at the Arroyo Simi Receiving Water monitoring locations (RSW-002, Downstream and RSW-003, Upstream); and
- E. coli at the Bell Creek Receiving Water sampling location (RSW-001, Outfall 002).

### ALUMINUM AT OUTFALLS 001, 006, 008, 009, AND 011

Aluminum was detected in stormwater samples collected from the following outfalls above the Daily Maximum Permit Limit of 1.0 milligrams per liter (mg/L):

- Outfall 001 on 2 February 2024 at 3.6 mg/L;
- Outfall 006 on 6 February 2024 at 3.4 mg/L;
- Outfall 008 on 2 February 2024 at 1.2 mg/L;
- Outfall 009 on 23 January 2024 and 2 February 2024 at 9.2 and 9.0 mg/L, respectively; and
- Outfall 011 on 6 February 2024 at 1.7 mg/L.

The NPDES Permit establishes new effluent limitations for aluminum, based on the reasonable potential analysis performed by the Regional Board. However, Boeing believes that aluminum limits are improper because significant evidence (including data and analyses produced from studies conducted by the Stormwater Expert Panel, and data on aluminum concentrations in sitewide surface soils relative to background threshold values, as presented in its 2023 Annual Report) shows aluminum is naturally occurring rather than residual from former industrial operations at the Santa Susana Site. The Expert Panel will evaluate these exceedances in their 2024 Annual Report.

### LEAD AT OUTFALL 009

Lead was detected above the Daily Maximum Permit Limit of 5.2 micrograms per liter ( $\mu\text{g/L}$ ) from Outfall 009 on the following dates:

- 23 January 2024 at 270  $\mu\text{g/L}$ ;
- 2 February 2024 at 160  $\mu\text{g/L}$ ; and
- 31 March 2024 at 230  $\mu\text{g/L}$ .

Lead was also detected above the Daily Maximum Permit Limit of 2.8 pounds per day (lbs/day) from Outfall 009 on:

- 2 February 2024 at 3.0 lbs/day.

Boeing investigations are currently focused on the Former Shooting Range Remediation Project that started in June 2023. The remedial work is located within the upper-most reaches of the Outfall 009 watershed and is an ongoing effort to remove lead in accordance with an Imminent and Substantial Endangerment Determination and Consent Order issued by the Department of Toxic Substances Control (DTSC, 2022). Before and throughout the course of the remedial work, Boeing has installed, and continues to install, more robust best management practices (BMPs) at the Former Shooting Range, in accordance with the Construction Stormwater Pollution Prevention Plan (SWPPP) prepared for this project (Stantec, 2022b) and incorporated in the Removal Action Workplan (Stantec, 2022a). The Stormwater Expert Panel provided construction BMP recommendations prior to and during the remedial work for the Former Shooting Range area and is expected to make additional post-remediation stabilization recommendations for disturbed soils areas of the Former Shooting Range area.

## **PH AND SULFATE AT OUTFALL 002**

### ***pH***

On 3 January 2024, a stormwater sample was collected from Outfall 002. A field reading for pH was observed at 8.6 units, above the Effluent Limitation of 8.5 units. The field reading for pH at Outfall 018 was also elevated (8.12 units) compared to the pH of treated water at SWTS 018 (7.05 units). Subsequent field readings for pH at Outfalls 018 and 002 later that same afternoon were 6.8 and 6.9, respectively.

The field reading and sample were collected after discharge activities began at SWTS 018 on 3 January 2024, which was the first discharge after the concrete wing walls and apron were installed as part of the new BMP construction at the discharge point at Outfall 018 in October 2023. Installation of cast concrete structures below the ordinary high-water marks in streams has been observed to increase aquatic pH levels (American Association of State Highway and Transportation Officials, 2021). Boeing believes the pH exceedance at Outfall 002 was attributed to newly installed concrete from the Outfall 018 improvement activities causing a short-lived increase in pH at Outfalls 018 and 002 during the initial flush of SWTS 018 discharged stormwater. Subsequent pH readings later that same day and on following days were within permit limits.

### ***Sulfate***

On 24 March 2024, a stormwater sample was collected from Outfall 002. Sulfate was detected at 390 mg/L, above its Daily Maximum Permit Limit of 300 mg/L. Sulfate is known to be naturally elevated in groundwater in the southwestern portion of the site. To understand why sulfate could be elevated in stormwater, the Expert Panel evaluated three independent lines of evidence: (1) the Santa Susana Formation, which is found in just the southwest corner of the Santa Susana Site, contains shale and shaly sandstone, and shale is known to contain sulfur; (2) high sulfate concentrations have been reported by the Groundwater Expert Panel in seeps above and below Outfall 002 and sulfate concentrations in stormwater samples at the site are typically highest during baseflow periods and late in the wet season when the water table is highest; and (3) sulfate concentrations in off-site background stormwater samples were detected at similar levels above the permit limit (Geosyntec and the Expert Panel, 2023). Additionally, SWTS 018 was not operating at the time this sample was collected and was not a source. Therefore, Boeing believes this sulfate exceedance is from naturally occurring sources. The Expert Panel will evaluate these exceedances in their 2024 Annual Report.

### MERCURY AT OUTFALLS 004, 006, AND 009

Mercury was detected in stormwater samples collected from the following outfalls above the Daily Maximum Permit Limit of 0.024 µg/L:

- Outfall 004 on 6 February 2024 at 0.029 µg/L,
- Outfall 006 on 6 February 2024 at 0.025 µg/L, and
- Outfall 009 on 2 February 2024 at 0.031 µg/L.

The previous NPDES Permit required analysis of mercury by U. S. Environmental Protection Agency (EPA) Method 245.1, while the current NPDES Permit requires EPA Method 1631E to achieve a lower detection limit. These two methods of analysis determine the total mercury concentration within an aqueous sample which includes both organic and elemental (inorganic) forms of mercury that may be present in the sample. However, the methods differ in the sample preparation procedures and analyte detector systems.

EPA Method 245.1 uses oxidants at a high temperature to digest organics and release mercury and has a detection range between 0.2 and 10 µg/L. In contrast, EPA Method 1631 uses both oxidation and reduction to digest, reduce, and then volatilize the mercury. The range of detection for this procedure ranges from 0.0002 – 0.100 µg/L. Lower limits of detection (0.00005 µg/L) can be achieved by using larger sample volumes. To achieve the low levels of detection, EPA Method 1631 recommends the collection of samples following the “clean hands, dirty hands” sampling procedures. Under this approach, one person designated “clean hands” handles all operations involving direct contact with the sample bottle and the other person designated “dirty hands” handles all other activities that do not involve direct contact with the sample. To limit the potential for cross-contamination during sampling, Boeing follows the “clean hands-dirty hands” standard operating procedure for collection of mercury as outlined in EPA Method 1631.

However, there is still the potential for cross-contamination of the samples from background concentrations of mercury present in the environment or introduced during sample handling and collection and/or from the reagents used in the sample preparation procedures. To determine if cross-contamination from the equipment is one of the sources of contamination, Boeing will collect an equipment blank sample on autosampler equipment in the Second Quarter 2024. The Expert Panel will evaluate these exceedances in their 2024 Annual Report.

### DIOXINS (TCDD) TOXICITY EQUIVALENT (TEQ) AT OUTFALLS 002 AND 009

TCDD TEQ was calculated in stormwater samples from the following outfalls above the Daily Maximum Permit Limit of 2.8E-08 µg/L:

- Outfall 002 on 2 February 2024 at 8.7E-08 µg/L;
- Outfall 009 on 2 February 2024 at 4.1E-08 µg/L;
- Outfall 009 on 20 February 2024 at 3.1E-08 µg/L;
- Outfall 009 on 8 March 2024 at 4.0E-08 µg/L; and
- Outfall 009 on 31 March 2024 at 3.6E-08 µg/L.

Boeing believes the elevated dioxin concentrations at Outfalls 002 and 009 during the First Quarter 2024 are likely attributable to non-industrial sources, such as pavement and soils adjacent to telephone/utility poles (treated wood), and impacted surface soils in a very small portion of the Outfall 009 watershed. This conclusion is consistent with the findings in prior site studies conducted by the Stormwater Expert Panel

based on methods discussed in the Expert Panel Annual Report (Geosyntec and the Expert Panel, 2023), which uses multiple lines of evidence including particulate strengths, fingerprinting methods, spatial patterns, and material inventory to identify the likely non-industrial sources of TCDD TEQ in samples exceeding permit limits. The Expert Panel's modeling confirmed the presence of impacted soils within the Outfall 009 watershed [present in a small percentage (< 2 percent) of the drainage area]. The Expert Panel will evaluate these exceedances in their 2024 Annual Report. Meanwhile, Boeing will continue to maintain BMPs around utility poles and in the vicinity of the impacted portion of the watershed to minimize their pollutant contributions.

### **ESCHERICHIA COLI**

#### ***Bell Creek Receiving Water (RSW-001, Outfall 002)***

On 3 January 2024, *E. coli* was detected at 260 most probable number per 100 milliliters (MPN/100mL) in a sample collected at the Bell Creek receiving water location (Outfall 002, RSW-001). This bacteria count was above the single sample maximum receiving water limit of 235 MPN/100mL. Fifteen additional samples were collected at the Bell Creek (RSW-001) location daily between 4 January and 16 January 2024, and all 16 samples were used to calculate the geometric mean for *E. coli*. The calculated geometric mean for *E. coli* of 8 MPN/100mL was below the geometric mean receiving water limit of 126 MPN/100mL.

On 3 January 2024, a stormwater sample was collected from Outfall 002 and subsequently analyzed for human specific *Bacteroides* to determine whether bacteria present in this sample were likely from human sources. Laboratory analysis reported that human-specific markers were not present in the sample from Outfall 002. Therefore, Boeing believes that the *E. coli* detected at the Bell Creek receiving water location (Outfall 002, RWS-001) originated from wildlife.

#### ***Arroyo Simi Receiving Water (RSW-002, Downstream and RSW-003, Upstream)***

On 22, 23, 24, and 25 January 2024, *E. coli* was detected at 11,000, 9,800, 3,200, and 580 MPN/100mL, respectively, in samples collected off site at the Arroyo Simi RSW-002 (downstream) location, approximately 4 miles downstream of Outfall 009. Bacteria in these four samples were above the Statistical Threshold Value Limit of 320 MPN/100mL. One additional sample was collected and all five samples were used to calculate the geometric mean for *E. coli*. The calculated geometric mean for *E. coli* of 1,817 MPN/100mL for RSW-002 was above the geometric mean receiving water limit of 100 MPN/100mL.

On 22, 23, 24, 25, and 26 January 2024, *E. coli* was detected at 10,000, 2,200, 2,000, 650, and 520 MPN/100mL, respectively, in samples collected off site at the Arroyo Simi RSW-003 (upstream) location, which is upstream of RSW-002 and upstream from the point where discharge from Outfall 009 enters the Arroyo Simi. Bacteria in these five samples were above the Statistical Threshold Value Limit of 320 MPN/100mL. These samples were used to calculate the geometric mean for *E. coli*. The calculated geometric mean for *E. coli* of 1,716 MPN/100mL for RSW-003 was above the geometric mean receiving water limit of 100 MPN/100mL.

On 22 January 2024, a stormwater sample was collected from Outfall 009 and subsequently analyzed for human specific *Bacteroides* to determine whether bacteria present in this sample were likely from human sources. Laboratory analysis reported human-specific markers were not present in the sample from Outfall 009. Therefore, Boeing believes that the *E. coli* detected at RSW-002 and RSW-003 originated from wildlife or other sources not related to the Santa Susana Site.

## CONTESTED NPDES PERMIT CONDITIONS

Boeing has filed a lawsuit in Los Angeles Superior Court (the “Action”) against the Regional Board challenging certain conditions in the NPDES Permit (the “Contested Conditions”). The Contested Conditions include, but are not limited to, requirements for stormwater monitoring of PCBs using Method 1668C; monitoring of additional constituents identified in the Standardized Risk Assessment Methodology (“SRAM”); effluent limits at Outfalls 001 and 002, and effluent limits for aluminum at multiple outfalls. Despite the substantial harm Boeing will incur by complying with these Contested Conditions while the Action is pending, Boeing nonetheless is complying with those Contested Conditions, under protest, by submitting this DMR. In so complying, Boeing neither waives any rights to pursue its petitions or appeals, nor admits the propriety of such Contested Conditions. Boeing reserves all rights to pursue the Action, and any subsequent appeals.

### *PCBs by EPA Method 1668C*

Section 4.1 of the Monitoring and Reporting Program, Attachment E to the NPDES Permit, requires Boeing to conduct monitoring of PCB congeners using Method 1668C or a high-resolution EPA-approved method. Although Boeing is complying with the NPDES Permit requirement to analyze PCB congeners for informational purposes, Method 1668C is not an appropriate method to evaluate whether PCBs are present as a result of industrial operations at the Santa Susana Site because there are substantial data quality problems with the method. The EPA has determined that Method 1668C is not reliable and has declined to approve it for use in Clean Water Act (CWA) monitoring<sup>1</sup>. Among numerous issues identified with the method<sup>2</sup>, it is likely to generate “false positive” results due to its high sensitivity and the ubiquity of low-level background PCB contamination, including in analytical labs<sup>3</sup>. In addition to problems with laboratory background contamination, Method 1668C specifies detection limits for PCB congeners that are low enough to detect PCB concentrations present in ambient rainwater due to atmospheric contamination<sup>4</sup>. Because of these data quality issues, the method is unreliable for evaluating whether PCBs are present as a result of industrial operations at a site.

EPA currently is considering another method for PCB congener analysis in stormwater NPDES permits under the CWA, Method 1628. This is in part because of problems with Method 1668C, including “The fact that Method 1668 is a highly sensitive method can also be problematic because PCBs are routinely detected below ambient background levels.”<sup>5</sup> While Boeing disagrees that congener testing is warranted (PCBs have not been

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<sup>1</sup> 77 Federal Register (FR) 29758 (rejection of use of Method 1668C for CWA monitoring) and 88 FR 59662 (rejection of use of Method 1668C in the Toxic Substances Control Act context because of unreliability of method).

<sup>2</sup> Additional data quality issues identified with the method include performance-based measurement system (PBMS) issues, calibration issues, chromatography issues, extraction issues, sample volume flexibility issues, mass interference issues, interference issues from co-eluting compounds, ongoing precision and recovery (OPR) accuracy issues, blank correction, and reporting issues. See the report *Review and Evaluation of EPA Method 1668*, prepared by Environmental Standards, Inc., dated 21 December 2010, available in EPA’s Clean Water Act rulemaking docket at <https://www.regulations.gov/docket/EPA-HQ-OW-2010-0192>.

<sup>3</sup> [https://www.epa.gov/system/files/documents/2021-07/report-on-multi-lab-validation-of-cwa-method-1628-for-pcb-congeners\\_april-2021.pdf](https://www.epa.gov/system/files/documents/2021-07/report-on-multi-lab-validation-of-cwa-method-1628-for-pcb-congeners_april-2021.pdf).

<sup>4</sup> [https://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/2005-010/05\\_0426/OC\\_6\\_TechnicalReport.pdf](https://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/2005-010/05_0426/OC_6_TechnicalReport.pdf).

<sup>5</sup> Report on the Multi-laboratory Validation of Clean Water Act Method 1628 for PCB Congeners, April 2021. [https://www.epa.gov/system/files/documents/2021-07/report-on-multi-lab-validation-of-cwa-method-1628-for-pcb-congeners\\_april-2021.pdf](https://www.epa.gov/system/files/documents/2021-07/report-on-multi-lab-validation-of-cwa-method-1628-for-pcb-congeners_april-2021.pdf).

detected in over 1,750 stormwater samples collected since 1998 using the approved EPA Method 608.3,<sup>6</sup>), Method 1628 would be preferable to Method 1668C because this alternative method addresses some of the data quality concerns with Method 1668C.

In accordance with the new NPDES Permit requirement, Boeing instructed the laboratory to report PCBs by EPA Method 1668C; however, the laboratory reported PCBs using EPA Method 1668A. The laboratory uses EPA Method 1668A as it is analogous to EPA Method 1668C. Both methods report high resolution PCB congeners with no material differentiation in the sample preparation, analysis, or reporting procedures. The sole differentiator between the two analytical methods is related to Quality Assurance/Quality Control (QA/QC) criteria (EPA, 2010). Generally, the QC criteria applied to 1668A analytical results is more rigorous than 1668C; as such, any analytical results to which 1668A QC criteria has been applied will meet all requirements of 1668C. The reported results for the analysis of PCB congeners on samples using Method 1668A are thus the results that would have been reported using Method 1668C. Method 1668A also shares the data quality problems that exist for Method 1668C<sup>7</sup>.

For the data received to date, of 44 PCB congeners analyzed as required under the NPDES Permit, 38 PCB congeners were reported as detected by the laboratory in at least one sample, and the laboratory qualified results for 31 of those PCB congeners as containing laboratory-introduced contamination, as evidenced by detections of those PCB congeners in the method blank samples. In addition to data quality concerns due to laboratory contamination, the PCB congener concentrations detected in the samples are less than PCB concentrations expected to be present in rainwater due to atmospheric contamination, even in areas that are unimpacted by prior industrial activity. For example, published measurements of PCBs in rainwater at rural locations in the Great Lakes identified an annual volume-weighted mean concentration of 10 nanograms per liter (ng/L) and annual volume-weighted concentrations ranging from 3 to 22 ng/L<sup>8</sup>. These data quality concerns with Method 1668C (which also exist with Method 1668A) render it impossible to determine if PCB congener detects in the data received to date are the result of laboratory contamination, ambient concentrations of PCBs in rainwater due to atmospheric contamination, or PCBs that may originate from industrial operations, if present at all.

### **SRAM**

Section 3 and Section 3.2 of the Monitoring and Reporting Program, Attachment E to the NPDES Permit, requires Boeing to conduct monitoring of “additional remaining constituents of potential concern (COPCs) as identified [by] [Department of Toxic Substances Control] DTSC for all media in Attachment 1 of Appendix D of the 2014 Standardized Risk Assessment [Methodology] (SRAM), with updates as identified in Table 12-1 of Appendix F of the 2022 SRAM” (“SRAM Constituents”) (DTSC, 2014). 138 SRAM constituents not already included in the prior NPDES Permit were identified. Boeing was able to submit samples to the laboratory for analysis of 126 of these SRAM Constituents. Boeing has been unable to find a certified laboratory that

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<sup>6</sup> Testimony provided by Boeing in the Regional Board hearing on 19 October 2023.

<sup>7</sup> See the 2010 report by Environmental Standards, Inc. referenced in footnote 2.

<sup>8</sup> These measurements were used to estimate atmospheric deposition rates for PCBs in the TMDL for the Calleguas Creek Watershed that was adopted by the Regional Board and is incorporated by reference in the NPDES Permit. See [https://www.waterboards.ca.gov/losangeles/board\\_decisions/basin\\_plan\\_amendments/technical\\_documents/2005-010/05\\_0426/OC\\_6\\_TechnicalReport.pdf](https://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/2005-010/05_0426/OC_6_TechnicalReport.pdf). The TMDL technical report linked here notes that while studies estimating the local deposition rate of atmospheric PCB contamination were not available, results from a study in Texas were comparable to studies conducted in North America and elsewhere, including in the Great Lakes Region. The Great Lakes Region study is discussed here and referenced as follows:  
Chan, C.H. Bruce, G. and Harrison, G. Wet Deposition of Organochlorine Pesticides and Polychlorinated Biphenyls to the Great Lakes. *Journal of Great Lakes Research* 20(3): 546-560. 1994.



currently offers analysis of stormwater using an EPA-approved analytical method (or any method) for 12 of the 138 SRAM Constituents. Those 12 constituents: 1,2-dinitrobenzene, 3-chloro-2(chloromethyl)-1-propene, Aroclor 5460, dibenzyl ether, dibromofluoromethane, Freon 22 (chlorodifluoromethane), methyl sulfide, m-terphenyl, o-terphenyl, p-terphenyl, tetralin, and tetramethylurea.

To attempt to identify a certified laboratory that could perform the analyses for these 12 constituents, Boeing conducted a nationwide search of Eurofins laboratories; however, no Eurofins laboratory was identified that could perform the requested analyses. Boeing then consulted a national database called The NELAC Institute Laboratory Accreditation Management System (TNI LAMS), which lists, by analyte, any laboratory in the country that has a certification, through Environmental Laboratory Accreditation Program (ELAP) or other accreditation bodies, to analyze a particular constituent. Using TNI LAMS, Boeing identified laboratories that have certification for 3 of the 12 SRAM Constituents. Boeing contacted each of those laboratories, but none currently offer analysis of these 3 constituents. Therefore, we are unable to arrange for the analysis of those 12 SRAM Constituents at a certified laboratory using EPA-approved analytical methods (or any method).

The NPDES Permit requires that “Pollutants shall be analyzed using the analytical methods described in 40 CFR Sections 136.3, 136.4, and 136.5 (revised 28 August 2017); or, where no methods are specified for a given pollutant, by methods approved by this Los Angeles Water Board or the State Water Resources Control Board (State Water Board).” Because there are no approved analytical methods for 9 of the constituents and there are no laboratories that offer certified methods for the other 3 constituents, the Los Angeles Board asked if there are alternative analyses or methods that could be used. Boeing conducted a search for substitute alternative analyses or methods; however, alternate analyses or methodologies were not identified that would provide information about the permit-specified constituents.

## **STORMWATER POLLUTION PREVENTION PLAN/BEST MANAGEMENT PRACTICE ACTIVITIES**

### **BOEING-RELATED ACTIVITIES**

Boeing implemented BMP activities in compliance with the site-wide SWPPP (Haley & Aldrich, 2024) to assist in improving stormwater quality and compliance at the Santa Susana Site. Boeing updated the SWPPP in the First Quarter 2024 to include a summary of areas of past industrial activity, as well as a description of past industrial and current remediation activities and material handling and storage areas.

Additional BMP activities were performed, commenced, or completed during the First Quarter 2024 in coordination with the Expert Panel. Table 4 summarizes the BMP activities completed during the First Quarter 2024 by outfall or BMP location.

In addition to site-wide SWPPP-related activities, specific BMP projects included NASA and DOE activities. These are discussed below.

### **NASA-RELATED ACTIVITIES**

During the First Quarter 2024, NASA continued to inspect and maintain BMPs in accordance with the Construction General Permit (CGP) and maintained fiber rolls and sandbags as perimeter and linear sediment controls in areas where construction activities are occurring (NASA, 2023).

## DOE-RELATED ACTIVITIES

Demolition BMPs and stormwater activities covered by DOE's Construction SWPPPs for the Hazardous Waste Management Facility (HWMF), Radioactive Materials Handling Facility (RMHF), and other facilities within Area IV were inspected in accordance with the CGP (DOE, 2020a, 2020b, 2020c). DOE maintained piping trenches and low earthen berms to control and divert stormwater from disturbed soil areas during the First Quarter 2024.

## CONCLUSIONS

Boeing is committed to fulfilling the requirements of the NPDES Permit and continues to implement, maintain, and monitor wide-ranging control practices intended to improve water quality at stormwater discharge locations at the Santa Susana Site through methods designed to preserve the natural conditions in the watershed to the maximum extent feasible by implementing distributed, sustainable erosion control/restoration measures.

A total of 24.84 inches of rain was recorded at the Area 1 weather station during First Quarter 2024 alone, above the average annual rainfall of 17.70 inches per year. In a quarter with high-rainfall, high-intensity events, including a 100-year-rain event (over 8 inches of rain occurred in 24 hours), based on the analytical data received to date, many detected exceedances are likely attributable to wildlife, background or non-industrial sources, which is consistent with the research and conclusions of the Stormwater Expert Panel. The Expert Panel is reviewing the data collected and will make BMP and monitoring recommendations that will be communicated in the Expert Panel's 2024 Annual Report.

## FACILITY CONTACT

If there are any questions regarding this report or its enclosures, you may contact Mr. Jeffrey Wokurka of Boeing at (818) 466-8800.

## CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on the 15th of May 2024 at The Boeing Company, Seal Beach, California Site.

Sincerely,



Kim O'Rourke  
Global Remediation and Due Diligence Program Manager  
Global Enterprise Sustainability – Environment

**Enclosures:****References**

Table 1: First Quarter 2024 SWTS Maintenance Activities

Table 2: First Quarter 2024 SWTS Operational Activities

Table 3: First Quarter 2024 Sampling Record

Table 4: First Quarter 2024 BMP Activities

**Attachments:**

Figure 1 - Site Map with Stormwater Collection and Conveyance System and Site Features

Figure 2 - Arroyo Simi Receiving Water Downstream (RSW-002) and Upstream (RSW-003)

Sampling Locations

Appendix A - First Quarter 2024 Rainfall Data Summary

Appendix B - First Quarter 2024 Waste Shipment Summary Table

Appendix C - First Quarter 2024 Discharge Monitoring Data Summary Tables

Appendix D - First Quarter 2024 NPDES Permit Limit Exceedances and/or Non-Compliance

Appendix E - First Quarter 2024 Toxicity Laboratory Reports and Validation Reports

Appendix F - First Quarter 2024 Receiving Water Surveys

**REFERENCES**

1. American Association of State Highway and Transportation Officials (AASHTO), 2021. Concrete Curing pH Level Impacts for Minimization of Harm to Aquatic Species. 23 June.
2. California Regional Water Quality Control Board, Los Angeles Region, 2023. Waste Discharge Requirements for The Boeing Company, Santa Susana Field Laboratory (Order No. R4-2023-0359, NPDES No. CA0001309, CI Number 6027). 19 October.
3. Department of Toxic Substances Control (DTSC), 2014. Final Standard Risk Assessment Methodology Revision 2 Addendum, Santa Susana Field Laboratory, Ventura County, California. August.
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10. Stantec Consulting Services, Inc., 2022a. Draft Removal Action Workplan (RAW), Former Rocketdyne – Atomics International Rifle and Pistol Club Shooting Range and Overshot Area, Sage Ranch Park, Ventura County, California. May.
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12. U.S. Department of Energy, 2020a. Stormwater Pollution Prevention Plan for HWMF Phase 1 Decommissioning and Demolition U.S. Department of Energy, Energy Technology Engineering Center – Area IV, Santa Susana Field Laboratory, Ventura County, California. October.
13. U.S. Department of Energy, 2020b. Stormwater Pollution Prevention Plan for HWMF Phase 1 Decommissioning and Demolition U.S. Department of Energy, Energy Technology Engineering Center – Area IV, Santa Susana Field Laboratory, Ventura County, California. July.
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15. U.S. Environmental Protection Agency, 2010. Method 1668C Chlorinated Biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS. April.
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**FIRST QUARTER 2024 SWTS MAINTENANCE ACTIVITIES**

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

NPDES PERMIT CA0001309

January 1 through March 31, 2024

SWTS	Activities During First Quarter 2024
011	<ul style="list-style-type: none"> <li>- Flush standing water in preparation for operation</li> <li>- Performed HACH test</li> <li>- Dosed Sand Filters with Potassium Permanganate</li> <li>- Repaired oil leak on filter feed pump P-105</li> <li>- Greased and realigned belts for Microsand pumps</li> <li>- Performed weed abatement</li> <li>- Completed installing new turbidity meters</li> <li>- Verified new Actiflo flow meter works properly with Actiflo and chemical pump</li> <li>- Replaced damaged O-rings on both polymer pumps</li> </ul>
018	<ul style="list-style-type: none"> <li>- Flush standing water in preparation for operation</li> <li>- Performed HACH test</li> <li>- Dosed Sand Filters with Potassium Permanganate</li> <li>- Installed new Aluminum Sulfate pumps</li> <li>- Replaced damaged check valve inside the Aluminum Sulfate chemical skid</li> <li>- Installed new Effluent turbidity meter</li> <li>- Performed weed abatement</li> <li>- Began operating Screw-Press</li> <li>- Replaced damaged water hose inside the Screw drive for the Screw-press</li> <li>- Replaced chemical injection quills in chemical boxes 01, 02, and 03</li> <li>- Replaced sunbaked tubing in chemical boxes 01, and 02</li> </ul>

**FIRST QUARTER 2024 SWTS OPERATIONAL ACTIVITIES**

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

NPDES PERMIT CA0001309

January 1 through March 31, 2024

SWTS	Operational Event	Operational Dates and Hours	Total Amount of Water Treated and Discharged (gallons)
011	1	5 February through 11 February 2024, and discharged for approximately 157 hours	6,208,500 gallons
	2	19 February through 26 February 2024, and discharged for approximately 159 hours	7,112,900 gallons
	3	10 March through 12 March 2024, and discharged for approximately 47 hours	1,660,500 gallons
	4	29 March through 2 April 2024, and discharged for approximately 51 hours	2,266,200 gallons
018	1	2 January through 4 January 2024, and discharged for approximately 58 hours	2,640,600 gallons
	2	2 February through 9 February 2024, and discharged for approximately 179 hours	10,140,800 gallons
	3	12 February through 29 February 2024, and discharged for approximately 419 hours	17,279,900 gallons
	4	6 March through 10 March 2024, and discharged for approximately 105 hours	6,720,800 gallons
	5	25 March through 27 March 2024, and discharged for approximately 58 hours	2,572,800 gallons
	6	29 March through 5 April 2024, and discharged for approximately 170 hours	10,663,500 gallons

SWTS	Total Amount of Solids Generated (cubic yards)
011	Solids are still being processed and will be reported in the Second Quarter 2024
018	Solids are still being processed and will be reported in the Second Quarter 2024

TABLE 3

## FIRST QUARTER 2024 SAMPLING RECORD

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

NPDES PERMIT CA0001309

January 1 through March 31, 2024

Date (Grab)	Date (Composite)	Outfall/Location	Sample Frequency
1/2/2024	NA	SWTS 018 Influent (INF-002)	Annual, PFAS, SRAM
1/3/2024	1/4/2024	Outfall 002	Annual, Quarterly, Routine, Toxicity, Species Sensitivity
1/3/2024	1/4/2024	Bell Canyon Receiving Water (RSW-001, Outfall 002)	Annual, Quarterly
1/3/2024	1/4/2024	Outfall 018	Annual, Routine, Toxicity
1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 1/10, 1/11, 1/12, 1/13, 1/14, 1/15, 1/16	NA	Bell Canyon Receiving Water (RSW-001, Outfall 002)	Geometric Mean
1/20/2024	1/21/2024	Outfall 002	Routine, Toxicity
1/22/2024	1/23/2024	Outfall 009	Annual, Routine, Toxicity, PFAS, SRAM
1/22/2024	NA	Arroyo Simi Downstream Receiving Water (RSW-002)	Annual, Quarterly
1/22/2024	NA	Arroyo Simi Upstream Receiving Water (RSW-003)	Annual, Quarterly
1/23, 1/24, 1/25, 1/26	NA	Arroyo Simi Downstream Receiving Water (RSW-002)	Geometric Mean
1/23, 1/24, 1/25, 1/26	NA	Arroyo Simi Upstream Receiving Water (RSW-003)	Geometric Mean
2/1/2024	2/2/2024	Outfall 001	Annual, Routine, Toxicity
2/1/2024	2/2/2024	Outfall 002	Routine
2/1/2024	2/2/2024	Outfall 008	Annual, Routine, Toxicity, PFAS, SRAM
2/1/2024	2/2/2024	Outfall 009	Routine, Toxicity, PFAS, SRAM <sup>(1)</sup>
2/2/2024	NA	SWTS 018 Influent (INF-002)	Routine, PFAS, SRAM <sup>(1)</sup>
2/3/2024	2/4/2024	Outfall 018	Routine, Toxicity
2/5/2024	NA	SWTS 011 Influent (INF-001)	Annual, PFAS, SRAM
2/5/2024	2/6/2024	Outfall 004	Annual, Routine, Toxicity
2/5/2024	2/6/2024	Outfall 006	Annual, Routine, Toxicity
2/5/2024	2/6/2024	Outfall 011	Annual, Routine, Toxicity
2/18/2024	NA	SWTS 018 Influent (INF-002)	Routine
2/19/2024	NA	SWTS 011 Influent (INF-001)	Routine, PFAS, SRAM <sup>(1)</sup>
2/19/2024	2/20/2024	Outfall 001	Routine, Toxicity
2/19/2024	2/20/2024	Outfall 002	Routine
2/19/2024	2/20/2024	Outfall 008	Routine, Toxicity, PFAS, SRAM <sup>(1)</sup>
2/19/2024	2/20/2024	Outfall 009	Routine
2/20/2024	2/21/2024	Outfall 011	Routine, Toxicity
2/19/2024	2/20/2024	Outfall 018	Routine
2/27/2024	NA	SWTS 018 Influent (INF-002)	Routine
2/27/2024	2/28/2024	Outfall 001	Routine
2/27/2024	2/28/2024	Outfall 002	Routine
2/27/2024	2/28/2024	Outfall 008	Routine
2/27/2024	2/28/2024	Outfall 009	Routine

## FIRST QUARTER 2024 SAMPLING RECORD

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

NPDES PERMIT CA0001309

January 1 through March 31, 2024

Date (Grab)	Date (Composite)	Outfall/Location	Sample Frequency
2/27/2024	2/28/2024	Outfall 018	Routine
3/6/2024	NA	SWTS 018 Influent (INF-002)	Routine
3/7/2024	3/7/2024	Outfall 001	Routine
3/7/2024	3/8/2024	Outfall 002	Routine
3/7/2024	3/7/2024	Outfall 008	Routine
3/7/2024	3/8/2024	Outfall 009	Routine
3/6/2024	3/7/2024	Outfall 018	Routine
3/10/2024	NA	SWTS 011 Influent (INF-001)	Routine
3/10/2024	3/12/2024	Outfall 011	Routine
3/22/2024	NA	SWTS 018 Influent (INF-002)	Routine
3/23/2024	3/24/2024	Outfall 001	Routine
3/23/2024	3/24/2024	Outfall 002	Routine
3/23/2024	3/24/2024	Outfall 008	Routine
3/23/2024	3/24/2024	Outfall 009	Routine
3/25/2024	3/26/2024	Outfall 018	Routine
3/29/2024	NA	SWTS 011 Influent (INF-001)	Routine
3/29/2024	NA	SWTS 018 Influent (INF-002)	Routine
3/30/2024	3/31/2024	Outfall 001	Routine
3/30/2024	3/31/2024	Outfall 002	Routine
3/30/2024	3/31/2024	Outfall 008	Routine
3/30/2024	3/31/2024	Outfall 009	Routine
3/30/2024	3/31/2024	Outfall 011	Routine
3/29/2024	3/31/2024	Outfall 018	Routine

**Notes:**

NA = Not applicable.

PFAS = Per-and poly fluoroalkyl substances sampling is required during the 1st and 2nd rain events of the first year of the permit.

SRAM = Standardized Risk Assessment Methodology sampling is required during the 1st and 2nd rain events of the first year of the permit.

Routine = 1 per discharge event.

Toxicity is required during the 1st and 2nd rain events that create flow at the outfall.

Geometric mean samples were collected in compliance with the Receiving Water Requirements in Attachment E of Species sensitivity screening is required every 24 months. *Pimephales promelas* (fathead minnow) is the representative species for the next 24 months.

<sup>(1)</sup> - Due to field and/or laboratory field error, isolated SRAM analytes were not collected during the first or second rain event, but were collected during subsequent events.



FIRST QUARTER 2024 BMP ACTIVITIES

THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

January 1 through March 31, 2024

Outfall, Watershed, BMP, or Other Location	BMP Activities During First Quarter 2024
<b>SWPPP-Related Activities</b>	
001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, and 018	Conducted erosion/sediment control, and drainage stabilization inspections.
	Performed maintenance around the perimeter of the outfall, the drainage/watershed, and areas of disturbance or sparse vegetation.
	Removed sediment and debris from outfalls.
	Inspected the flume or weir for sediment/debris, if applicable
	Cleaned the sample box of sediment/debris, checked for the presence of animals, and performed weed abatement as needed.
	Conducted maintenance inspections of the flow-through structure, if applicable.
	Conducted maintenance inspections of the stormwater retention system, if applicable.
	Conducted maintenance inspections of the stormwater conveyance system, if applicable.
	Reset the flow meter, if applicable.
	Checked the flow meter control box for the presence of debris and/or animals, if applicable.
001, 002, 003, 004, 006, 008, 009, 010, 011, and 018	Performed Calibration of the flow meters and the flume Autosamplers.
001	Installed a new 100-watt solar panel with a new photo-controller for the flow meter.
	Replaced the Autosampler intake screen.
004	Repaired the flume wall to prevent water from bypassing sample box.
005	Installed new felt inside the retention basin.
007	Repaired liner inside retention basin.
	Installed a new power supply for the magnetic conveyance line flow meter.
008	Installed new solar panel and control panel for the flow meter
	Replaced Autosampler pump tubing.
009	Replaced and installed new 100-watt solar panel with new photo-controller for the flow meter.
	Replaced felt covering sandbags on top of Outfall 009.
	Removed sediment and leaf debris from check structures on the road to Outfall 009.
011	Repaired the autosampler intake screen.
	Re-established check structure downstream of the media bed.
018	Installed media-filled fiber rolls in front of check structures inside the spillway.
	Rotated the 90-degree discharge fitting upward.
	Replaced the Autosampler pump tubing.

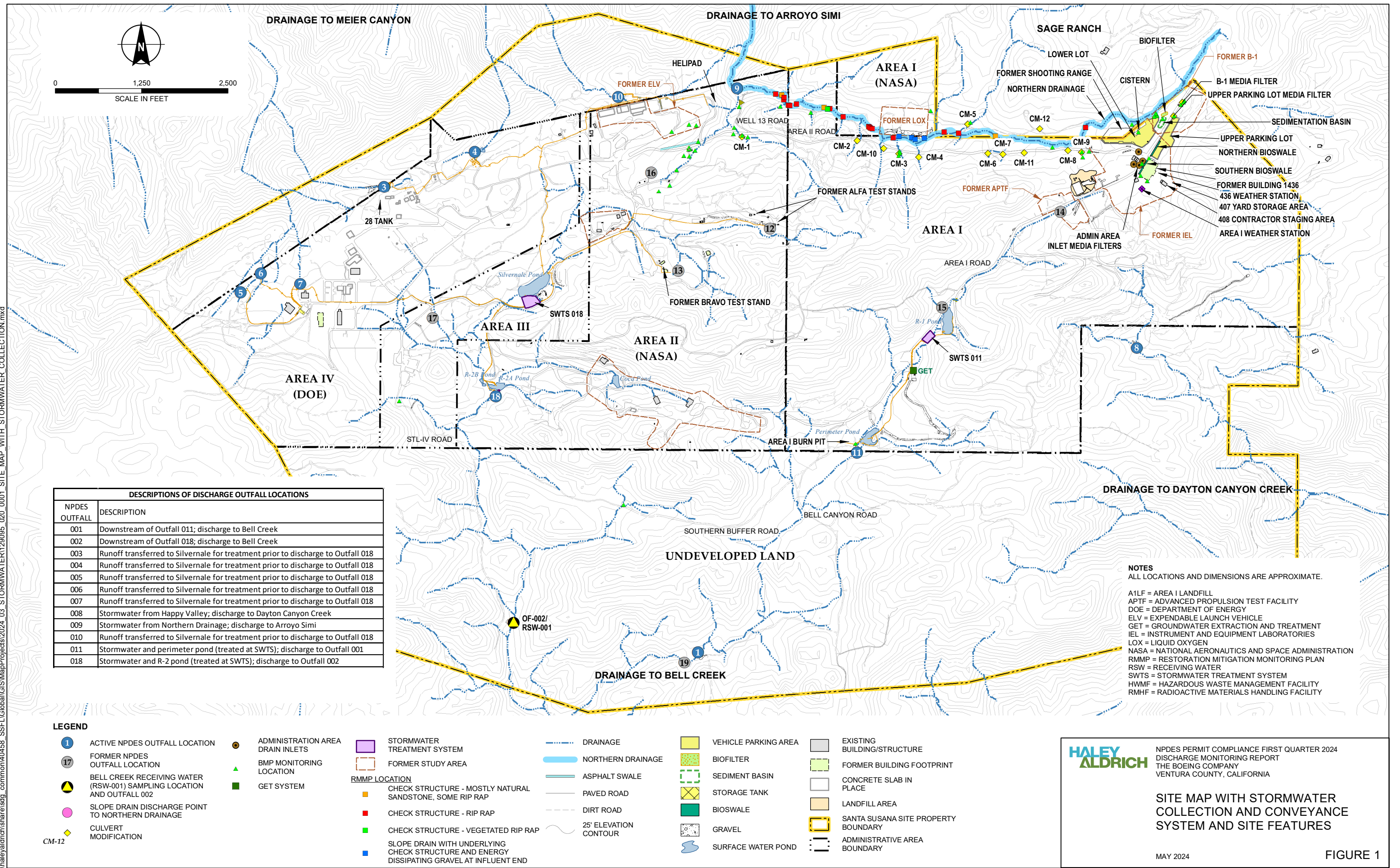
**TABLE 4**  
**FIRST QUARTER 2024 BMP ACTIVITIES**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

January 1 through March 31, 2024

<b>Outfall, Watershed, BMP, or Other Location</b>	<b>BMP Activities During First Quarter 2024</b>
<b>SWPPP-Related Activities</b>	
Perimeter Pond	Installed rip rap and liner berm.
R-2A Pond	Installed a 10-inch check valve on the Charles King pump line.
	Installed new light above conveyance pumps.
Helipad	Replaced float switch for the Charles King pump.
28 Tank Area	Performed weed abatement and brush clearance around the tank
407 Yard	Removed sediment from the entrance swale.
Area I Burn Pit	Performed construction of water catch basin system/pump lift station to divert Burn Pit runoff to the Perimeter Pond.
<b>Other SWPPP-Related Activities</b>	
Former Shooting Range	Performed BMP Inspections, upgrades, and repairs in accordance with the SWPPP for Former Shooting Range Remedial Action (Stantec, 2022b).
Area I Burn Pit	Performed BMP Inspections, upgrades, and repairs in accordance with the SWPPP for Area I Burn Pit Removal Action (Jacobs, 2023).
<b>Expert Panel-Related Activities</b>	
Culvert Modifications (CM)	Performed BMP Inspections.
	Repaired concrete around the culvert discharge pipes.
	Removed any sediment and debris in the flumes.
B-1 Area	Performed BMP Inspections.
	Removed sediment from fiber rolls in front of the retention basin.
Upper Parking Lot Media Filter	Performed BMP Inspections.
	Increased the height of the concrete walls of the Upper Lot.
Former Building 1436 Detention Bioswales	Performed BMP Inspections.
	Removed sediment from bioswale inlets.
Lower Lot Biofilter (Sedimentation Basin and Biofilter)	No safe access to Sedimentation Basin and Biofilter due to Shooting Range/Sage Ranch remediation.
	Approximately 1,637,600 gallons of stormwater were pumped from the cistern to the Sedimentation Basin.
Administration Area Inlet Filters	Performed BMP Inspections.
	Removed sediment from the storm drain inlet baskets.
NASA and Boeing BMP Monitoring-Related Activities	In addition to activities performed in coordination with the Expert Panel described above, BMP performance monitoring samples were collected in the watersheds associated with Outfalls 001 and 009. These sampling results will be reported by the Expert Panel in their 2024 Annual Report.

## FIGURES

\\haleyaldrich\share\setg\_common\40458\_SSFL\Global\GIS\MapProjects\2024\_03\_STORMWATER\20095\_020\_001\_SITE\_MAP\_WITH\_STORMWATER\_COLLECTION.mxd



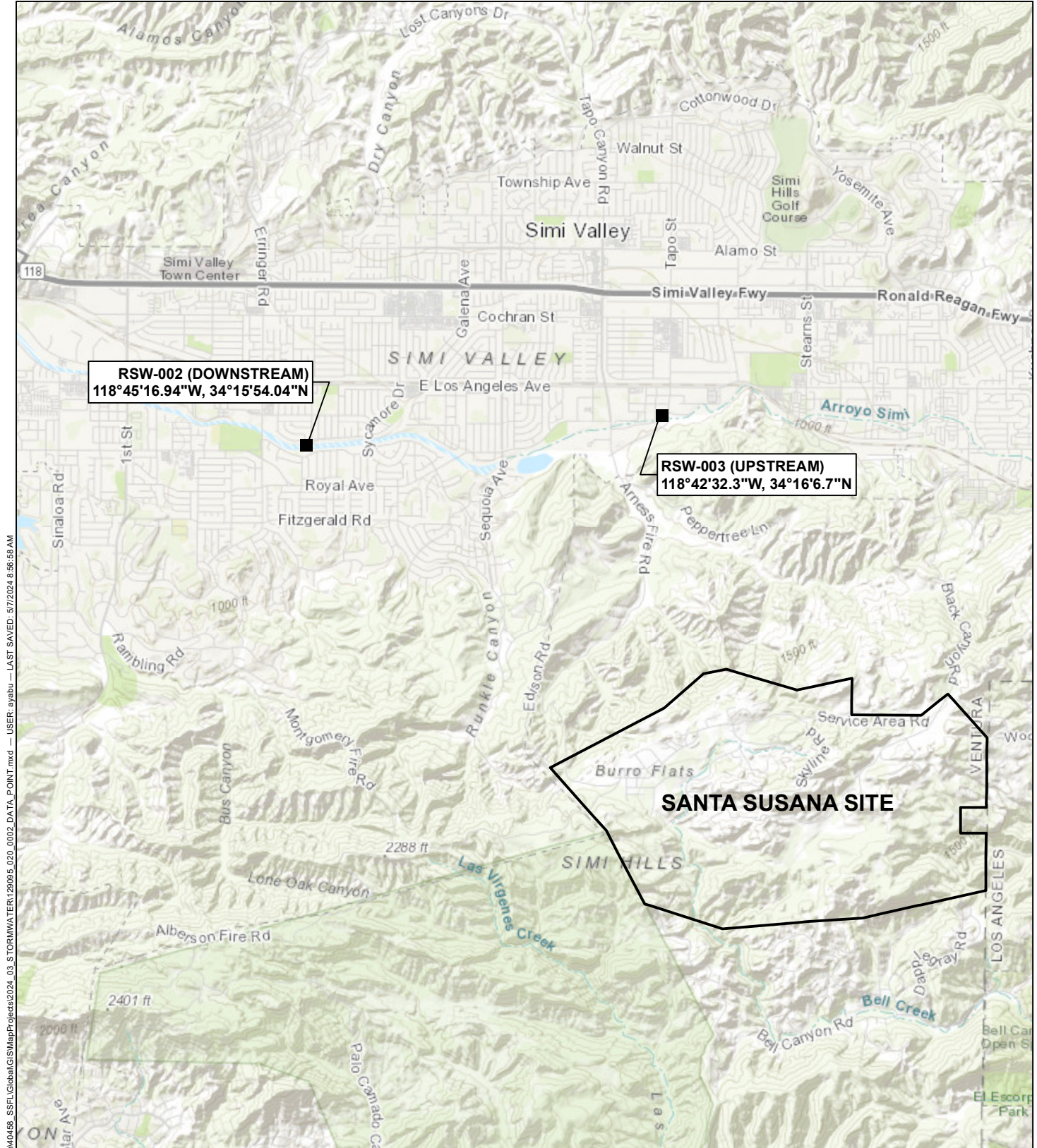
**HALEY ALDRICH**

NPDES PERMIT COMPLIANCE FIRST QUARTER 2024  
 DISCHARGE MONITORING REPORT  
 THE BOEING COMPANY  
 VENTURA COUNTY, CALIFORNIA

**SITE MAP WITH STORMWATER COLLECTION AND CONVEYANCE SYSTEM AND SITE FEATURES**

MAY 2024

FIGURE 1



GIS FILE PATH: \\haleyaldrich.com\share\sdg\_common\GIS\MapProjects\2024\_03\_STORMWATER\129095\_020\_0002\_DATA\_POINT.mxd — USER: ayabu — LAST SAVED: 5/7/2024 8:56:58 AM



0 0.5 1  
SCALE IN MILES

**HALEY  
ALDRICH**

NPDES PERMIT COMPLIANCE FIRST QUARTER 2024  
DISCHARGE MONITORING REPORT  
THE BOEING COMPANY  
VENTURA COUNTY, CALIFORNIA

ARROYO SIMI RECEIVING WATER  
SAMPLING LOCATIONS  
RSW-002 (DOWNSTREAM) AND  
RSW-003 (UPSTREAM)

MAY 2024

FIGURE 2

## **APPENDIX A**

### **First Quarter 2024 Rainfall Data Summary**

**TABLE A**  
**DAILY RAINFALL SUMMARY**  
 FIRST QUARTER 2024  
 THE BOEING COMPANY - SSFL  
 NPDES PERMIT CA0001309

Station: AREA 1  
 Parameter: Inches of Rain  
 Month/Year: January 2024

**HOUR OF THE DAY, PACIFIC STANDARD TIME**

	HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																										Total
D	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Y	3	0.00	0.00	0.00	0.04	0.07	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
O	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
T	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
T	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.10	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.04	0.04	0.02	0.02	0.14	0.03	0.50
O	21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
N	22	0.01	0.00	0.02	0.16	0.31	0.32	0.09	0.07	0.08	0.01	0.01	0.02	0.00	0.00	0.25	0.03	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.00	1.43
T	23	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
H	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Monthly Total 2.10

Flags: d = Off-line part of hour. Invalid hour due to calibration (29 January). For the off-line event, the rain gauge at Sage Ranch did not record measurable rainfall on 29 January during hour 0700-0800.

**TABLE A**  
**DAILY RAINFALL SUMMARY**  
 FIRST QUARTER 2024  
 THE BOEING COMPANY - SSFL  
 NPDES PERMIT CA0001309

Station: AREA 1  
 Parameter: Inches of Rain  
 Month/Year: February 2024

**HOUR OF THE DAY, PACIFIC STANDARD TIME**

	HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																										Total
D	1	0.02	0.11	0.23	0.28	0.33	0.53	0.41	0.08	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.03	0.00	0.00	2.12
A	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Y	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04
O	4	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.15	0.23	0.46	0.49	0.50	0.52	0.60	0.62	0.63	0.47	0.52	0.43	5.72
F	5	0.53	0.41	0.30	0.26	0.20	0.16	0.23	0.09	0.06	0.03	0.02	0.16	0.13	0.08	0.04	0.02	0.02	0.05	0.03	0.03	0.02	0.00	0.00	0.00	2.87
T	6	0.05	0.04	0.02	0.04	0.25	0.04	0.00	0.02	0.00	0.01	0.00	0.02	0.01	0.04	0.29	0.12	0.24	0.15	0.10	0.01	0.00	0.00	0.00	0.00	1.45
H	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.21	0.04	0.00	0.00	0.00	0.35
E	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
T	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.03	0.18	0.04	0.05	0.36
H	19	0.05	0.15	0.13	0.16	0.20	0.29	0.17	0.29	0.14	0.08	0.02	0.15	0.08	0.09	0.00	0.00	0.02	0.02	0.03	0.04	0.14	0.03	0.03	0.07	2.38
M	20	0.01	0.01	0.01	0.07	0.04	0.01	0.04	0.02	0.01	0.01	0.04	0.02	0.07	0.02	0.02	0.01	0.15	0.15	0.12	0.11	0.02	0.01	0.01	0.00	0.98
O	21	0.01	0.00	0.42	0.27	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72
N	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.12
	27	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Monthly Total 17.14





**APPENDIX B**

**First Quarter 2024 Waste Shipment Summary Tables**

**TABLE B**  
**WASTE SHIPMENT SUMMARY TABLE**  
 FIRST QUARTER 2024  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

Transported Spills						
NA3077, Hazardous Waste Solid, n.o.s. (F002 Rock Drilling Solids), 9, PG III	Solid	50	P	Patriot Environmental Services	n/a	US Ecology HWY 95, 11 Miles S. Of Beatty Beatty NV 89003

Transported Stormwater						
Type of Stormwater	Matrix	Quantity	Units	Transporter 1	Transporter 2	Destination
Non Hazardous Waste Liquid (Septic)	Liquid	39,200	G	United Pumping Service, Inc. 14000 E. Valley Boulevard City of Industry, CA 91746	n/a	A.K. Warren Water Resource Facility 24501 S. Figueroa Street Carson, CA 90745
Non Hazardous Waste	Liquid	40,000	G	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058	n/a	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058

**Notes:**  
 n/a = Not Applicable  
 P = Pounds  
 G = Gallons

## **APPENDIX C**

### **First Quarter 2024 Discharge Monitoring Data Summary Tables**

## APPENDIX C

### TABLE OF CONTENTS

#### Reporting Summary Notes

##### C-0. Laboratory Status as of May 15, 2024

C-0.a. Outfalls 001, 002, 011, and 018

C-0.b. Outfall 008

C-0.c. Outfalls 004, 006, and 009

C-0.d. SWTS 011 (INF-001) and SWTS 018 (INF-002)

These tables will be reported when all data is available:

##### C-1. Effluent Monitoring Data Summary Tables

C-1.a. Outfalls 001, 002, 011, and 018

C-1.b. Outfall 008

C-1.c. Outfalls 004, 006, and 009

##### C-2. Influent Monitoring Data Summary Table

SWTS 011 (INF-001) and SWTS 018 (INF-002)

##### C-3. Arroyo Simi Receiving Water at RSW-002 (Downstream) and RSW-003 (Upstream)

##### C-4. E. Coli

##### C-5. Radionuclides

##### C-6. PFAS

##### C-7. SRAM

**REPORTING SUMMARY NOTES  
THE BOEING COMPANY  
SANTA SUSANA FIELD LABORATORY NPDES  
PERMIT CA0001309**

**Not all of the following notes, abbreviations, symbols, or acronyms occur on every table:**

1. Exceedances are constituents detected in excess of daily maximum permit limits or receiving water limits. Analytical concentrations or calculations to determine compliance to the NPDES permit are compared to the same number of significant figures as the daily maximum permit limits or receiving water limits.
2. Dissolved metals are filtered by the laboratory and reported as “Metal, dissolved”. Total metals are not filtered by the laboratory and reported as “Metal”.
3. Abbreviations, symbols, and acronyms:

-92.9 +/-200	A negative radiochemical analytical result indicates the count rate of the sample was less than the background condition. Radiological results are presented as activity plus or minus total uncertainty.
%	Percent.
\$	Reported result or other information was incorrectly reported by the laboratory; result was corrected by the data validator.
--	Based on validation of the data, a qualifier was not required.
-	No NPDES permit limit established for daily maximum or receiving water limit.
>(value)	Greater than most probable number.
*	Result not validated.
**	Flow for each outfall is calculated over the 24-hour period when the outfall autosampler is operating to collect the composite sample. See definition of “Daily Discharge” on page A-1 of attachment A of the 2023 NPDES permit.
*1	Improper preservation of sample.
*3	Initial and or continuing calibration recoveries were outside acceptable control limits.
*10	Value was estimated detect or estimated non-detect (J, UJ) due to deficiencies in quantitation of the constituent including constituents reported by the laboratory as estimated maximum possible concentration (EMPC) values.
*III	Unusual problems found with the data that have been described in the validation report.
ANR	Analysis not required; e.g., constituent or outfall was not required by the NPDES permit to be sampled and analyzed over the reporting period (annual, semi- annual, etc.).
B	Presumed contamination as indicated by the preparation (method) blank results.
BEF	Bioaccumulation equivalency factor.
C	Calibration %RSD or %D was noncompliant or Correlation coefficient is <0.995.
Comp	Composite sample.
CEs/100 ml	Cell equivalents per 100 milliliters.
D	The analysis with this flag should not be used because another more technically sound analysis is available.
Deg C	Degrees Celsius.
Deg F	Degrees Fahrenheit.
DL	Detection limit.

**REPORTING SUMMARY NOTES  
THE BOEING COMPANY  
SANTA SUSANA FIELD LABORATORY NPDES  
PERMIT CA0001309**

DNQ	Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
E	E in validation qualifier indicates that duplicates show poor agreement.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
FB	Field blank.
ft/sec	Feet per second.
gpd	Gallons per day.
H	Holding time was exceeded.
I	Internal standard performance was unsatisfactory.
J	Estimated value.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
L	Laboratory control standard (LCS)/laboratory control standard duplicate (LCSD), relative percent difference (RPD) was outside the control limit.
LBS/DAY	Pounds per day.
MDL	Method detection limit.
Meas	Measure sample type.
MFL	Million fibers per liter.
MGD	Million gallons per day.
mg/L	Milligrams per liter.
mg/kg	Milligrams per kilogram.
ml/L	Milliliters per liter.
ml/L/hr	Milliliters per liter per hour.
MPN/100 mL	Most probable number per 100 milliliters.
MQL	Method quantitation limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
mS/cm	MilliSiemens per centimeter.
NA	Not applicable; no NPDES permit limit established for the constituent and/or outfall or analyte not required per receiving water monitoring requirements.
ND	Analyte not detected.
ng/L	Nanograms per liter.
NM	Not measured or determined or minimum detectable activities (MDAs) are not calculated as there is no statistical method for combining MDAs.
NPDES	National Pollutant Discharge Elimination System.
NR	Not reported by laboratory by the deadline of this report.
NTU	Nephelometric turbidity unit.
ppb	Parts per billion.
pCi/L	PicoCuries per liter.
Q	Matrix spike (MS)/matrix spike duplicate (MSD) relative percent difference (RPD) was outside the control limit.

**REPORTING SUMMARY NOTES  
THE BOEING COMPANY  
SANTA SUSANA FIELD LABORATORY NPDES  
PERMIT CA0001309**

R	As a validation qualifier, results are rejected; the presence or absence of analyte cannot be verified.
(R)	Percent recovery (%R) for calibration not within control limits.
RL	Laboratory reporting limit.
RPD	Relative percent difference.
%R	Percent recovery.
S	Surrogate recovery was outside control limits.
s.u.	Standard unit.
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin.
TEQ	Toxic equivalent.
TIC	Tentatively identified compound
TIE	Toxicity identification evaluation
T	Presumed contamination, as indicated by a detect in the trip blank.
U	Result not detected.
µg/L	Micrograms per liter.
µg/g	Micrograms per gram.
µg/kg	Micrograms per kilogram.
µmhos/cm	Micromhos per centimeter.
UJ	Result not detected at the estimated reporting limit.
WHO TEF	World Health Organization toxic equivalency factor.
(a)	Analysis not completed due to hold time exceedance or insufficient sample volume.
(b)	The composite sample was collected as a grab sample from the stream due to insufficient flow.
(c)	Total Ammonia is reported in wet weight units' milligrams per kilogram (mg/kg).
(d)	Total organic carbon (TOC) is reported in dry weight units. Permit asks for TOC units in % dry weight, but data is provided in dry unit milligrams per kilogram (mg/kg).
(e)	The composite sample was collected as a grab sample from the sample box due to insufficient flow.
(f)	The grab sample was collected at the first opportunity given the short duration and low flow at this Outfall.
(g)	Unsafe conditions all day prevented access to the Outfall.
(h)	Various annual constituents were analyzed by laboratory due to field and laboratory error.
(i)	Reanalysis.
(j)	Sample collected in addition to NPDES permit required sampling frequency.
(k)	Composite sample collected from sample box due to cracked autosampler tubing resulting in low volume recovery.



ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 001	Outfall 001	Outfall 001	Outfall 001	Outfall 001
			DATE RANGE	02/01/2024 09:00 - 02/02/2024 10:15	02/19/2024 09:25 - 02/20/2024 10:05	02/27/2024 07:00 - 02/28/2024 08:45	03/07/2024 06:40 - 03/07/2024 09:15	03/23/2024 08:05 - 03/24/2024 08:00
	SAMPLE FREQUENCY							
1,1,1-Trichloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
1,1,2-Trichloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
1,2-Dichloropropane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
1,4-Dioxane	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Lab has yet to report	Lab has yet to report
2,4,6-Trichlorophenol	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,4-Dichlorophenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,6-Dinitrotoluene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2-Chlorophenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
2-Nitrophenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
4,4'-DDD	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
4,4'-DDE	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
4,4'-DDT	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
4-Nitrophenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Acenaphthene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Acenaphthylene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Acrolein	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Aldrin	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
alpha-BHC	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
alpha-Endosulfan	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aluminum	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Aluminum, dissolved	Composite	mg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Ammonia - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Anthracene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Antimony	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Aroclor 1016	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aroclor 1221	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aroclor 1232	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aroclor 1242	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aroclor 1248	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aroclor 1254	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Aroclor 1260	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Arsenic	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 001	Outfall 001	Outfall 001	Outfall 001	Outfall 001
			DATE RANGE	02/01/2024 09:00 - 02/02/2024 10:15	02/19/2024 09:25 - 02/20/2024 10:05	02/27/2024 07:00 - 02/28/2024 08:45	03/07/2024 06:40 - 03/07/2024 09:15	03/23/2024 08:05 - 03/24/2024 08:00
	SAMPLE FREQUENCY							
Asbestos > 0.5 um	Composite	MFL	1/Year	Data Received	ANR	ANR	ANR	ANR
Barium	Composite	mg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Benizidine	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Benzo(a)anthracene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Beryllium	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
beta-BHC	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
beta-Endosulfan	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Biochemical Oxygen Demand (BOD) (5-Day @ 20°C)	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Boron	Composite	mg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Cadmium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cadmium, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chlordane	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Chloride	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Chlorine, Total Residual (Field)	Grab	mg/L	FIND OUT	Data Received	ANR	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chloroform	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chromium	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	Data Received	ANR	ANR	ANR	ANR
Chronic Toxicity	Composite	Pass or Fail and % Effect	1st & 2nd rain event/Year	Data Received	Data Received	ANR	ANR	ANR
Chrysene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Cobalt	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Cobalt, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Copper	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Copper, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cyanide	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	ANR
Cyclohexane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
delta-BHC	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Detergents (as MBAS)	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Dieldrin	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Diethyl phthalate	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 001	Outfall 001	Outfall 001	Outfall 001	Outfall 001
			DATE RANGE	02/01/2024 09:00 - 02/02/2024 10:15	02/19/2024 09:25 - 02/20/2024 10:05	02/27/2024 07:00 - 02/28/2024 08:45	03/07/2024 06:40 - 03/07/2024 09:15	03/23/2024 08:05 - 03/24/2024 08:00
	SAMPLE FREQUENCY							
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Endosulfan sulfate	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Endrin	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Endrin aldehyde	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Fluoranthene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Fluorene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Fluoride	Composite	mg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
gamma-BHC (Lindane)	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Heptachlor	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Heptachlor epoxide	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Hexachloroethane	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron, dissolved	Composite	mg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Isophorone	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Lead	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Lead, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Manganese	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Mercury	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Mercury, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Methylene chloride	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Naphthalene (SVOC)	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Nickel	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Nitrate - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Nitrite - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Nitrobenzene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Pentachlorophenol	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Perchlorate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	ANR
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Phenol	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Pyrene	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Selenium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Selenium, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Composite	mL/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Grab	mL/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Silver	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Sulfate	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Thallium	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR

			LOCATION	Outfall 001	Outfall 001	Outfall 001	Outfall 001	Outfall 001
			DATE RANGE	02/01/2024 09:00 - 02/02/2024 10:15	02/19/2024 09:25 - 02/20/2024 10:05	02/27/2024 07:00 - 02/28/2024 08:45	03/07/2024 06:40 - 03/07/2024 09:15	03/23/2024 08:05 - 03/24/2024 08:00
ANALYTE	SAMPLE TYPE	UNITS	SAMPLE FREQUENCY					
Total Dissolved Solids	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Total Organic Carbon	Composite	mg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Total Suspended Solids	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Toxaphene	Composite	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Turbidity	Composite	NTU	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Vanadium	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR
Zinc	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Zinc, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 001	Outfall 002	Outfall 002	Outfall 002	Outfall 002
			DATE RANGE	03/30/2024 07:10 - 03/31/2024 08:40	01/03/2024 07:30 - 01/04/2024 08:00	01/20/2024 10:00 - 01/21/2024 09:15	02/01/2024 07:35 - 02/02/2024 08:00	02/19/2024 07:05 - 02/20/2024 08:00
			SAMPLE FREQUENCY					
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
1,4-Dioxane	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
2,4,6-Trichlorophenol	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,4-Dichlorophenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2-Chlorophenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
2-Nitrophenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
4,4'-DDD	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
4,4'-DDE	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
4,4'-DDT	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
4-Nitrophenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Acenaphthene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Acenaphthylene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Acrolein	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Aldrin	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
alpha-BHC	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
alpha-Endosulfan	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aluminum	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Aluminum, dissolved	Composite	mg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Ammonia - N	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Anthracene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Antimony	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Aroclor 1016	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aroclor 1221	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aroclor 1232	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aroclor 1242	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aroclor 1248	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aroclor 1254	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Aroclor 1260	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Arsenic	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	Outfall 001	Outfall 002	Outfall 002	Outfall 002	Outfall 002
				03/30/2024 07:10 - 03/31/2024 08:40	01/03/2024 07:30 - 01/04/2024 08:00	01/20/2024 10:00 - 01/21/2024 09:15	02/01/2024 07:35 - 02/02/2024 08:00	02/19/2024 07:05 - 02/20/2024 08:00
			SAMPLE FREQUENCY					
Asbestos > 0.5 um	Composite	MFL	1/Year	ANR	Lab has yet to report	ANR	ANR	ANR
Barium	Composite	mg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Benzidine	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Benzo(a)anthracene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Beryllium	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
beta-BHC	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
beta-Endosulfan	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Biochemical Oxygen Demand (BOD) (5-Day @ 20°C)	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Boron	Composite	mg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Cadmium	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cadmium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chlordane	Composite	mg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Chloride	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Chlorine, Total Residual (Field)	Grab	mg/L	FIND OUT	ANR	Data Received	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chloroform	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chromium	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	ANR	Data Received	ANR	ANR	ANR
Chronic Toxicity	Composite	Pass or Fail and % Effect	1st & 2nd rain event/Year	ANR	Data Received	Data Received	ANR	ANR
Chrysene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	Data Received	Data Received	Data Received	Data Received
Cobalt	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Cobalt, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Copper	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Copper, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cyanide	Composite	µg/L	1/Year	ANR	Data Received	Data Received	Data Received	Data Received
Cyclohexane	Grab	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
delta-BHC	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Detergents (as MBAS)	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Dieldrin	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Diethyl phthalate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	Outfall 001	Outfall 002	Outfall 002	Outfall 002	Outfall 002
				03/30/2024 07:10 - 03/31/2024 08:40	01/03/2024 07:30 - 01/04/2024 08:00	01/20/2024 10:00 - 01/21/2024 09:15	02/01/2024 07:35 - 02/02/2024 08:00	02/19/2024 07:05 - 02/20/2024 08:00
	SAMPLE FREQUENCY							
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Endosulfan sulfate	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Endrin	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Endrin aldehyde	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Ethylbenzene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Fluoranthene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Fluorene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Fluoride	Composite	mg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Heptachlor	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
Heptachlor epoxide	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Hexachlorobutadiene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Hexachloroethane	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron, dissolved	Composite	mg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Isophorone	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Lead	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Lead, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Manganese	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Mercury	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Mercury, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Methylene chloride	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Naphthalene (SVOC)	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Nickel	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Nitrate - N	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Nitrite - N	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Nitrobenzene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Pentachlorophenol	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Perchlorate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	Data Received
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Phenol	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Pyrene	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Selenium	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Selenium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Composite	mL/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Grab	mL/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Silver	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Sulfate	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Thallium	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR

			LOCATION	Outfall 001	Outfall 002	Outfall 002	Outfall 002	Outfall 002
			DATE RANGE	03/30/2024 07:10 - 03/31/2024 08:40	01/03/2024 07:30 - 01/04/2024 08:00	01/20/2024 10:00 - 01/21/2024 09:15	02/01/2024 07:35 - 02/02/2024 08:00	02/19/2024 07:05 - 02/20/2024 08:00
ANALYTE	SAMPLE TYPE	UNITS	SAMPLE FREQUENCY					
Total Dissolved Solids	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Total Organic Carbon	Composite	mg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Total Suspended Solids	Composite	mg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Toxaphene	Composite	µg/L	1/Year	ANR	Data Received	ANR	Data Received	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Turbidity	Composite	NTU	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Vanadium	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	ANR	Data Received	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR
Zinc	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Zinc, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report



ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 002	Outfall 002	Outfall 002	Outfall 002	Outfall 011
			DATE RANGE	02/27/2024 08:45 - 02/28/2024 10:20	3/7/2024 7:35:00 AM	03/23/2024 07:05 - 03/24/2024 08:30	03/30/2024 07:30 - 03/31/2024 09:50	02/05/2024 07:45 - 02/06/2024 07:50
	SAMPLE FREQUENCY							
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,1-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
1,4-Dioxane	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
2,4,6-Trichlorophenol	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
2,4-Dichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2,4-Dimethylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2,4-Dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2,4-Dinitrotoluene	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2-Chloronaphthalene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2-Chlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
2-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
4,4'-DDD	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
4,4'-DDE	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
4,4'-DDT	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
4-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Acenaphthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Acenaphthylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Acrolein	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Acrylonitrile	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
alpha-BHC	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
alpha-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aluminum	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Aluminum, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
Ammonia - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Antimony	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Antimony, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1016	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1221	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1232	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1242	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1248	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1254	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Aroclor 1260	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Arsenic	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Arsenic, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	Outfall 002	Outfall 002	Outfall 002	Outfall 002	Outfall 011
				02/27/2024 08:45 - 02/28/2024 10:20	3/7/2024 7:35:00 AM	03/23/2024 07:05 - 03/24/2024 08:30	03/30/2024 07:30 - 03/31/2024 09:50	02/05/2024 07:45 - 02/06/2024 07:50
			SAMPLE FREQUENCY					
Asbestos > 0.5 um	Composite	MFL	1/Year	ANR	ANR	ANR	ANR	Lab has yet to report
Barium	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Barium, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
Benzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Benizidine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Benzo(a)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Benzo(a)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Beryllium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Beryllium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
beta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
beta-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Biochemical Oxygen Demand (BOD) (5-Day @ 20°C)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Boron	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Boron, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
Bromodichloromethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Bromoform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Butyl benzylphthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Cadmium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Cadmium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chlordane	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chloride	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Chlorine, Total Residual (Field)	Grab	mg/L	FIND OUT	ANR	ANR	ANR	ANR	Data Received
Chlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chloroform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chromium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chromium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
Chromium III (Trivalent)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	ANR	ANR	ANR	ANR	Data Received
Chronic Toxicity	Composite	Pass or Fail and % Effect	1st & 2nd rain event/Year	ANR	ANR	ANR	ANR	Data Received
Chrysene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received
Cobalt	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Cobalt, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received
Copper	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Copper, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Cyanide	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received
Cyclohexane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received
delta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Detergents (as MBAS)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Dieldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Diethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Dimethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Di-n-butyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Di-n-octyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 002		Outfall 002		Outfall 002		Outfall 002		Outfall 011	
				DATE RANGE	02/27/2024 08:45 - 02/28/2024 10:20	3/7/2024 7:35:00 AM	03/23/2024 07:05 - 03/24/2024 08:30	03/30/2024 07:30 - 03/31/2024 09:50	02/05/2024 07:45 - 02/06/2024 07:50				
			SAMPLE FREQUENCY										
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received				
Endosulfan sulfate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Endrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Endrin aldehyde	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Ethylbenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Fluorene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Fluoride	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hardness (as CaCO3)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Heptachlor	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Heptachlor epoxide	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hexachlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hexachlorobutadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hexachlorobutadiene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Hexachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Iron	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Iron, dissolved	Composite	mg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Isophorone	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Lead	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Lead, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Manganese	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Manganese, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Mercury	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Data Received	Data Received				
Mercury, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Data Received	Data Received				
Methylene chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Naphthalene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Nickel	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Nickel, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Nitrate - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Nitrite - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Nitrobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
N-Nitrosodimethylamine	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Pentachlorophenol	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Perchlorate	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR	ANR	ANR				
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received				
Phenanthrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Phenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Selenium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Selenium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Settleable solids	Composite	mL/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Settleable solids	Grab	mL/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Silver	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Silver, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Sulfate	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report				
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received				
Tetrachloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Thallium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Thallium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR				
Toluene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR				

			LOCATION	Outfall 002	Outfall 002	Outfall 002	Outfall 002	Outfall 011
			DATE RANGE	02/27/2024 08:45 - 02/28/2024 10:20	3/7/2024 7:35:00 AM	03/23/2024 07:05 - 03/24/2024 08:30	03/30/2024 07:30 - 03/31/2024 09:50	02/05/2024 07:45 - 02/06/2024 07:50
ANALYTE	SAMPLE TYPE	UNITS	SAMPLE FREQUENCY					
Total Dissolved Solids	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Total Organic Carbon	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Total Suspended Solids	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Toxaphene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Trichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received
Turbidity	Composite	NTU	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Vanadium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Vanadium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	Data Received
Vinyl chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	Data Received
Zinc	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received
Zinc, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 011	Outfall 011	Outfall 011	Outfall 018	Outfall 018
			DATE RANGE	02/20/2024 06:50 - 02/21/2024 06:50	03/10/2024 17:40 - 03/12/2024 08:20	03/30/2024 08:50 - 03/31/2024 09:15	01/03/2024 07:00 - 01/04/2024 07:30	02/03/2024 06:40 - 02/04/2024 07:10
	SAMPLE FREQUENCY							
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
1,4-Dioxane	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
2,4,6-Trichlorophenol	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
2,4-Dichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2-Chlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
2-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	Data Received	ANR	ANR	Data Received	ANR
4,4'-DDD	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
4,4'-DDE	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
4,4'-DDT	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
4-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Acenaphthene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Acenaphthylene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Acrolein	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Acrylonitrile	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Aldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
alpha-BHC	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
alpha-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aluminum	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Aluminum, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Ammonia - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Antimony	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Aroclor 1016	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aroclor 1221	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aroclor 1232	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aroclor 1242	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aroclor 1248	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aroclor 1254	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Aroclor 1260	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Arsenic	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	Outfall 011	Outfall 011	Outfall 011	Outfall 018	Outfall 018
				02/20/2024 06:50 - 02/21/2024 06:50	03/10/2024 17:40 - 03/12/2024 08:20	03/30/2024 08:50 - 03/31/2024 09:15	01/03/2024 07:00 - 01/04/2024 07:30	02/03/2024 06:40 - 02/04/2024 07:10
	SAMPLE FREQUENCY							
Asbestos > 0.5 um	Composite	MFL	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Barium	Composite	mg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Benzene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Benzidine	Composite	µg/L	1/Year	Data Received	ANR	ANR	Data Received	ANR
Benzo(a)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Beryllium	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
beta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
beta-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Biochemical Oxygen Demand (BOD) (5-Day @ 20°C)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Boron	Composite	mg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Bromoform	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Cadmium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Cadmium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chlordane	Composite	mg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Chloride	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Chlorine, Total Residual (Field)	Grab	mg/L	FIND OUT	ANR	ANR	ANR	Data Received	ANR
Chlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chloroform	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chromium	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	ANR	ANR	ANR	Data Received	ANR
Chronic Toxicity	Composite	Pass or Fail and % Effect	1st & 2nd rain event/Year	Data Received	ANR	ANR	Data Received	Data Received
Chrysene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	Data Received	ANR	Data Received	Data Received
Cobalt	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Cobalt, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
Copper	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Copper, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Cyanide	Composite	µg/L	1/Year	Data Received	ANR	ANR	Data Received	Data Received
Cyclohexane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
delta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Detergents (as MBAS)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Dieldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Diethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	Outfall 011	Outfall 011	Outfall 011	Outfall 018	Outfall 018
				02/20/2024 06:50 - 02/21/2024 06:50	03/10/2024 17:40 - 03/12/2024 08:20	03/30/2024 08:50 - 03/31/2024 09:15	01/03/2024 07:00 - 01/04/2024 07:30	02/03/2024 06:40 - 02/04/2024 07:10
SAMPLE FREQUENCY								
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Endosulfan sulfate	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Endrin	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Endrin aldehyde	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Ethylbenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Fluorene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Fluoride	Composite	mg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Heptachlor	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Heptachlor epoxide	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Hexachlorobutadiene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Hexachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Iron	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Iron, dissolved	Composite	mg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Isophorone	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Lead	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Lead, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Manganese	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Mercury	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Mercury, dissolved	Composite	µg/L	Additional/ Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Methylene chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Naphthalene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Nickel	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Nitrate - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Nitrite - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Nitrobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
Pentachlorophenol	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Perchlorate	Composite	µg/L	1/Year	Data Received	ANR	ANR	Data Received	ANR
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Phenol	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Selenium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Selenium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Settleable solids	Composite	mL/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Grab	mL/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
Silver	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Sulfate	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Thallium	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Toluene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR

			LOCATION	Outfall 011	Outfall 011	Outfall 011	Outfall 018	Outfall 018
			DATE RANGE	02/20/2024 06:50 - 02/21/2024 06:50	03/10/2024 17:40 - 03/12/2024 08:20	03/30/2024 08:50 - 03/31/2024 09:15	01/03/2024 07:00 - 01/04/2024 07:30	02/03/2024 06:40 - 02/04/2024 07:10
ANALYTE	SAMPLE TYPE	UNITS	SAMPLE FREQUENCY					
Total Dissolved Solids	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Total Organic Carbon	Composite	mg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Total Suspended Solids	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Toxaphene	Composite	µg/L	1/Year	ANR	ANR	ANR	Lab has yet to report	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Trichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Data Received	Data Received
Turbidity	Composite	NTU	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received
Vanadium	Composite	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	Data Received	ANR
Vinyl chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	Data Received	ANR
Zinc	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report
Zinc, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report



ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 018	Outfall 018	Outfall 018	Outfall 018	Outfall 018
			DATE RANGE	02/19/2024 07:25 - 02/20/2024 07:30	02/27/2024 09:05 - 02/28/2024 10:55	03/06/2024 12:15 - 03/07/2024 12:20	03/25/2024 12:10 - 03/26/2024 13:45	03/29/2024 14:45 - 03/31/2024 10:20
	SAMPLE FREQUENCY							
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
1,4-Dioxane	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,4,6-Trichlorophenol	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,4-Dichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2-Chlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
2-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	Data Received	Data Received	ANR	ANR	ANR
4,4'-DDD	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
4,4'-DDE	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
4,4'-DDT	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
4-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Acenaphthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Acenaphthylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Acrolein	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
alpha-BHC	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
alpha-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aluminum	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Aluminum, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
Ammonia - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Antimony	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1016	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1221	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1232	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1242	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1248	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1254	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Aroclor 1260	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Arsenic	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	Outfall 018	Outfall 018	Outfall 018	Outfall 018	Outfall 018
				02/19/2024 07:25 - 02/20/2024 07:30	02/27/2024 09:05 - 02/28/2024 10:55	03/06/2024 12:15 - 03/07/2024 12:20	03/25/2024 12:10 - 03/26/2024 13:45	03/29/2024 14:45 - 03/31/2024 10:20
	SAMPLE FREQUENCY							
Asbestos > 0.5 um	Composite	MFL	1/Year	ANR	ANR	ANR	ANR	ANR
Barium	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Benizidine	Composite	µg/L	1/Year	Data Received	Data Received	ANR	ANR	ANR
Benzo(a)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Beryllium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
beta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
beta-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Biochemical Oxygen Demand (BOD) (5-Day @ 20°C)	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Boron	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Cadmium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cadmium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chlordane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chloride	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Chlorine, Total Residual (Field)	Grab	mg/L	FIND OUT	ANR	ANR	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chloroform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chromium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	ANR	ANR	ANR	ANR	ANR
Chronic Toxicity	Composite	Pass or Fail and % Effect	1st & 2nd rain event/Year	ANR	ANR	ANR	ANR	ANR
Chrysene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	ANR
Cobalt	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Cobalt, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Copper	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Copper, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cyanide	Composite	µg/L	1/Year	Data Received	Data Received	ANR	ANR	ANR
Cyclohexane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
delta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Detergents (as MBAS)	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Dieldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Diethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 018		Outfall 018		Outfall 018		Outfall 018	
				DATE RANGE	02/19/2024 07:25 - 02/20/2024 07:30	02/27/2024 09:05 - 02/28/2024 10:55	03/06/2024 12:15 - 03/07/2024 12:20	03/25/2024 12:10 - 03/26/2024 13:45	03/29/2024 14:45 - 03/31/2024 10:20		
			SAMPLE FREQUENCY								
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Endosulfan sulfate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Endrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Endrin aldehyde	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluorene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluoride	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Heptachlor	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Heptachlor epoxide	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron, dissolved	Composite	mg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Isophorone	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Lead	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Lead, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Manganese	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Mercury	Composite	µg/L	1/Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Mercury, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Methylene chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nickel	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrate - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Nitrite - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Nitrobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Pentachlorophenol	Composite	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Perchlorate	Composite	µg/L	1/Year	ANR	Data Received	ANR	ANR	ANR	ANR	ANR	ANR
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Phenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Pyrene	Composite	µg/L	1/Year	Data Received	Data Received	ANR	ANR	ANR	ANR	ANR	ANR
Selenium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Selenium, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Composite	mL/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Settleable solids	Grab	mL/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Silver	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Sulfate	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Thallium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR

			LOCATION	Outfall 018	Outfall 018	Outfall 018	Outfall 018	Outfall 018
			DATE RANGE	02/19/2024 07:25 - 02/20/2024 07:30	02/27/2024 09:05 - 02/28/2024 10:55	03/06/2024 12:15 - 03/07/2024 12:20	03/25/2024 12:10 - 03/26/2024 13:45	03/29/2024 14:45 - 03/31/2024 10:20
ANALYTE	SAMPLE TYPE	UNITS	SAMPLE FREQUENCY					
Total Dissolved Solids	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Total Organic Carbon	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Total Suspended Solids	Composite	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Toxaphene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Turbidity	Composite	NTU	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Vanadium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR
Zinc	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Zinc, dissolved	Composite	µg/L	Additional/ Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report

OUTFALL 008

THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

ANALYTE	SAMPLE TYPE	UNITS	LOCATION		Outfall 008				Outfall 008				Outfall 008				Outfall 008			
			DATE RANGE		02/01/2024 08:25 - 02/02/2024 09:30				02/19/2024 09:00 - 02/20/2024 09:20				02/27/2024 07:30 - 02/28/2024 09:30				03/07/2024 07:05 - 03/07/2024 10:00			
			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	
1,1,1-Trichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.21	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ND	0.25	0.5	U *	ND	0.21	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,2,2-Tetrachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.12	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ND	0.2	0.5	U *	ND	0.12	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,2-Trichloro-1,2,2-trifluoroethane	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ND	1.5	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	ND	0.5	1	U *	ND	1.5	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,2-Trichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.087	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ND	0.17	0.5	U *	ND	0.087	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1-Dichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.054	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1-Dichloroethane	Grab	µg/L	1/Year	ND	0.39	0.5	U *	ND	0.054	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1-Dichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.24	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,1-Dichloroethene	Grab	µg/L	1/Year	ND	0.33	0.5	U *	ND	0.24	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ND	0.12	0.19	U *	ND	0.12	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2,4-Trichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.2	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ND	0.52	1	U *	ND	0.2	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.17	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ND	0.16	0.5	U *	ND	0.17	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.055	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichloroethane	Grab	µg/L	1/Year	ND	0.15	0.5	U *	ND	0.055	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichloropropane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.065	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Dichloropropane	Grab	µg/L	1/Year	ND	0.17	0.5	U *	ND	0.065	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ND	0.087	0.19	U *	ND	0.087	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,3-Dichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.15	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ND	0.16	0.5	U *	ND	0.15	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ND	0.13	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,4-Dichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.081	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ND	0.11	0.5	U *	ND	0.081	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
1,4-Dioxane	Composite	µg/L	1/Discharge	ND	0.55	1	U *	ND	0.55	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,4,6-Trichlorophenol	Composite	µg/L	1/Year	ND	0.13	0.96	U *	ND	0.13	0.96	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,4-Dichlorophenol	Composite	µg/L	1/Year	ND	0.13	0.96	U *	ND	0.13	0.96	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,4-Dimethylphenol	Composite	µg/L	1/Year	ND	0.12	0.19	U *	ND	0.12	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,4-Dinitrophenol	Composite	µg/L	1/Year	ND	4.1	4.8	U *	ND	4.1	4.8	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,4-Dinitrotoluene	Composite	µg/L	1/Year	ND	0.52	1.2	U *	ND	0.33	0.7	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,4-Dinitrotoluene	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ND	0.46	1.2	U *	ND	0.35	0.8	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ND	0.17	0.19	U *	ND	0.17	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2-Chloroethyl vinyl ether(q)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.54	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.54	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2-Chloronaphthalene	Composite	µg/L	1/Year	ND	0.14	0.19	U *	ND	0.14	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2-Chlorophenol	Composite	µg/L	1/Year	ND	0.092	0.19	U *	ND	0.092	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ND	4.4	4.8	U *	ND	4.4	4.8	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
2-Nitrophenol	Composite	µg/L	1/Year	ND	3.4	4.8	U *	ND	3.4	4.8	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	ND	2.9	4.8	U *	ND	2.9	4.8	U *	ND	2.9	4.8	U *	ND	2.9	4.8	U *	
4,4'-DDD	Composite	µg/L	1/Year	ND	0.0044	0.0067	U *	ND	0.0044	0.0067	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
4,4'-DDE	Composite	µg/L	1/Year	ND	0.0019	0.0033	U *	ND	0.0019	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
4,4'-DDT	Composite	µg/L	1/Year	ND	0.0016	0.0033	U *	ND	0.0016	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ND	0.096	0.19	U *	ND	0.096	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ND	0.13	0.96	U *	ND	0.13	0.96	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ND	0.16	0.19	U *	ND	0.16	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
4-Nitrophenol	Composite	µg/L	1/Year	ND	3.2	4.8	U *	ND	3.3	4.8	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Acenaphthene	Composite	µg/L	1/Year	ND	0.094	0.19	U *	ND	0.095	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Acenaphthylene	Composite	µg/L	1/Year	ND	0.12	0.19	U *	ND	0.13	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Acrolein	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.73	5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Acrolein	Grab	µg/L	1/Year	ND	4.6	5	U *	ND	0.73	5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Acrylonitrile	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.36	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Acrylonitrile	Grab	µg/L	1/Year	ND	1.4	2	U *	ND	0.36	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	
Aldrin	Composite	µg/L	1/Year	ND	0.0031	0.0033	U *	ND	0.0031	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 008				Outfall 008				Outfall 008				Outfall 008			
			DATE RANGE	02/01/2024 08:25 - 02/02/2024 09:30				02/19/2024 09:00 - 02/20/2024 09:20				02/27/2024 07:30 - 02/28/2024 09:30				03/07/2024 07:05 - 03/07/2024 10:00			
			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
alpha-BHC	Composite	µg/L	1/Year	ND	0.0012	0.0013	U *	ND	0.0012	0.0013	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
alpha-Endosulfan	Composite	µg/L	1/Year	ND	0.0013	0.0013	U *	ND	0.0013	0.0013	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aluminum	Composite	mg/L	1/Discharge	1.2	0.0086	0.015	--	0.95	0.0086	0.015	*	ANR	ANR	ANR	ANR	0.22	0.0086	0.015	*
Aluminum, dissolved	Composite	mg/L	Additional/Year	0.21	0.0086	0.015	*	0.037	0.0086	0.015	*	ANR	ANR	ANR	ANR	0.013	0.0086	0.015	J (DNQ*)
Ammonia - N	Composite	mg/L	1/Discharge	0.057	0.029	0.075	J (DNQ*)	ND	0.029	0.075	U *	ND	0.029	0.075	U *	ND	0.029	0.075	U *
Anthracene	Composite	µg/L	1/Year	ND	0.081	0.19	U *	ND	0.081	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Antimony	Composite	µg/L	1/Year	2.7	0.36	2	*	ND	0.36	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	4.3	0.36	2	*	1.3	0.36	2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1016	Composite	µg/L	1/Year	ND	0.044	0.1	U *	ND	0.044	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1221	Composite	µg/L	1/Year	ND	0.044	0.1	U *	ND	0.044	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1232	Composite	µg/L	1/Year	ND	0.044	0.1	U *	ND	0.044	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1242	Composite	µg/L	1/Year	ND	0.044	0.1	U *	ND	0.044	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1248	Composite	µg/L	1/Year	ND	0.044	0.1	U *	ND	0.044	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1254	Composite	µg/L	1/Year	ND	0.052	0.1	U *	ND	0.052	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1260	Composite	µg/L	1/Year	ND	0.052	0.1	U *	ND	0.052	0.1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Arsenic	Composite	µg/L	1/Year	1.6	0.16	1	*	0.96	0.16	1	J (DNQ*)	ANR	ANR	ANR	ANR	0.9	0.16	1	J (DNQ*)
Arsenic, dissolved	Composite	µg/L	Additional/Year	1.1	0.16	1	*	0.81	0.16	1	J (DNQ*)	ANR	ANR	ANR	ANR	0.83	0.16	1	J (DNQ*)
Asbestos > 0.5 um	Composite	MFL	1/Year	ND	5.3	5.3	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Barium	Composite	mg/L	1/Year	0.02	0.00017	0.001	*	0.024	0.00017	0.001	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	0.013	0.00017	0.001	*	0.016	0.00017	0.001	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.057	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	ND	0.28	0.5	U *	ND	0.057	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzidine	Composite	µg/L	1/Year	ND	2.6	4.8	U *	ND	2.6	4.8	U *	ND	2.6	4.8	U *	ND	2.6	4.8	U *
Benzo(a)anthracene	Composite	µg/L	1/Year	ND	0.12	0.19	U *	ND	0.12	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	ND	0.15	0.19	U *	ND	0.15	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ND	0.1	0.19	U *	ND	0.1	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(k)fluoranthene	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Beryllium	Composite	µg/L	1/Year	ND	0.26	0.5	U *	ND	0.26	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	0.44	0.26	0.5	J (DNQ*)	ND	0.26	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
beta-BHC	Composite	µg/L	1/Year	ND	0.0039	0.005	U *	ND	0.0039	0.005	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
beta-Endosulfan	Composite	µg/L	1/Year	ND	0.0041	0.0067	U *	ND	0.0041	0.0067	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ND	0.1	0.19	U *	ND	0.1	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ND	0.1	0.19	U *	ND	0.1	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
bis(2-Chloroethyl)ether	Composite	µg/L		ANR	ANR	ANR	ANR	ND	0.4	1.9	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ND	0.13	0.19	U *	ND	0.13	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Year	ND	3.4	4.8	U *	ND	3.5	4.8	U *	ND	3.4	4.8	U *	ND	3.5	4.8	U *
Boron	Composite	mg/L	1/Year	0.063	0.0035	0.5	J (DNQ*)	0.077	0.0035	0.5	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	0.063	0.0035	0.5	J (DNQ*)	0.07	0.0035	0.5	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromodichloromethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.084	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ND	0.19	0.5	U *	ND	0.084	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromoform	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.34	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	ND	0.25	1	U *	ND	0.34	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.44	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ND	0.22	0.5	U *	ND	0.44	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	ND	0.65	0.96	U *	ND	0.65	0.96	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cadmium	Composite	µg/L	1/Discharge	ND	0.13	1	U *	ND	0.13	1	U *	ANR	ANR	ANR	ANR	ND	0.13	1	U *
Cadmium, dissolved	Composite	µg/L	Additional/Discharge	ND	0.13	1	U *	ND	0.13	1	U *	ANR	ANR	ANR	ANR	ND	0.13	1	U *
Carbon tetrachloride	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.23	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Carbon tetrachloride	Grab	µg/L	1/Year	ND	0.28	0.5	U *	ND	0.23	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlordane	Composite	µg/L	1/Year	ND	0.026	0.033	U *	ND	0.026	0.033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloride	Composite	mg/L	1/Discharge	3	0.36	1	*	3.5	0.36	1	*	4.7	0.36	1	*	6.1	1.8	5	*
Chlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.13	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	ND	0.19	0.5	U *	ND	0.13	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorodibromomethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.065	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ND	0.15	0.5	U *	ND	0.065	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.26	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	ND	0.29	1	U *	ND	0.26	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloroform	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.23	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR

TABLE C-0.b  
 OUTFALL 008  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 008				Outfall 008				Outfall 008				Outfall 008			
			DATE RANGE	02/01/2024 08:25 - 02/02/2024 09:30		02/19/2024 09:00 - 02/20/2024 09:20		02/27/2024 07:30 - 02/28/2024 09:30		03/07/2024 07:05 - 03/07/2024 10:00									
			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
Chloroform	Grab	µg/L	1/Year	ND	0.19	0.5	U *	ND	0.23	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.15	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ND	0.3	0.5	U *	ND	0.15	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium	Composite	µg/L	1/Year	2.1	0.14	2	*	1.5	0.14	2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	ND	0.003	0.05	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ND	0.051	0.2	U *	ND	0.051	0.2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	ND	0.051	0.2	U *	0.059	0.051	0.2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	0.51	0.14	2	J (DNQ*)	0.38	0.14	2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chrysene	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,2-Dichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.098	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	ND	0.21	0.5	U *	ND	0.098	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,3-Dichloropropene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.065	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,3-Dichloropropene	Grab	µg/L	1/Year	ND	0.3	0.5	U *	ND	0.065	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cobalt	Composite	µg/L	1/Year	0.72	0.14	1	J (DNQ*)	0.62	0.14	1	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cobalt, dissolved	Composite	µg/L	Additional/Discharge	0.29	0.14	1	J (DNQ*)	0.2	0.14	1	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Copper	Composite	µg/L	1/Discharge	3.1	0.32	2	*	2.7	0.32	2	*	ANR	ANR	ANR	ANR	2.3	0.32	2	*
Copper, dissolved	Composite	µg/L	Additional/Discharge	2.3	0.32	2	*	2.1	0.32	2	*	ANR	ANR	ANR	ANR	1.1	0.32	2	J (DNQ*)
Cyanide	Composite	µg/L	1/Discharge	ND	2.5	5	U *	ND	2.5	5	U *	ND	2.5	5	U *	ND	2.5	5	U *
Cyclohexane	Grab	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ND	0.75	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
delta-BHC	Composite	µg/L	1/Year	ND	0.002	0.0033	U *	ND	0.002	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ND	0.15	0.19	U *	ND	0.15	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dieldrin	Composite	µg/L	1/Year	ND	0.0013	0.0033	U *	ND	0.0013	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Diethyl phthalate	Composite	µg/L	1/Year	ND	0.17	1.9	U *	ND	0.17	1.9	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	ND	0.094	1.9	U *	ND	0.094	1.9	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	ND	1.8	1.9	U *	ND	1.8	1.9	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	ND	0.51	2.9	U *	ND	0.52	2.9	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	6.87	NM	NM	*	26.2	NM	NM	*	17.81	NM	NM	*	12.59	NM	NM	*
Endosulfan sulfate	Composite	µg/L	1/Year	ND	0.0014	0.0033	U *	ND	0.0014	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Endrin	Composite	µg/L	1/Year	ND	0.0023	0.0033	U *	ND	0.0023	0.0033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Endrin aldehyde(q)	Composite	µg/L	1/Year	ND	0.024	0.033	U *	ND	0.024	0.033	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Ethylbenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.045	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	ND	0.25	0.5	U *	ND	0.045	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluoranthene	Composite	µg/L	1/Year	ND	0.097	0.19	U *	ND	0.097	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluorene	Composite	µg/L	1/Year	ND	0.091	0.19	U *	ND	0.091	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluoride	Composite	mg/L	1/Year	0.16	0.046	0.1	*	0.12	0.046	0.1	*	0.15	0.046	0.1	*	ND	0.23	0.5	U *
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ND	0.00066	0.0013	U *	ND	0.00066	0.0013	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	44	0.5	7.1	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	40	0.5	7.1	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Heptachlor	Composite	µg/L	1/Year	ND	0.0012	0.0013	U *	ND	0.0012	0.0013	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Heptachlor epoxide	Composite	µg/L	1/Year	ND	0.0039	0.0067	U *	ND	0.0039	0.0067	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	ND	0.13	0.19	U *	ND	0.13	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	ND	0.15	0.19	U *	ND	0.15	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L		ANR	ANR	ANR	ANR	ND	0.29	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Grab	µg/L		ANR	ANR	ANR	ANR	ND	0.29	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ND	0.15	0.19	U *	ND	0.15	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachloroethane	Composite	µg/L	1/Year	ND	0.12	0.19	U *	ND	0.12	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ND	0	0	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Year	ND	0.12	0.19	U *	ND	0.12	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Iron	Composite	mg/L	1/Discharge(r)(p)	1.4	0.0037	0.02	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Iron, dissolved	Composite	mg/L	Additional/Discharge(r)(p)	0.19	0.0037	0.02	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Isophorone	Composite	µg/L	1/Year	ND	0.095	0.19	U *	ND	0.095	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Lead	Composite	µg/L	1/Discharge	1.2	0.12	1	*	1.2	0.12	1	*	ANR	ANR	ANR	ANR	0.17	0.12	1	J (DNQ*)
Lead, dissolved	Composite	µg/L	Additional/Discharge	0.25	0.12	1	J (DNQ*)	0.2	0.12	1	J (DNQ*)	ANR	ANR	ANR	ANR	ND	0.12	1	U *
m,p-Xylenes	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.21	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
m,p-Xylenes	Grab	µg/L	1/Year	ND	0.17	1	U *	ND	0.21	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Manganese	Composite	µg/L	1/Year	21	0.41	1	*	26	0.41	1	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	1.8	0.41	1	*	1.3	0.41	1	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Mercury	Composite	µg/L	1/Discharge	0.019	0.0002	0.0005	*	0.016	0.0002	0.0005	*	0.0053	0.0002	0.0005	*	0.0052	0.0002	0.0005	*
Mercury, dissolved	Composite	µg/L	Additional/Discharge	0.012	0.0002	0.0005	*	0.0091	0.0002	0.0005	*	0.0048	0.0002	0.0005	*	0.0044	0.0002	0.0005	*

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 008				Outfall 008				Outfall 008				Outfall 008			
			DATE RANGE	02/01/2024 08:25 - 02/02/2024 09:30	02/19/2024 09:00 - 02/20/2024 09:20	02/27/2024 07:30 - 02/28/2024 09:30	03/07/2024 07:05 - 03/07/2024 10:00	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
Methylene chloride	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.69	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Methylene chloride	Grab	µg/L	1/Year	ND	0.57	2	U *	ND	0.69	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (SVOC)	Composite	µg/L	1/Year	ND	0.11	0.19	U *	ND	0.11	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.19	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ND	0.33	1	U *	ND	0.19	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nickel	Composite	µg/L	1/Year	1.7	0.17	2	J (DNQ*)	2.3	0.17	2	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	1.6	0.17	2	J (DNQ*)	1.5	0.17	2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrate - N	Composite	mg/L	1/Discharge	1.4	0.02	0.1	*	0.4	0.02	0.1	*	0.061	0.02	0.1	J (DNQ*)	0.2	0.098	0.5	J (DNQ*)
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	1.4	0.02	0.1	*	0.4	0.02	0.1	*	0.11	0.02	0.1	*	0.2	0.02	0.1	*
Nitrite - N	Composite	mg/L	1/Discharge	ND	0.043	0.1	U *	ND	0.043	0.1	U *	0.052	0.043	0.1	J (DNQ*)	ND	0.22	0.5	U *
Nitrobenzene	Composite	µg/L	1/Year	ND	0.45	1.2	U *	ND	0.42	0.9	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrobenzene	Composite	µg/L	1/Year	ND	0.14	0.19	U *	ND	0.14	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Year	ND	0.18	0.19	U *	ND	0.18	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ND	0.14	0.19	U *	ND	0.14	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ND	0.1	0.19	U *	ND	0.1	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	ND	0.5	0.98	U *	ND	0.51	1	U *	ND	0.5	0.99	U *	ND	0.5	0.98	U *
o-Xylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.088	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
o-Xylene	Grab	µg/L	1/Year	ND	0.15	0.5	U *	ND	0.088	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Pentachlorophenol	Composite	µg/L	1/Year	ND	0.81	0.96	U *	ND	0.81	0.96	U *	ND	0.8	0.95	U *	ND	0.81	0.96	U *
Perchlorate	Composite	µg/L	1/Discharge	ND	0.91	2	U *	ND	0.91	2	U *	ND	0.91	2	U *	1.2	0.91	2	J (DNQ*)
pH (Field)	Grab	s.u.	1/Discharge	7.62	NM	NM	*	7.1	NM	NM	*	7.25	NM	NM	*	7.64	NM	NM	*
Phenanthrene	Composite	µg/L	1/Year	ND	0.16	0.19	U *	ND	0.16	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Phenol	Composite	µg/L	1/Year	ND	0.5	0.96	U *	ND	0.51	0.96	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Pyrene	Composite	µg/L	1/Year	ND	0.083	0.19	U *	ND	0.083	0.19	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Selenium	Composite	µg/L	1/Discharge	0.97	0.52	2	J (DNQ*)	ND	0.52	2	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Selenium, dissolved	Composite	µg/L	Additional/Discharge	ND	0.52	2	U *	0.53	0.52	2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Settleable solids	Grab	mL/L	1/Discharge	ND	0.1	0.1	U *	0.1	0.1	0.1	*	ND	0.1	0.1	U *	ND	0.1	0.1	U *
Silver	Composite	µg/L	1/Year	ND	0.23	1	U *	ND	0.23	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	ND	0.23	1	U *	ND	0.23	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Sulfate	Composite	mg/L	1/Discharge	2.6	0.18	1	*	2.9	0.18	1	*	4.3	0.18	1	*	4.7	0.92	5	J (DNQ*)
Temperature (Field)	Grab	Deg F	1/Discharge	49.7	NM	NM	*	51.7	NM	NM	*	48.1	NM	NM	*	50.1	NM	NM	*
Tetrachloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.099	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Tetrachloroethene	Grab	µg/L	1/Year	ND	0.21	0.5	U *	ND	0.099	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Thallium	Composite	µg/L	1/Year	0.19	0.11	1	J (DNQ*)	ND	0.11	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	ND	0.11	1	U *	ND	0.11	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Toluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.073	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	ND	0.23	0.5	U *	ND	0.073	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Total Dissolved Solids	Composite	mg/L	1/Discharge	140	8.7	10	*	140	8.7	10	*	150	8.7	10	*	190	8.7	10	*
Total Residual Chlorine, Field	Grab	mg/L	1/Discharge	0	NM	NM	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Total Suspended Solids#	Composite	mg/L	1/Discharge	17	1.6	2	*	26	0.8	1	*	ND	0.8	1	U *	2.1	0.8	1	*
Toxaphene	Composite	µg/L	1/Year	ND	0.054	0.067	U *	ND	0.054	0.067	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.14	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ND	0.24	0.5	U *	ND	0.14	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,3-Dichloropropene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.11	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,3-Dichloropropene	Grab	µg/L	1/Year	ND	0.18	0.5	U *	ND	0.11	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.1	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Year	ND	0.17	0.5	U *	ND	0.1	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichlorofluoromethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.2	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichlorofluoromethane	Grab	µg/L	1/Year	ND	0.29	0.5	U *	ND	0.2	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vanadium	Composite	µg/L	1/Year	4.2	0.17	2	*	3.7	0.17	2	*	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	1.1	0.17	2	J (DNQ*)	1	0.17	2	J (DNQ*)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vinyl chloride	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ND	0.15	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	ND	0.47	0.5	U *	ND	0.15	0.5	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Xylenes (Total)	Grab	µg/L	1/Year	ND	0.17	1	U *	ND	0.21	1	U *	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Zinc	Composite	µg/L	1/Discharge	7.2	2.8	20	J (DNQ*)	7.8	2.8	20	J (DNQ*)	ANR	ANR	ANR	ANR	5.3	2.8	20	J (DNQ*)
Zinc, dissolved	Composite	µg/L	Additional/Discharge	ND	2.8	20	U *	ND	2.8	20	U *	ANR	ANR	ANR	ANR	ND	2.8	20	U *



OUTFALL 008

THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 008				Outfall 008			
			DATE RANGE	03/23/2024 07:45 - 03/24/2024 07:35				03/30/2024 06:50 - 03/31/2024 08:10			
			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
1,1,1-Trichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,2-Trichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1-Dichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1-Dichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,1-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichloropropane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
1,4-Dioxane	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,4,6-Trichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,4-Dichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2-Chloroethyl vinyl ether(q)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2-Chloroethyl vinyl ether(q)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2-Chlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
2-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4,4'-DDD	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4,4'-DDE	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4,4'-DDT	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
4-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Acenaphthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Acenaphthylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Acrolein	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Acrolein	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Acrylonitrile	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR

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			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
alpha-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
alpha-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aluminum	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aluminum, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Ammonia - N	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Antimony	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1016	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1221	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1232	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1242	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1248	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1254	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Aroclor 1260	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Arsenic	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Asbestos > 0.5 um	Composite	MFL	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Barium	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzidine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(a)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Benzo(k)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Beryllium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
beta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
beta-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
bis(2-Chloroethyl)ether	Composite	µg/L		ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Boron	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromodichloromethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromoform	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cadmium	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cadmium, dissolved	Composite	µg/L	Additional/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Carbon tetrachloride	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlordane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloride	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorodibromomethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloroform	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR

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			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
Chloroform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	FIND OUT	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Chrysene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,2-Dichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,3-Dichloropropene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
cis-1,3-Dichloropropene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cobalt	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cobalt, dissolved	Composite	µg/L	Additional/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Copper	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Copper, dissolved	Composite	µg/L	Additional/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cyanide	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Cyclohexane	Grab	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
delta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dieldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Diethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	11.97	NM	NM	*	6.29	NM	NM	*
Endosulfan sulfate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Endrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Endrin aldehyde(q)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Ethylbenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluorene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Fluoride	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Heptachlor	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Heptachlor epoxide	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L		ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Grab	µg/L		ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Hexachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Iron	Composite	mg/L	1/Discharge(r)(p)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Iron, dissolved	Composite	mg/L	Additional/Discharge(r)(p)	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Isophorone	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Lead	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Lead, dissolved	Composite	µg/L	Additional/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
m,p-Xylenes	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
m,p-Xylenes	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Manganese	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Mercury	Composite	µg/L	1/Discharge	0.004	0.0002	0.0005	*	0.0087	0.0002	0.0005	*
Mercury, dissolved	Composite	µg/L	Additional/Discharge	0.0024	0.0002	0.0005	*	0.0057	0.0002	0.0005	*

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 008				Outfall 008			
			DATE RANGE	03/23/2024 07:45 - 03/24/2024 07:35				03/30/2024 06:50 - 03/31/2024 08:10			
			SAMPLE FREQUENCY	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER	RESULT	MDL	RL	LAB/ VALIDATION QUALIFIER
Methylene chloride	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Methylene chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nickel	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrate - N	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrite - N	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrobenzene	Composite	µg/L		ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Nitrobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
o-Xylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
o-Xylene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Pentachlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Perchlorate	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
pH (Field)	Grab	s.u.	1/Discharge	8.34	NM	NM	*	8.2	NM	NM	*
Phenanthrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Phenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Selenium	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Selenium, dissolved	Composite	µg/L	Additional/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Settleable solids	Grab	mL/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Silver	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Sulfate	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Temperature (Field)	Grab	Deg F	1/Discharge	51.6	NM	NM	*	48.8	NM	NM	*
Tetrachloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Tetrachloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Thallium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Toluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Total Dissolved Solids	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Total Residual Chlorine, Field	Grab	mg/L		ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Total Suspended Solids#	Composite	mg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Toxaphene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,3-Dichloropropene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
trans-1,3-Dichloropropene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichloroethene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichlorofluoromethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Trichlorofluoromethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vanadium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vinyl chloride	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Xylenes (Total)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Zinc	Composite	µg/L	1/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR
Zinc, dissolved	Composite	µg/L	Additional/Discharge	ANR	ANR	ANR	ANR	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 004	Outfall 006	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/05/2024 06:15 - 02/06/2024 08:35	02/05/2024 06:40 - 02/06/2024 09:20	01/22/2024 09:05 - 01/23/2024 10:00	02/01/2024 07:50 - 02/02/2024 08:35	02/19/2024 07:45 - 02/20/2024 08:35
			SAMPLE FREQUENCY					
1,1,1-Trichloroethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,1,2-Trichloroethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,1-Dichloroethene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2,4-Trichlorobenzene (VOC)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2-Dichloroethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2-Dichloropropane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
1,4-Dioxane	Composite	µg/L	Additional	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Lab has yet to report
2,4,6-Trichlorophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,4-Dichlorophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,6-Dinitrotoluene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2,6-Dinitrotoluene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2-Chloroethyl vinyl ether(q)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2-Chlorophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
2-Nitrophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	Data Received
4,4'-DDD	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
4,4'-DDE	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
4,4'-DDT	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
4-Nitrophenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Acenaphthene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Acenaphthylene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Acrolein	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Acrylonitrile	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	ANR
Aldrin	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
alpha-BHC	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
alpha-Endosulfan	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aluminum	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Aluminum, dissolved	Composite	mg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Ammonia - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Anthracene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Antimony	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1016	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1221	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1232	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1242	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1248	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1254	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Aroclor 1260	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Arsenic	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 004	Outfall 006	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/05/2024 06:15 - 02/06/2024 08:35	02/05/2024 06:40 - 02/06/2024 09:20	01/22/2024 09:05 - 01/23/2024 10:00	02/01/2024 07:50 - 02/02/2024 08:35	02/19/2024 07:45 - 02/20/2024 08:35
			SAMPLE FREQUENCY					
Asbestos > 0.5 um	Composite	MFL	1/Year	Data Received	Data Received	Data Received	ANR	ANR
Barium	Composite	mg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Benzene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Benzidine	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	Data Received
Benzo(a)anthracene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Benzo(k)fluoranthene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Beryllium	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
beta-BHC	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
beta-Endosulfan	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Boron	Composite	mg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bromodichloromethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bromoform	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Cadmium	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Cadmium, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chlordane	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chloride	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Chlorobenzene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chloroethane	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chloroform	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chlorpyrifos	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	ANR
Chromium	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Chronic Toxicity	Composite	s or Fail and % Eff	1st & 2nd rain event/Year	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Chrysene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Cobalt	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Cobalt, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Copper	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Copper, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Cyanide	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
delta-BHC	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Diazinon	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	ANR
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Dieldrin	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Diethyl phthalate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Endosulfan sulfate	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Endrin	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Endrin aldehyde	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Ethylbenzene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 004	Outfall 006	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/05/2024 06:15 - 02/06/2024 08:35	02/05/2024 06:40 - 02/06/2024 09:20	01/22/2024 09:05 - 01/23/2024 10:00	02/01/2024 07:50 - 02/02/2024 08:35	02/19/2024 07:45 - 02/20/2024 08:35
			SAMPLE FREQUENCY					
Fluoranthene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Fluorene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Fluoride	Composite	mg/L	1/Year	Data Received	Data Received	Data Received	Data Received	Data Received
gamma-BHC (Lindane)	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	Data Received	Data Received	Data Received	Lab has yet to report	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	Data Received	Data Received	Data Received	Lab has yet to report	ANR
Heptachlor	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Heptachlor epoxide	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Hexachloroethane	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Iron	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Iron, dissolved	Composite	mg/L	Additional/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Isophorone	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Lead	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Lead, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Manganese	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Mercury	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Mercury, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Methylene chloride	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Nickel	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Nitrate - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Nitrite - N	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Nitrobenzene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Pentachlorophenol	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Perchlorate	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Phenol	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Pyrene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Selenium	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Selenium, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Settleable solids	Grab	mL/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Silver	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Sulfate	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Thallium	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR
Toluene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Total Dissolved Solids	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Total Residual Chlorine, Field	Grab	mg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Total Suspended Solids#	Composite	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received
Toxaphene	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Trichloroethene	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Vanadium	Composite	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	Data Received	Data Received	Data Received	Data Received	ANR

			LOCATION	Outfall 004	Outfall 006	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/05/2024 06:15 - 02/06/2024 08:35	02/05/2024 06:40 - 02/06/2024 09:20	01/22/2024 09:05 - 01/23/2024 10:00	02/01/2024 07:50 - 02/02/2024 08:35	02/19/2024 07:45 - 02/20/2024 08:35
ANALYTE	SAMPLE TYPE	UNITS	SAMPLE FREQUENCY					
Vinyl chloride	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	Data Received	ANR
Zinc	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report
Zinc, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Lab has yet to report



ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 009	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/27/2024 07:55 - 02/28/2024 11:40	03/07/2024 07:55 - 03/08/2024 07:20	03/23/2024 08:30 - 03/24/2024 08:50	03/30/2024 07:55 - 03/31/2024 10:55
			SAMPLE FREQUENCY				
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,1-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
1,4-Dioxane	Composite	µg/L	Additional	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,4,6-Trichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,4-Dichlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,4-Dimethylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,4-Dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,4-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2,6-Dinitrotoluene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2-Chloroethyl vinyl ether(q)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2-Chloronaphthalene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2-Chlorophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
2-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
3,3'-Dichlorobenzidine	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR
4,4'-DDD	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
4,4'-DDE	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
4,4'-DDT	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
4-Bromophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
4-Chloro-3-methylphenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
4-Nitrophenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Acenaphthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Acenaphthylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Acrolein	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Aldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
alpha-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
alpha-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aluminum	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Aluminum, dissolved	Composite	mg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Ammonia - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Antimony	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Antimony, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Aroclor 1016	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aroclor 1221	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aroclor 1232	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aroclor 1242	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aroclor 1248	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aroclor 1254	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Aroclor 1260	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Arsenic	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Arsenic, dissolved	Composite	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 009	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/27/2024 07:55 - 02/28/2024 11:40	03/07/2024 07:55 - 03/08/2024 07:20	03/23/2024 08:30 - 03/24/2024 08:50	03/30/2024 07:55 - 03/31/2024 10:55
			SAMPLE FREQUENCY				
Asbestos > 0.5 um	Composite	MFL	1/Year	ANR	ANR	ANR	ANR
Barium	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR
Barium, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Benzidine	Composite	µg/L	1/Year	Data Received	ANR	ANR	ANR
Benzo(a)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Benzo(a)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Benzo(b)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Benzo(g,h,i)perylene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Benzo(k)fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Beryllium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Beryllium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
beta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
beta-Endosulfan	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Bis (2-Chloroethoxy) Methane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Boron	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR
Boron, dissolved	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Butyl benzylphthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Cadmium	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cadmium, dissolved	Composite	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Chlordane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Chloride	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Chlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Chloroform	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Chlorpyrifos	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Chromium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Chromium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Chromium III (Trivalent)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Chronic Toxicity	Composite	s or Fail and % Eff	1st & 2nd rain event/Year	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Chrysene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Cobalt	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Cobalt, dissolved	Composite	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Copper	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Copper, dissolved	Composite	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Cyanide	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
delta-BHC	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Diazinon	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Dibenzo(a,h)anthracene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Dieldrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Diethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Dimethyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Di-n-butyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Di-n-octyl phthalate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received
Endosulfan sulfate	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Endrin	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Endrin aldehyde	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 009	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/27/2024 07:55 - 02/28/2024 11:40	03/07/2024 07:55 - 03/08/2024 07:20	03/23/2024 08:30 - 03/24/2024 08:50	03/30/2024 07:55 - 03/31/2024 10:55
			SAMPLE FREQUENCY				
Fluoranthene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Fluorene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Fluoride	Composite	mg/L	1/Year	Data Received	ANR	ANR	ANR
gamma-BHC (Lindane)	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Hardness (as CaCO3)	Composite	mg/L	1/Year	ANR	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Composite	mg/L	Additional/Year	ANR	ANR	ANR	ANR
Heptachlor	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Heptachlor epoxide	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Hexachlorobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Hexachlorobutadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Hexachlorocyclopentadiene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Hexachloroethane	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Human Bacteroides	Grab	CEs/100mL	Additional/Year	ANR	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Iron	Composite	mg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Iron, dissolved	Composite	mg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Isophorone	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Lead	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Lead, dissolved	Composite	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Manganese	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Manganese, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Mercury	Composite	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received
Mercury, dissolved	Composite	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received
Methylene chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Nickel	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Nickel, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Nitrate - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Nitrate + Nitrite as Nitrogen (N)	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Nitrite - N	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Nitrobenzene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
N-Nitrosodimethylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
N-Nitrosodiphenylamine	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Pentachlorophenol	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Perchlorate	Composite	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Phenol	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Pyrene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Selenium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Selenium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Settleable solids	Grab	mL/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report
Silver	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Silver, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Sulfate	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Thallium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Thallium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Total Dissolved Solids	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Total Residual Chlorine, Field	Grab	mg/L	1/Year	ANR	ANR	ANR	ANR
Total Suspended Solids#	Composite	mg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Toxaphene	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Vanadium	Composite	µg/L	1/Year	ANR	ANR	ANR	ANR
Vanadium, dissolved	Composite	µg/L	Additional/Year	ANR	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	Outfall 009	Outfall 009	Outfall 009	Outfall 009
			DATE RANGE	02/27/2024 07:55 - 02/28/2024 11:40	03/07/2024 07:55 - 03/08/2024 07:20	03/23/2024 08:30 - 03/24/2024 08:50	03/30/2024 07:55 - 03/31/2024 10:55
			SAMPLE FREQUENCY				
Vinyl chloride	Grab	µg/L	1/Year	ANR	ANR	ANR	ANR
Zinc	Composite	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report
Zinc, dissolved	Composite	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report

SWTS 011 (INF-001) and SWTS 018 (INF-002)

THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

ANALYTE	SAMPLE TYPE	UNITS	LOCATION DATE RANGE	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
				2/5/2024 7:40:00 AM	2/19/2024 8:30:00 AM	3/10/2024 7:35:00 AM	3/29/2024 7:15:00 AM	1/2/2024 7:30:00 AM	2/2/2024 7:15:00 AM	2/18/2024 7:10:00 AM	2/27/2024 9:30:00 AM
			SAMPLE FREQUENCY								
1,1,1-Trichloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
1,1,2-Trichloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	Data Received	ANR	Data Received	ANR	Data Received	Data Received	Data Received	ANR
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Lab has yet to report	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
1,2,4-Trichlorobenzene (SVOC)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report
1,2-Dichlorobenzene (SVOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Data Received	Lab has yet to report	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
1,2-Dichloropropane	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
1,4-Dioxane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
2,4,6-Trichlorophenol	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
2,4-Dichlorophenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2,4-Dimethylphenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2,4-Dinitrophenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2,4-Dinitrotoluene (Explosive)	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Lab has yet to report	Lab has yet to report
2,4-Dinitrotoluene (SVOC)	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
2,6-Dinitrotoluene (Explosive)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2,6-Dinitrotoluene (SVOC)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2-Chloroethyl vinyl ether	Grab	µg/L	1/Year	Lab has yet to report	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
2-Chloronaphthalene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2-Chlorophenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2-Methyl-4,6-dinitrophenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
2-Nitrophenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
3,3'-Dichlorobenzidine	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
4,4'-DDD	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
4,4'-DDE	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
4,4'-DDT	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
4-Bromophenyl phenyl ether	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
4-Chloro-3-methylphenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
4-Chlorophenyl phenyl ether	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
4-Nitrophenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Acenaphthene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Acenaphthylene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Acrolein	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Aldrin	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
alpha-BHC	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
alpha-Endosulfan	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aluminum	Grab	mg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Aluminum, dissolved	Grab	mg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Ammonia - N	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Anthracene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Antimony	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Antimony, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Aroclor 1016	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aroclor 1221	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aroclor 1232	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aroclor 1242	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aroclor 1248	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aroclor 1254	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Aroclor 1260	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Arsenic	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR

SWTS 011 (INF-001) and SWTS 018 (INF-002)

THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	2/5/2024 7:40:00 AM	2/19/2024 8:30:00 AM	3/10/2024 7:35:00 AM	3/29/2024 7:15:00 AM	1/2/2024 7:30:00 AM	2/2/2024 7:15:00 AM	2/18/2024 7:10:00 AM	2/27/2024 9:30:00 AM
			SAMPLE FREQUENCY								
Arsenic, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Barium	Grab	mg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Barium, dissolved	Grab	mg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Benzidine	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Benzo(a)anthracene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Benzo(a)pyrene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Benzo(b)fluoranthene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Benzo(g,h,i)perylene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Beryllium	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Beryllium, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
beta-BHC	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
beta-Endosulfan	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Biochemical Oxygen Demand (BOD) (5-Day @ 20 degrees Celsius)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Bis (2-Chloroethoxy) Methane	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Bis (2-Chloroethyl) Ether	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Boron	Grab	mg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Boron, dissolved	Grab	mg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Bromoform	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Butyl benzylphthalate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Cadmium	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Cadmium, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Carbon tetrachloride	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Chlordane	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Chloride	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Chlorine, Total Residual (Field)	Grab	mg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Chloroform	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Chromium	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Chromium, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Chromium III (Trivalent)	Grab	mg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Chromium VI (Hexavalent)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Chromium VI (Hexavalent), dissolved	Grab	µg/L	Additional/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
Chronic Toxicity	Grab	Pass or Fail and % Effect	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
Chrysene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Cobalt	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Cobalt, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report	Lab has yet to report	Lab has yet to report
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Copper	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Copper, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Cyanide	Grab	µg/L	1/Year	Data Received	Data Received	Data Received	ANR	Data Received	Data Received	Data Received	Data Received
Cyclohexane	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
delta-BHC	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Detergents (as MBAS)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Dibenzo(a,h)anthracene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Dieldrin	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Diethyl phthalate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Dimethyl phthalate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Di-n-butyl phthalate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Di-n-octyl phthalate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received

SWTS 011 (INF-001) and SWTS 018 (INF-002)

THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	2/5/2024 7:40:00 AM	2/19/2024 8:30:00 AM	3/10/2024 7:35:00 AM	3/29/2024 7:15:00 AM	1/2/2024 7:30:00 AM	2/2/2024 7:15:00 AM	2/18/2024 7:10:00 AM	2/27/2024 9:30:00 AM
			SAMPLE FREQUENCY								
Endosulfan sulfate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Endrin	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Endrin aldehyde(g)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Fluoranthene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Fluorene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Fluoride	Grab	mg/L	1/Year	Data Received	Data Received	Data Received	ANR	Data Received	Data Received	Data Received	Data Received
gamma-BHC (Lindane)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Hardness (as CaCO3)	Grab	mg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Grab	mg/L	Additional/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
Heptachlor	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
Heptachlor epoxide	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Hexachlorobenzene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Hexachlorobutadiene (SVOC)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Hexachlorobutadiene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Hexachlorocyclopentadiene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Hexachloroethane	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Indeno(1,2,3-cd)pyrene	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Iron	Grab	mg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Iron, dissolved	Grab	mg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Isophorone	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Lead	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Lead, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Manganese	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Manganese, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Mercury	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Mercury, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Methylene chloride	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Monomethyl hydrazine	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report	Lab has yet to report	Data Received	Lab has yet to report	Data Received	Lab has yet to report
Naphthalene (SVOC)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Nickel	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Nickel, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Nitrate - N	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Nitrate + Nitrite as Nitrogen (N)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Nitrite - N	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Nitrobenzene (Explosive)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Nitrobenzene (SVOC)	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
N-Nitrosodimethylamine	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
N-Nitroso-di-n-propylamine	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
N-Nitrosodiphenylamine	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Pentachlorophenol	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Perchlorate	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	Data Received	Data Received
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Phenanthrene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Phenol	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Pyrene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
Selenium	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Selenium, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Silver	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Silver, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Sulfate	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Thallium	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Thallium, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Total Dissolved Solids	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Total Organic Carbon	Grab	mg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	ANR	ANR	ANR
Total Suspended Solids	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 011 (INF-001)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	2/5/2024 7:40:00 AM	2/19/2024 8:30:00 AM	3/10/2024 7:35:00 AM	3/29/2024 7:15:00 AM	1/2/2024 7:30:00 AM	2/2/2024 7:15:00 AM	2/18/2024 7:10:00 AM	2/27/2024 9:30:00 AM
			SAMPLE FREQUENCY								
Toxaphene	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	Data Received	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Trichloroethene	Grab	µg/L	1/Discharge	Data Received	Lab has yet to report	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Lab has yet to report
Turbidity	Grab	NTU	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Vanadium	Grab	µg/L	1/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Vanadium, dissolved	Grab	µg/L	Additional/Year	Data Received	Data Received	ANR	ANR	Data Received	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	Data Received	ANR	ANR	ANR	Data Received	Data Received	ANR	ANR
Zinc	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received
Zinc, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received	Lab has yet to report	Data Received	Data Received	Data Received	Data Received



ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	3/6/2024 6:10:00 AM	3/22/2024 7:00:00 AM	3/29/2024 7:45:00 AM
			SAMPLE FREQUENCY			
1,1,1-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR
1,1,2-Trichloro-1,2,2-trifluoroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
1,1,2-Trichloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR
1,1-Dichloroethane	Grab	µg/L	1/Year	Data Received	ANR	ANR
1,1-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
1,2,4-Trichlorobenzene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,2,4-Trichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,2-Dichloro-1,1,2-trifluoroethane	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
1,2-Dichlorobenzene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,2-Dichloroethane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
1,2-Dichloropropane	Grab	µg/L	1/Year	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
1,4-Dioxane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
2,4,6-Trichlorophenol	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
2,4-Dichlorophenol	Grab	µg/L	1/Year	ANR	ANR	ANR
2,4-Dimethylphenol	Grab	µg/L	1/Year	ANR	ANR	ANR
2,4-Dinitrophenol	Grab	µg/L	1/Year	ANR	ANR	ANR
2,4-Dinitrotoluene (Explosive)	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
2,4-Dinitrotoluene (SVOC)	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
2,6-Dinitrotoluene (Explosive)	Grab	µg/L	1/Year	ANR	ANR	ANR
2,6-Dinitrotoluene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
2-Chloroethyl vinyl ether	Grab	µg/L	1/Year	ANR	ANR	ANR
2-Chloronaphthalene	Grab	µg/L	1/Year	ANR	ANR	ANR
2-Chlorophenol	Grab	µg/L	1/Year	ANR	ANR	ANR
2-Methyl-4,6-dinitrophenol	Grab	µg/L	1/Year	ANR	ANR	ANR
2-Nitrophenol	Grab	µg/L	1/Year	ANR	ANR	ANR
3,3'-Dichlorobenzidine	Grab	µg/L	1/Year	ANR	ANR	ANR
4,4'-DDD	Grab	µg/L	1/Year	ANR	ANR	ANR
4,4'-DDE	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
4,4'-DDT	Grab	µg/L	1/Year	ANR	ANR	ANR
4-Bromophenyl phenyl ether	Grab	µg/L	1/Year	ANR	ANR	ANR
4-Chloro-3-methylphenol	Grab	µg/L	1/Year	ANR	ANR	ANR
4-Chlorophenyl phenyl ether	Grab	µg/L	1/Year	ANR	ANR	ANR
4-Nitrophenol	Grab	µg/L	1/Year	ANR	ANR	ANR
Acenaphthene	Grab	µg/L	1/Year	ANR	ANR	ANR
Acenaphthylene	Grab	µg/L	1/Year	ANR	ANR	ANR
Acrolein	Grab	µg/L	1/Year	ANR	ANR	ANR
Acrylonitrile	Grab	µg/L	1/Year	ANR	ANR	ANR
Aldrin	Grab	µg/L	1/Year	ANR	ANR	ANR
alpha-BHC	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
alpha-Endosulfan	Grab	µg/L	1/Year	ANR	ANR	ANR
Aluminum	Grab	mg/L	1/Year	ANR	ANR	ANR
Aluminum, dissolved	Grab	mg/L	Additional/Year	ANR	ANR	ANR
Ammonia - N	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Anthracene	Grab	µg/L	1/Year	ANR	ANR	ANR
Antimony	Grab	µg/L	1/Year	ANR	ANR	ANR
Antimony, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Aroclor 1016	Grab	µg/L	1/Year	ANR	ANR	ANR
Aroclor 1221	Grab	µg/L	1/Year	ANR	ANR	ANR
Aroclor 1232	Grab	µg/L	1/Year	ANR	ANR	ANR
Aroclor 1242	Grab	µg/L	1/Year	ANR	ANR	ANR
Aroclor 1248	Grab	µg/L	1/Year	ANR	ANR	ANR
Aroclor 1254	Grab	µg/L	1/Year	ANR	ANR	ANR
Aroclor 1260	Grab	µg/L	1/Year	ANR	ANR	ANR
Arsenic	Grab	µg/L	1/Year	ANR	ANR	ANR

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	3/6/2024 6:10:00 AM	3/22/2024 7:00:00 AM	3/29/2024 7:45:00 AM
			SAMPLE FREQUENCY			
Arsenic, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Barium	Grab	mg/L	1/Year	ANR	ANR	ANR
Barium, dissolved	Grab	mg/L	Additional/Year	ANR	ANR	ANR
Benzene	Grab	µg/L	1/Year	ANR	ANR	ANR
Benzidine	Grab	µg/L	1/Year	ANR	ANR	ANR
Benzo(a)anthracene	Grab	µg/L	1/Year	ANR	ANR	ANR
Benzo(a)pyrene	Grab	µg/L	1/Year	ANR	ANR	ANR
Benzo(b)fluoranthene	Grab	µg/L	1/Year	ANR	ANR	ANR
Benzo(g,h,i)perylene	Grab	µg/L	1/Year	ANR	ANR	ANR
Beryllium	Grab	µg/L	1/Year	ANR	ANR	ANR
Beryllium, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
beta-BHC	Grab	µg/L	1/Year	ANR	ANR	ANR
beta-Endosulfan	Grab	µg/L	1/Year	ANR	ANR	ANR
Biochemical Oxygen Demand (BOD) (5-Day @ 20 degrees Celsius)	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Bis (2-Chloroethoxy) Methane	Grab	µg/L	1/Year	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	Grab	µg/L	1/Year	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	Grab	µg/L	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Boron	Grab	mg/L	1/Year	ANR	ANR	ANR
Boron, dissolved	Grab	mg/L	Additional/Year	ANR	ANR	ANR
Bromodichloromethane	Grab	µg/L	1/Year	ANR	ANR	ANR
Bromoform	Grab	µg/L	1/Year	ANR	ANR	ANR
Bromomethane (Methyl Bromide)	Grab	µg/L	1/Year	ANR	ANR	ANR
Butyl benzylphthalate	Grab	µg/L	1/Year	ANR	ANR	ANR
Cadmium	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Cadmium, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Lab has yet to report
Carbon tetrachloride	Grab	µg/L	1/Year	ANR	ANR	ANR
Chlordane	Grab	µg/L	1/Year	ANR	ANR	ANR
Chloride	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Chlorine, Total Residual (Field)	Grab	mg/L	1/Year	ANR	ANR	ANR
Chlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR
Chlorodibromomethane	Grab	µg/L	1/Year	ANR	ANR	ANR
Chloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR
Chloroform	Grab	µg/L	1/Year	ANR	ANR	ANR
Chloromethane (Methyl Chloride)	Grab	µg/L	1/Year	ANR	ANR	ANR
Chromium	Grab	µg/L	1/Year	ANR	ANR	ANR
Chromium, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Chromium III (Trivalent)	Grab	mg/L	1/Year	ANR	ANR	ANR
Chromium VI (Hexavalent)	Grab	µg/L	1/Year	ANR	ANR	ANR
Chromium VI (Hexavalent), dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Chronic Toxicity	Grab	Pass or Fail and % Effect	1/Year	ANR	ANR	ANR
Chrysene	Grab	µg/L	1/Year	ANR	ANR	ANR
cis-1,2-Dichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Cobalt	Grab	µg/L	1/Year	ANR	ANR	ANR
Cobalt, dissolved	Grab	µg/L	Additional/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
Conductivity at 25 DEG C	Grab	umhos/cm	1/Discharge	Data Received	Data Received	Lab has yet to report
Copper	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Copper, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Lab has yet to report
Cyanide	Grab	µg/L	1/Year	Data Received	Data Received	ANR
Cyclohexane	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
delta-BHC	Grab	µg/L	1/Year	ANR	ANR	ANR
Detergents (as MBAS)	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Dibenzo(a,h)anthracene	Grab	µg/L	1/Year	ANR	ANR	ANR
Dieldrin	Grab	µg/L	1/Year	ANR	ANR	ANR
Diethyl phthalate	Grab	µg/L	1/Year	ANR	ANR	ANR
Dimethyl phthalate	Grab	µg/L	1/Year	ANR	ANR	ANR
Di-n-butyl phthalate	Grab	µg/L	1/Year	ANR	ANR	ANR
Di-n-octyl phthalate	Grab	µg/L	1/Year	ANR	ANR	ANR
Dissolved Oxygen (Field)	Grab	mg/L	1/Discharge	Data Received	Data Received	Data Received

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	3/6/2024 6:10:00 AM	3/22/2024 7:00:00 AM	3/29/2024 7:45:00 AM
			SAMPLE FREQUENCY			
Endosulfan sulfate	Grab	µg/L	1/Year	ANR	ANR	ANR
Endrin	Grab	µg/L	1/Year	ANR	ANR	ANR
Endrin aldehyde(g)	Grab	µg/L	1/Year	ANR	ANR	ANR
Ethylbenzene	Grab	µg/L	1/Year	ANR	ANR	ANR
Fluoranthene	Grab	µg/L	1/Year	ANR	ANR	ANR
Fluorene	Grab	µg/L	1/Year	ANR	ANR	ANR
Fluoride	Grab	mg/L	1/Year	Data Received	Data Received	ANR
gamma-BHC (Lindane)	Grab	µg/L	1/Year	ANR	ANR	ANR
Hardness (as CaCO3)	Grab	mg/L	1/Year	ANR	ANR	ANR
Hardness, Dissolved (as CaCO3)	Grab	mg/L	Additional/Year	ANR	ANR	ANR
Heptachlor	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
Heptachlor epoxide	Grab	µg/L	1/Year	ANR	ANR	ANR
Hexachlorobenzene	Grab	µg/L	1/Year	ANR	ANR	ANR
Hexachlorobutadiene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
Hexachlorobutadiene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
Hexachlorocyclopentadiene	Grab	µg/L	1/Year	ANR	ANR	ANR
Hexachloroethane	Grab	µg/L	1/Year	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Iron	Grab	mg/L	1/Year	ANR	ANR	ANR
Iron, dissolved	Grab	mg/L	Additional/Year	ANR	ANR	ANR
Isophorone	Grab	µg/L	1/Year	ANR	ANR	ANR
Lead	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Lead, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Lab has yet to report
Manganese	Grab	µg/L	1/Year	ANR	ANR	ANR
Manganese, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Mercury	Grab	µg/L	1/Discharge	Data Received	Data Received	Data Received
Mercury, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Data Received
Methylene chloride	Grab	µg/L	1/Year	ANR	ANR	ANR
Monomethyl hydrazine	Grab	µg/L	1/Discharge	Lab has yet to report	Lab has yet to report	Lab has yet to report
Naphthalene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
Naphthalene (VOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
Nickel	Grab	µg/L	1/Year	ANR	ANR	ANR
Nickel, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Nitrate - N	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Nitrate + Nitrite as Nitrogen (N)	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Nitrite - N	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Nitrobenzene (Explosive)	Grab	µg/L	1/Year	ANR	ANR	ANR
Nitrobenzene (SVOC)	Grab	µg/L	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
N-Nitroso-di-n-propylamine	Grab	µg/L	1/Year	ANR	ANR	ANR
N-Nitrosodiphenylamine	Grab	µg/L	1/Year	ANR	ANR	ANR
Oil & Grease	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Pentachlorophenol	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Perchlorate	Grab	µg/L	1/Year	Data Received	ANR	ANR
pH (Field)	Grab	s.u.	1/Discharge	Data Received	Data Received	Data Received
Phenanthrene	Grab	µg/L	1/Year	ANR	ANR	ANR
Phenol	Grab	µg/L	1/Year	ANR	ANR	ANR
Pyrene	Grab	µg/L	1/Year	ANR	ANR	ANR
Selenium	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Selenium, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Lab has yet to report
Silver	Grab	µg/L	1/Year	ANR	ANR	ANR
Silver, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Sulfate	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Temperature (Field)	Grab	Deg F	1/Discharge	Data Received	Data Received	Data Received
Tetrachloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR
Thallium	Grab	µg/L	1/Year	ANR	ANR	ANR
Thallium, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Toluene	Grab	µg/L	1/Year	ANR	ANR	ANR
Total Dissolved Solids	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Total Organic Carbon	Grab	mg/L	1/Year	ANR	ANR	ANR
Total Suspended Solids	Grab	mg/L	1/Discharge	Data Received	Data Received	Lab has yet to report

ANALYTE	SAMPLE TYPE	UNITS	LOCATION	SWTS 018 (INF-002)	SWTS 018 (INF-002)	SWTS 018 (INF-002)
			DATE RANGE	3/6/2024 6:10:00 AM	3/22/2024 7:00:00 AM	3/29/2024 7:45:00 AM
			SAMPLE FREQUENCY			
Toxaphene	Grab	µg/L	1/Year	ANR	ANR	ANR
trans-1,2-Dichloroethene	Grab	µg/L	1/Year	ANR	ANR	ANR
Trichloroethene	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Turbidity	Grab	NTU	1/Discharge	Data Received	Data Received	Lab has yet to report
Vanadium	Grab	µg/L	1/Year	ANR	ANR	ANR
Vanadium, dissolved	Grab	µg/L	Additional/Year	ANR	ANR	ANR
Vinyl chloride	Grab	µg/L	1/Year	ANR	ANR	ANR
Zinc	Grab	µg/L	1/Discharge	Data Received	Data Received	Lab has yet to report
Zinc, dissolved	Grab	µg/L	Additional/Discharge	Data Received	Data Received	Lab has yet to report

**APPENDIX D**

**First Quarter 2024 NPDES Permit Limit Exceedances, and/or  
Non-Compliance**

**TABLE D**  
**SUMMARY OF PERMIT LIMIT EXCEEDANCES AND/OR NON-COMPLIANCE**

FIRST QUARTER 2024  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

January 1 through March 31, 2024

Daily Maximum Permit Limit Exceedances and/or Non-Compliance							
Outfall	Sample Date	Sample Type	Analyte	Permit Limit Daily Max	Result	Units	Laboratory/ Validation Qualifier
OUTFALL 001	02/02/2024	Comp	Aluminum	1.0	3.6	mg/L	--
OUTFALL 002	01/03/2024	Grab	pH	6.5 - 8.5	8.61	SU	--
OUTFALL 002	02/02/2024	Comp	TCDD TEQ	2.8E-08	8.7E-08	ug/L	*
OUTFALL 002	03/24/2024	Comp	Sulfate	300	390	mg/L	*
OUTFALL 004	02/06/2024	Comp	Mercury	0.024	0.029	ug/L	--
OUTFALL 006	02/06/2024	Comp	Aluminum	1.0	3.4	mg/L	--
OUTFALL 006	02/06/2024	Comp	Mercury	0.024	0.025	ug/L	--
OUTFALL 008	02/02/2024	Comp	Aluminum	1.0	1.2	mg/L	--
OUTFALL 009	01/23/2024	Comp	Aluminum	1.0	9.2	mg/L	--
OUTFALL 009	01/23/2024	Comp	Lead	5.2	270	ug/L	--
OUTFALL 009	02/02/2024	Comp	Aluminum	1.0	9.0	mg/L	--
OUTFALL 009	02/02/2024	Comp	Lead	5.2	160	ug/L	--
OUTFALL 009	02/02/2024	Comp	Lead	2.8	3.0	lbs/day	--
OUTFALL 009	02/02/2024	Comp	Mercury	0.024	0.031	ug/L	--
OUTFALL 009	02/02/2024	Comp	TCDD TEQ	2.8E-08	4.1E-08	ug/L	*
OUTFALL 009	02/20/2024	Comp	TCDD TEQ	2.8E-08	3.1E-08	ug/L	*
OUTFALL 009	03/08/2024	Comp	TCDD TEQ	2.8E-08	4.0E-08	ug/L	*
OUTFALL 009	03/31/2024	Comp	Lead	5.2	230	ug/L	*
OUTFALL 009	03/31/2024	Comp	TCDD TEQ	2.8E-08	3.6E-08	ug/L	*
OUTFALL 011	02/06/2024	Comp	Aluminum	1.0	1.7	mg/L	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

**TABLE D**  
**SUMMARY OF PERMIT LIMIT EXCEEDANCES AND/OR NON-COMPLIANCE**

FIRST QUARTER 2024  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309

January 1 through March 31, 2024

Statistical Threshold Value Receiving Water Limit Exceedances							
Locations	Sample Date	Sample Type	Analyte	Statistical Threshold Value	Daily Max Result	Units	Laboratory/ Validation Qualifier
Arroyo Simi (RSW-002, Downstream)	01/22/2024	Grab	E. coli	320	11,000	MPN/100 ml	*
Arroyo Simi (RSW-002, Downstream)	01/23/2024	Grab	E. coli	320	9,800	MPN/100 ml	*
Arroyo Simi (RSW-002, Downstream)	01/24/2024	Grab	E. coli	320	3,200	MPN/100 ml	*
Arroyo Simi (RSW-002, Downstream)	01/25/2024	Grab	E. coli	320	580	MPN/100 ml	*
Arroyo Simi (RSW-003, Upstream)	01/22/2024	Grab	E. coli	320	10,000	MPN/100 ml	*
Arroyo Simi (RSW-003, Upstream)	01/23/2024	Grab	E. coli	320	2,200	MPN/100 ml	*
Arroyo Simi (RSW-003, Upstream)	01/24/2024	Grab	E. coli	320	2,000	MPN/100 ml	*
Arroyo Simi (RSW-003, Upstream)	01/25/2024	Grab	E. coli	320	650	MPN/100 ml	*
Arroyo Simi (RSW-003, Upstream)	01/26/2024	Grab	E. coli	320	520	MPN/100 ml	*

Single Sample Maximum Receiving Water Limit Exceedances							
Locations	Sample Date	Sample Type	Analyte	Single Sample Maximum Limit	Daily Max Result	Units	Laboratory/ Validation Qualifier
Bell Canyon (RSW-001, Outfall 002)	1/3/2024	Grab	E. coli	235	260	MPN/100 ml	*

Geometric Mean Receiving Water Limit Exceedances							
Locations	Sample Dates	Sample Type	Analyte	Geomean Limit	Geomean Result	Units	Laboratory/ Validation Qualifier
Arroyo Simi (RSW-002, Downstream)	01/22/2024-01/26/2024	Grab	E. coli	100	1,817	MPN/100 ml	*
Arroyo Simi (RSW-003, Upstream)	01/22/2024-01/26/2024	Grab	E. coli	100	1,716	MPN/100 ml	*

See reporting summary notes for abbreviations, definitions, and other explanations for the data presented.

**APPENDIX E**

**First Quarter 2024 Toxicity Analytical Laboratory Reports and  
Validation Reports**



**APPENDIX E**

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<b>Number</b>	<b>Outfall/Location</b>	<b>Toxicity Laboratory Report Number</b>	<b>Sampling Date</b>
1	INF-001	570-171243-6	February 5, 2024
2	INF-002	570-166524-6	January 2, 2024
3	Outfall 001	570-170729-4	February 2, 2024
4	Outfall 001	570-173128-4	February 20, 2024
5	Outfall 002	570-166858-4	January 4, 2024
6	Outfall 002	570-168882-4	January 21, 2024
7	Outfall 004	570-171233-5	February 6, 2024
8	Outfall 006	570-171237-5	February 6, 2024
9	Outfall 008	570-170739-5	February 2, 2024
10	Outfall 008	570-173136-4	February 20, 2024
11	Outfall 009	570-169112-5	January 23, 2024
12	Outfall 009	570-170759-7	February 2, 2024
13	Outfall 011	570-171239-4	February 6, 2024
14	Outfall 011	570-173243-4	February 21, 2024
15	Outfall 018	570-166871-4	January 4, 2024
16	Outfall 018	570-170983-4	February 4, 2024
<b>Number</b>	<b>Outfall/Location</b>	<b>Data Usability Summary Reports (Validation Reports)</b>	<b>Sampling Date</b>
17	Various	Polychlorinated Biphenyls (PCBs), First Quarter 2024	4 January through 20 February 2024
18	Various	Dioxins, Metals, Mercury First Quarter, 2024	3 January through 28 February 2024
19	Various	Dioxins, First Quarter 2024	2 February 2024
20	Various	Per-and Poly Fluoroalkyl Substances (PFAS), First Quarter 2024	2 January through 5 February 2024



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/16/2024 1:32:45 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - SWTS 011 Influent - Grab

## JOB NUMBER

570-171243-6

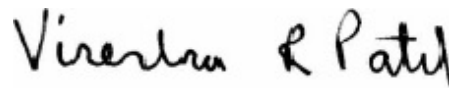
# Eurofins Calscience

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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3/16/2024 1:32:45 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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## Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-171243-6

Project/Site: Boeing NPDES SSFL - SWTS 011 Influent - Grab

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - SWTS 011 Influent - Grab

Job ID: 570-171243-6

**Job ID: 570-171243-6**

**Eurofins Calscience**

## Job Narrative 570-171243-6

### Receipt

The samples were received on 2/6/2024 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.4° C, 1.5° C, 1.6° C, 2.0° C and 2.1° C.

### Receipt Exceptions

The following sample was listed on the Chain of Custody (COC); however, no sample was received: EB\_INF001\_20240205 (570-171243-5).

The clients office was contacted with the above sample receipt anomalies. The laboratory was provided written direction on how to proceed, please refer to the COC section of the report for further details.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

# Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-171243-6

Project/Site: Boeing NPDES SSFL - SWTS 011 Influent - Grab

**Client Sample ID: INF001\_20240205\_Grab**

**Lab Sample ID: 570-171243-1**

No Detections.

1

2

3

4

5

6

7

8

9

10

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

# Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-171243-6

Project/Site: Boeing NPDES SSFL - SWTS 011 Influent - Grab

---

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

---

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001





# Sample Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-171243-6

Project/Site: Boeing NPDES SSFL - SWTS 011 Influent - Grab

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-171243-1	INF001_20240205_Grab	Water	02/05/24 07:40	02/06/24 16:30

1

2

3

4

5

6

7

8

9

10



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 1, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: SWTS011  
 DATE RECEIVED: 5 Feb - 2024  
 ABC LAB. NO.: CSE0224.035

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

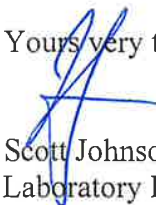
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS      % EFFECT = 0.00 %

GROWTH = PASS      % EFFECT = -1.06 %

Yours very truly,

  
 ✓ Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 12:08 (p 1 of 1)  
 Test Code/ID: CSE0224.035fml / 12-5422-6182

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 08-0465-4988	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:18	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-0402-9901	Code: CSE0224.035fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 05 Feb-24 07:40	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: SWTS011
Sample Age: 30h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc	

## Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
03-3226-7383	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
18-8882-0954	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
03-3226-7383	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
18-8882-0954	Mean Dry Biomass-mg	Control Resp	0.3452	0.25	<<	Yes	Passes Criteria	

## 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

## Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3452	0.3402	0.3503	0.3387	0.3573	0.002121	0.005999	1.74%	0.00%
100		8	0.3489	0.3421	0.3557	0.336	0.362	0.002881	0.008149	2.34%	-1.06%

## 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

## Mean Dry Biomass-mg Detail

MD5: 18384A4AE8322FCD7A894A97B8AD3DF3

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3573	0.3387	0.3427	0.3387	0.348	0.3447	0.3473	0.3447
100		0.3573	0.3453	0.348	0.3493	0.3507	0.3427	0.336	0.362

## 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

**CETIS Analytical Report**

Report Date: 01 Mar-24 12:08 (p 1 of 4)  
 Test Code/ID: CSE0224.035fml / 12-5422-6182

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-3226-7383	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:07	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:06	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3

Batch ID: 08-0465-4988	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:18	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:

Sample ID: 15-0402-9901	Code: CSE0224.035fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 05 Feb-24 07:40	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: SWTS011
Sample Age: 30h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

**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

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

**Angular (Corrected) Transformed Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Angular (Corrected) Transformed Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

# CETIS Analytical Report

Report Date: 01 Mar-24 12:08 (p 2 of 4)  
 Test Code/ID: CSE0224.035fml / 12-5422-6182

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

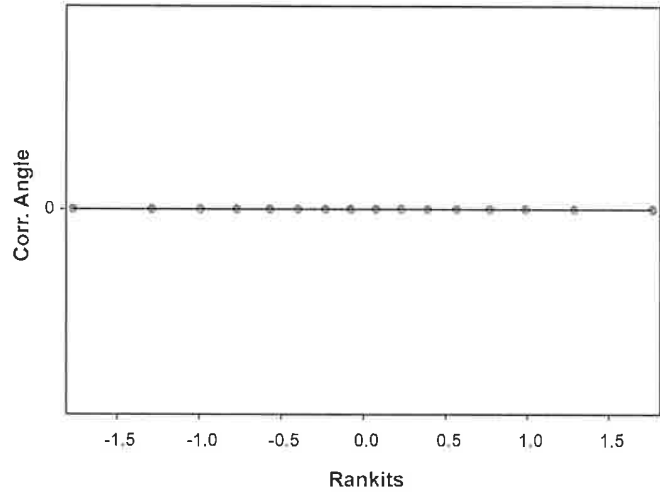
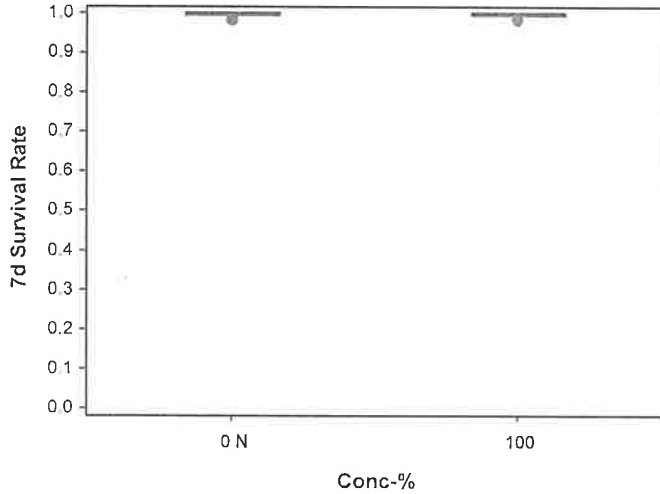
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-3226-7383      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:07      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:06      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

### Graphics



# CETIS Analytical Report

Report Date: 01 Mar-24 12:08 (p 3 of 4)  
 Test Code/ID: CSE0224.035fml / 12-5422-6182

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-8882-0954	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:07	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:06	MD5 Hash: 18384A4AE8322FCD7A894A97B8AD3DF3	Editor ID: 009-702-627-3
Batch ID: 08-0465-4988	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:18	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-0402-9901	Code: CSE0224.035fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 05 Feb-24 07:40	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: SWTS011
Sample Age: 30h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

### TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	10	27.34	0.6998	CDF	<1.0E-05	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3452	0.25	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.378E-05	5.378E-05	1	1.05	0.3228	Non-Significant Effect
Error	0.0007168	5.12E-05	14			
Total	0.0007706		15			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.5431	8.862	0.4733	Equal Variances
	Mod Levene Equality of Variance Test	0.614	8.862	0.4463	Equal Variances
	Variance Ratio F Test	1.845	8.885	0.4377	Equal Variances
Distribution	Anderson-Darling A2 Test	0.4193	3.878	0.3312	Normal Distribution
	D'Agostino Skewness Test	0.6872	2.576	0.4919	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1579	0.2471	0.3655	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9539	0.8408	0.5533	Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3452	0.3402	0.3503	0.3447	0.3387	0.3573	0.002121	1.74%	0.00%
100		8	0.3489	0.3421	0.3557	0.3487	0.336	0.362	0.002881	2.34%	-1.06%

### Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3573	0.3387	0.3427	0.3387	0.348	0.3447	0.3473	0.3447
100		0.3573	0.3453	0.348	0.3493	0.3507	0.3427	0.336	0.362

# CETIS Analytical Report

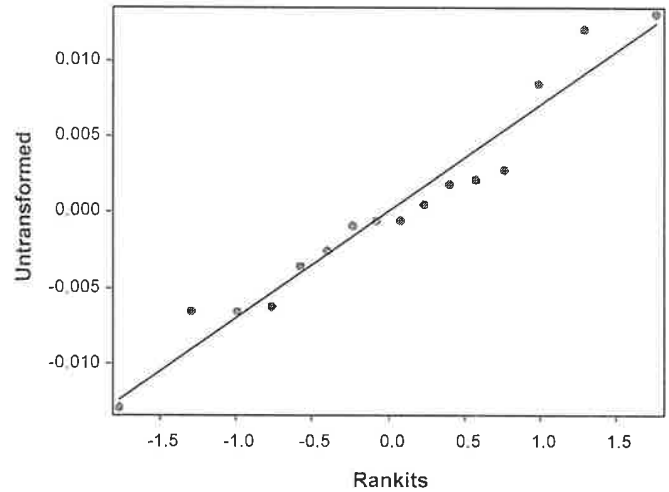
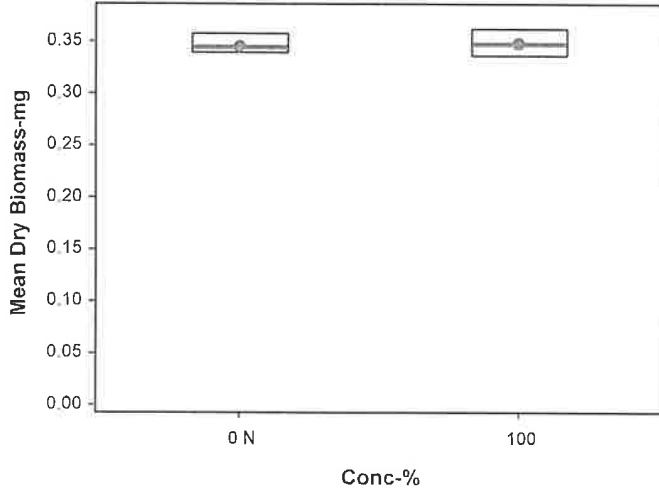
Report Date: 01 Mar-24 12:08 (p 4 of 4)  
Test Code/ID: CSE0224.035fml / 12-5422-6182

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-8882-0954	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:07	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:06	MD5 Hash: 18384A4AE8322FCD7A894A97B8AD3DF3	Editor ID: 009-702-627-3

### Graphics



**CETIS Measurement Report**

Report Date: 01 Mar-24 12:08 (p 1 of 1)  
 Test Code/ID: CSE0224.035fml / 12-5422-6182

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 08-0465-4988	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:18	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-0402-9901	Code: CSE0224.035fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 05 Feb-24 07:40	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: SWTS011
Sample Age: 30h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc	

**Alkalinity (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	19	19	19	19	19	0	0	0.00%	0
Overall		16	40.5	28.67	52.33	19	62	5.551	22.21	54.83%	0 (0%)

**Conductivity-µmhos**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
100		8	82.75	80.31	85.19	79	88	0.3644	2.915	3.52%	0
Overall		16	233.5	150.5	316.5	79	388	38.93	155.7	66.69%	0 (0%)

**Dissolved Oxygen-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
100		8	7.8	7.481	8.119	6.9	8.1	0.04772	0.3817	4.89%	0
Overall		16	7.831	7.638	8.025	6.9	8.2	0.0907	0.3628	4.63%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	22	22	22	22	22	0	0	0.00%	0
Overall		16	61	39.54	82.46	22	100	10.07	40.28	66.03%	0 (0%)

**pH-Units**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
100		8	7.975	7.936	8.014	7.9	8	0.005786	0.04629	0.58%	0
Overall		16	8.075	8.015	8.135	7.9	8.2	0.02814	0.1125	1.39%	0 (0%)

**Temperature-°C**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)



CHAIN OF CUSTODY FORM

ADDED C.F. = +0.3°C  
 Temp. deg. C = 3.3°C  
 Chlorine (mg/L) = 2.01

Client Name/Address:								Project:								ANALYSIS REQUIRED											
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108								Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year SWTS [011, 018] / INF [001, 002]								Total Dissolved Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn Cr (VI), Total Dissolved (E218.6) Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-F); Tritium (H-3) (E906.0) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA Total Organic Carbon (SM 5310D / E415.2) Monomethylhydrazine, Hydrazine, 1,1-Dimethylhydrazine (SM8315M / DV-WC-0077) Weck Labs in Hacienda Heights, CA Cyanide (SM 4500-CNE / KELADA-01) LL Mercury (E1631E) - Total Dissolved											
Eurofins Calscience Project Manager: Virandra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)								NH3 (mg/L) = 2.01											
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.								Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)								Comments 0.05											
Sampler: Adrien Mobeka																											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD																				
SWTS011	INF001_20240205_Grab_F	2/5/24 0740	WM	1 L Poly	1	None	Yes	X	Filter and preserve w/in 24hrs of receipt at lab.																		
			WM	250 mL Poly	1	None	No	X	Filter and preserve w/in 24hrs of receipt at lab.																		
			WM	250mL Clear Glass, double bagged	1	None	No		X	Filter and preserve w/in 24hrs of receipt at lab.																	
	INF001_20240205_Grab	2/5/24 0740	WM	2.5 Gal Cube	1	None	No		X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.																	
			WM	1 L Glass Amber	1	None	No			Only test if first rain event of the year. Deliver to ABC Labs in Ventura, CA																	
			WM	1 Gal Cube	5	None	No		X																		
			WM	1 L Glass Amber	1	HCl	No			X																	
			WM	1 L Glass Amber	1	None	No			X	Deliver to Weck Labs in Hacienda Heights, CA																
			WM	250 mL Poly	1	NaOH	No			X																	

Hand-delivered to ABC Labs with this copy of the CoC

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm = SRAM

Relinquished By: <i>Mark Dominick</i>	Date/Time: 2-5-2024 / 1505	Company: H&A	Received By: <i>Victoria May</i>	Date/Time: 2-5-24 1505	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____  Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>
Relinquished By:	Date/Time:	Company:	Received By:	Date/Time:	
Relinquished By:	Date/Time:	Company:	Received By:	Date/Time:	



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 6 February 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 38.00 ug/l

EC25 = 57.82 ug/l

EC50 = 80.77 ug/l

ENDPOINT: GROWTH

NOEC = 38.00 ug/l

IC25 = 54.21 ug/l

IC50 = 70.57 ug/l

Yours very truly,

Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-3188-9121	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	9.34%	1
12-8541-5621	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test	✓ 38	75	53.39	14.1%	1

### Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
10-6161-5529	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	49.89	46.53	55.08	1
			EC20	53.86	49.38	60.78	
			EC25	57.82	52.22	66.47	
			EC40	69.71	60.76	85.23	
			EC50	80.77	64.57	102.5	
00-3964-3519	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	47.66	43.59	52.13	1
			✓ IC20	50.94	46.01	56.81	
			✓ IC25	54.21	48.39	61.7	
			✓ IC40	64.03	55.49	76.19	
			✓ IC50	70.57	60.02	93.7	

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Decision
				Lower	Upper	Overlap	
10-6161-5529	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
14-3188-9121	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
00-3964-3519	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
12-8541-5621	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
12-8541-5621	Mean Dry Biomass-mg	PMSD	0.1406	0.12	0.3	Yes	Passes Criteria

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.4000	0.6667	0.0609	0.1217	22.82%	46.67%
150		4	0.1000	-0.1525	0.3525	0.0000	0.3333	0.0794	0.1587	158.70%	90.00%

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.342	0.364	0.004842	0.009684	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3413	0.366	0.005384	0.01077	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3413	0.3547	0.002944	0.005888	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.3407	0.3607	0.004131	0.008262	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.07933	0.216	0.02887	0.05773	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0	0.07867	0.01856	0.03713	146.55%	92.77%

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 28ECB5E5C36E53EA44D50952ED449010

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: F76AD684C03403B4619D68D6F5A6FE41

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 1 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: ---
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.09338	9.34%

### Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.79478	0.958956	5	84.71	<1.0E-05	Significant Effect
Error	0.203761	0.01132	18			
Total	4.99854		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	7.038	4.248	0.0008	Unequal Variances
	Mod Levene Equality of Variance Test	3.38	4.248	0.0251	Equal Variances
Distribution	Anderson-Darling A2 Test	3.628	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.308	2.576	0.0009	Non-Normal Distribution
	D'Agostino Skewness Test	3.098	2.576	0.0019	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	20.54	9.21	3.5E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7022	0.884	1.1E-05	Non-Normal Distribution

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.5333	0.4000	0.6667	0.0609	22.82%	46.67%
150		4	0.1000	0.0000	0.3525	0.0222	0.0000	0.3333	0.0794	158.70%	90.00%

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 2 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010      Editor ID: 009-702-627-3

### Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.8195	0.6234	1.0160	0.8191	0.6847	0.9553	0.0616	15.04%	43.14%
150		4	0.2839	-0.0815	0.6493	0.1734	0.1295	0.6155	0.1148	80.88%	80.30%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

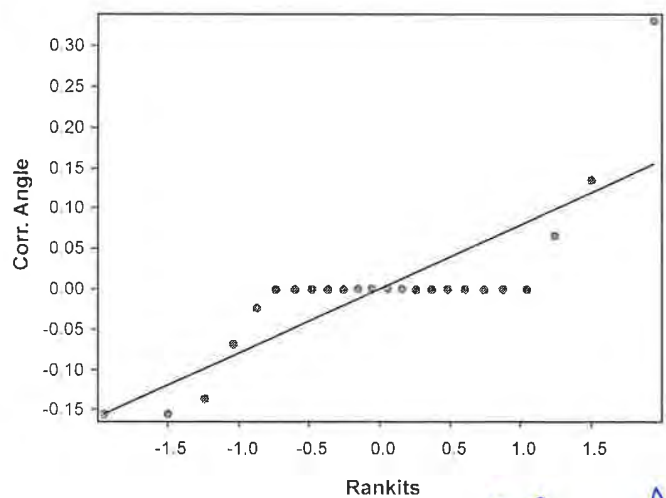
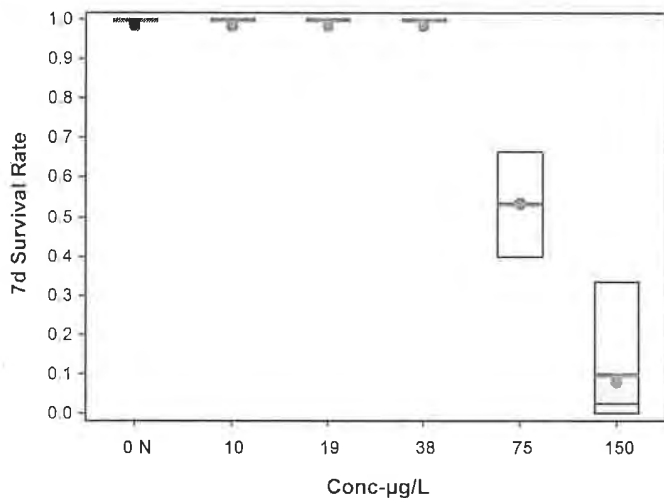
### Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.8861	0.7520	0.6847
150		0.6155	0.2612	0.1295	0.1295

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

### Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 3 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

Batch ID: 14-9989-8515      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 06 Feb-24 13:40      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 13 Feb-24 14:12      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d 1h      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 06-0345-7989      Code: FML020624      Project: REF TOX  
 Sample Date: 06 Feb-24 13:40      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.04925	14.06%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	0	CDF	0.8333	Non-Significant Effect
		19	6	18	10	0	CDF	0.8333	Non-Significant Effect
		38	6	17.5	10	1	CDF	0.7867	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
PMSD	0.1406	0.12	0.3	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.396777	0.0793554	5	94.77	<1.0E-05	Significant Effect
Error	0.0150717	0.0008373	18			
Total	0.411849		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	21.19	15.09	0.0007	Unequal Variances
	Levene Equality of Variance Test	4.158	4.248	0.0110	Equal Variances
	Mod Levene Equality of Variance Test	3.182	4.248	0.0312	Equal Variances
Distribution	Anderson-Darling A2 Test	1.52	3.878	0.0001	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.511	2.576	0.0120	Normal Distribution
	D'Agostino Skewness Test	0.1499	2.576	0.8808	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	6.326	9.21	0.0423	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1935	0.2056	0.0206	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8702	0.884	0.0053	Non-Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.3477	0.342	0.364	0.004842	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3473	0.3413	0.366	0.005384	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3507	0.3413	0.3547	0.002944	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.349	0.3407	0.3607	0.004131	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.1553	0.07933	0.216	0.02887	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0.007556	0	0.07867	0.01856	146.55%	92.77%

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 4 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

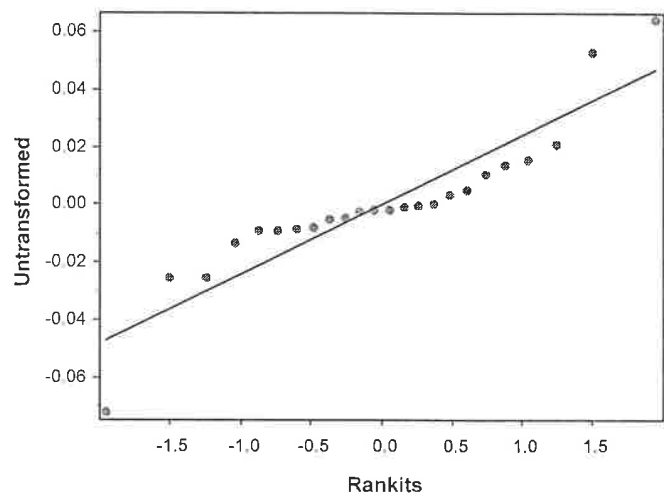
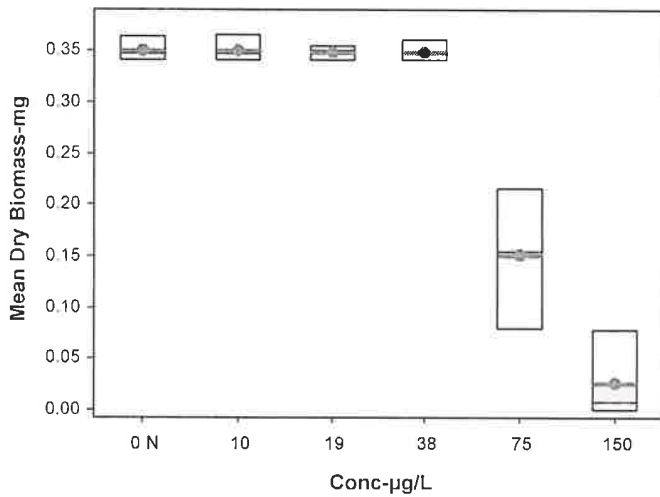
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### Graphics





# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 1 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	49.89	46.53	55.08
EC20	53.86	49.38	60.78
EC25	57.82	52.22	66.47
EC40	69.71	60.76	85.23
EC50	80.77	64.57	102.5

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.5333	0.5333	0.4000	0.6667	22.82%	46.67%	32/60	0.5333	46.67%
150		4	0.1000	0.0222	0.0000	0.3333	158.70%	90.00%	6/60	0.1000	90.00%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

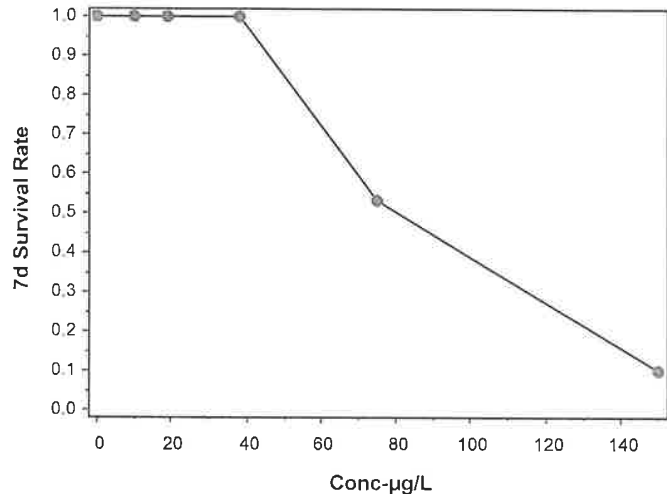
Report Date: 01 Mar-24 13:17 (p 2 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

### Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 3 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	419376	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	47.66	43.59	52.13
IC20	50.94	46.01	56.81
IC25	54.21	48.39	61.7
IC40	64.03	55.49	76.19
IC50	70.57	60.02	93.7

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3503	0.3477	0.342	0.364	2.76%	0.00%	0.3504	0.00%
10		4	0.3505	0.3473	0.3413	0.366	3.07%	-0.05%	0.3504	0.00%
19		4	0.3493	0.3507	0.3413	0.3547	1.69%	0.29%	0.3496	0.23%
38		4	0.3498	0.349	0.3407	0.3607	2.36%	0.14%	0.3496	0.23%
75		4	0.1515	0.1553	0.07933	0.216	38.11%	56.76%	0.1515	56.76%
150		4	0.02533	0.007556	0	0.07867	146.55%	92.77%	0.02533	92.77%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

# CETIS Analytical Report

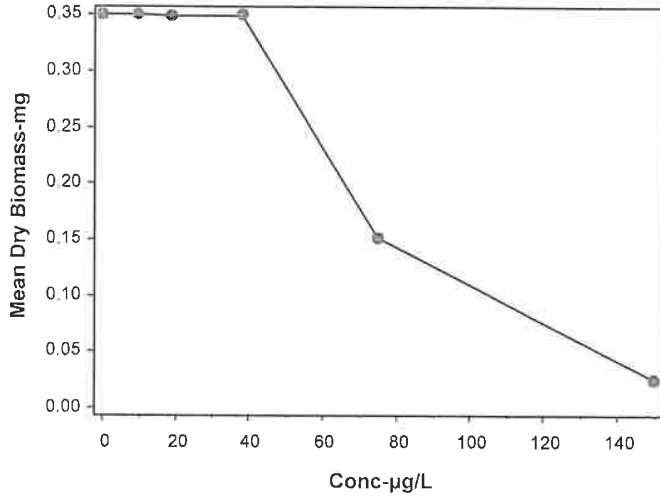
Report Date: 01 Mar-24 13:17 (p 4 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	61	61	61	61	61	0	0	0.00%	0
Overall		16	61.5	61.22	61.78	61	62	0.1291	0.5164	0.84%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
10		8	378	376.9	379.1	376	380	0.1637	1.309	0.35%	0
19		8	377.8	376.2	379.3	375	380	0.2386	1.909	0.51%	0
38		8	378.4	377	379.7	376	380	0.1997	1.598	0.42%	0
75		8	379.1	378	380.3	377	380	0.1695	1.356	0.36%	0
150		8	380.6	379.9	381.4	380	382	0.1145	0.9161	0.24%	0
Overall		48	379.7	378.9	380.5	375	388	0.4106	2.845	0.75%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
10		8	7.85	7.554	8.146	7	8.1	0.04432	0.3546	4.52%	0
19		8	7.825	7.536	8.114	7	8.1	0.04317	0.3454	4.41%	0
38		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
75		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
150		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
Overall		48	7.829	7.733	7.925	7	8.2	0.04782	0.3313	4.23%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
10		8	8.125	8.066	8.184	8	8.2	0.00884	0.07072	0.87%	0
19		8	8.1	8.055	8.145	8	8.2	0.006684	0.05347	0.66%	0
38		8	8.088	8.058	8.117	8	8.1	0.004423	0.03538	0.44%	0
75		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
150		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
Overall		48	8.106	8.087	8.126	8	8.2	0.009605	0.06654	0.82%	0 (0%)

# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
Test Code/ID: FML020624 / 04-6220-8945

Fathead Minnow 7-d Larval Survival and Growth Test

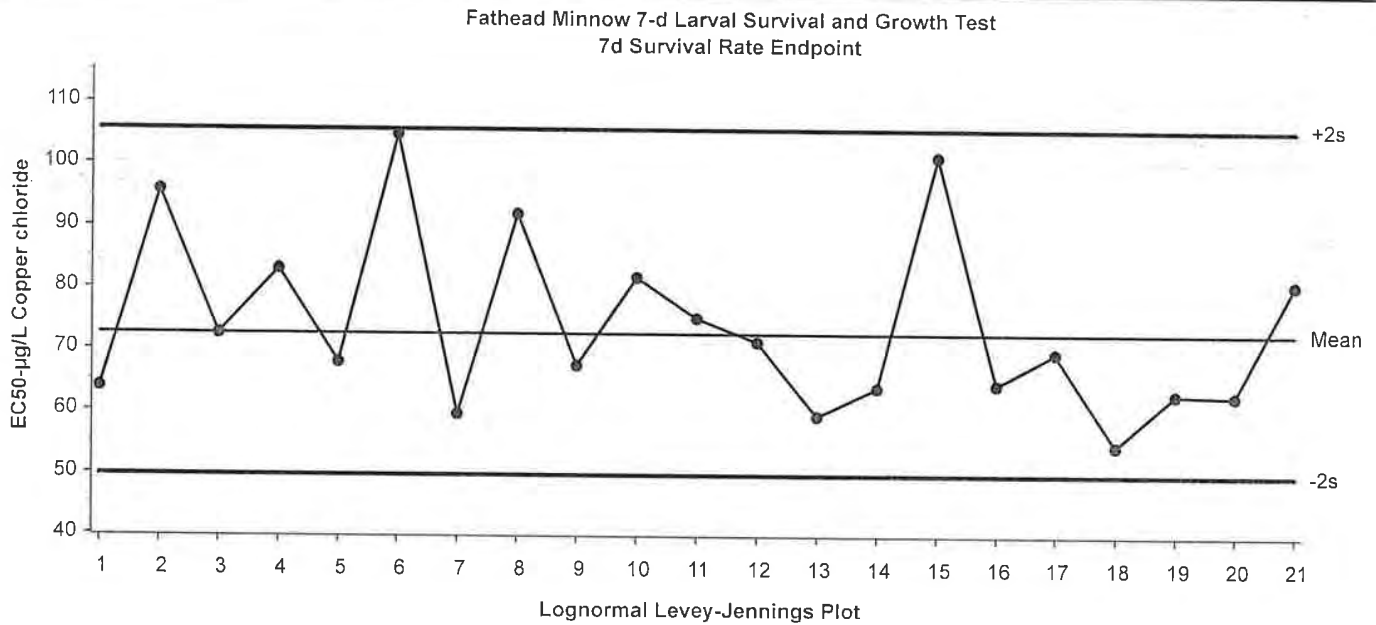
Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)



Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: 7d Survival Rate	Source: Reference Toxicant-REF	

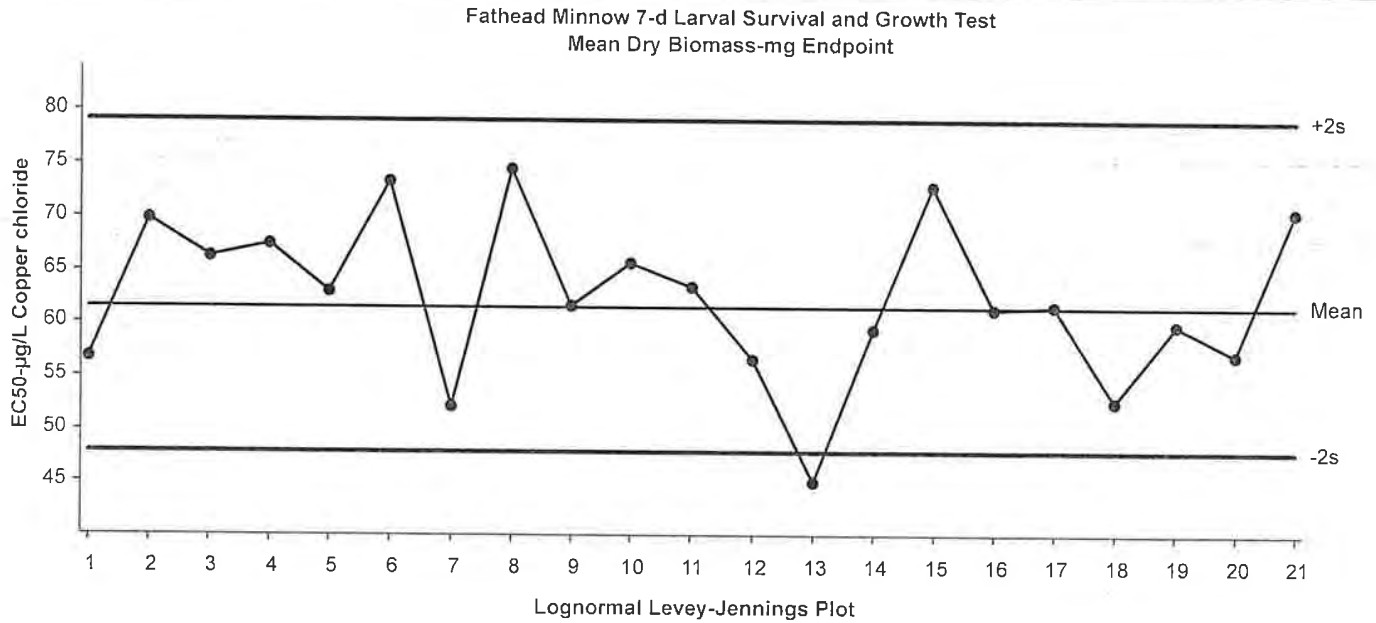


Mean: 72.46      Count: 20      -2s Action Limit: 49.7  
 Sigma: NA      CV: 19.00%      +2s Action Limit: 106

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	63.9	-8.557	-0.6667			18-8099-7551	11-3195-6885
2			10	14:30	95.83	23.38	1.483			00-9395-0169	09-6776-4624
3			17	14:45	72.45	-0.00922	-0.00067			10-4602-8256	00-4017-6619
4			24	13:40	83.04	10.58	0.7229			01-7885-2189	13-0007-2758
5			25	12:16	67.98	-4.481	-0.3386			11-1982-8946	16-3131-2159
6			31	15:30	104.9	32.47	1.964			07-7265-5981	14-1873-8638
7		Nov	7	15:10	59.58	-12.87	-1.038			19-2888-5334	07-9547-8315
8			14	15:30	92.05	19.59	1.269			18-8754-0700	05-2558-7597
9			17	14:01	67.38	-5.075	-0.3852			17-0726-1937	14-0961-0371
10			28	14:49	81.82	9.361	0.6446			10-1970-7599	00-2724-7341
11		Dec	5	13:45	75	2.543	0.183			19-1204-9208	03-6141-0747
12			12	13:30	71.3	-1.157	-0.08543			03-7560-9108	05-6885-8439
13			13	12:15	59.42	-13.04	-1.052			14-7892-5887	04-9254-9827
14			21	13:29	64	-8.457	-0.6584			06-6036-2868	13-4891-1637
15			22	14:30	101.4	28.89	1.78			00-5720-1635	14-1952-0593
16	2024	Jan	3	14:00	64.43	-8.029	-0.623			04-0866-8727	01-4746-8383
17			4	14:05	69.52	-2.939	-0.2197			15-6608-9784	08-1717-2208
18			9	13:20	54.55	-17.9	-1.506			14-8299-7228	00-5651-6529
19			23	14:00	63	-9.457	-0.742			12-1922-4773	10-8689-4329
20		Feb	2	14:20	62.67	-9.791	-0.7701			05-5157-4005	09-6073-8693
21			6	13:40	80.77	8.312	0.5761			04-6220-8945	10-6161-5529

Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: Mean Dry Biomass-mg	Source: Reference Toxicant-REF	



Mean:	61.56	Count:	20	-2s Action Limit:	47.8
Sigma:	NA	CV:	12.70%	+2s Action Limit:	79.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	56.73	-4.827	-0.6475			18-8099-7551	15-1441-4720
2			10	14:30	69.86	8.298	1.003			00-9395-0169	18-9888-9667
3			17	14:45	66.23	4.667	0.5795			10-4602-8256	13-8119-0525
4			24	13:40	67.38	5.825	0.7169			01-7885-2189	06-8805-4487
5			25	12:16	63.01	1.45	0.1847			11-1982-8946	04-1492-8778
6			31	15:30	73.46	11.9	1.401			07-7265-5981	21-3432-7293
7		Nov	7	15:10	52.21	-9.347	-1.306			19-2888-5334	11-0119-4879
8			14	15:30	74.52	12.96	1.515			18-8754-0700	03-4458-8213
9			17	14:01	61.66	0.1018	0.0131			17-0726-1937	06-0317-0204
10			28	14:49	65.63	4.075	0.5083			10-1970-7599	09-5836-2004
11		Dec	5	13:45	63.46	1.898	0.2409			19-1204-9208	02-5721-3294
12			12	13:30	56.61	-4.947	-0.6644			03-7560-9108	19-0990-5343
13			13	12:15	45.01	-16.55	-2.483		(-)	14-7892-5887	19-1033-5713
14			21	13:29	59.44	-2.118	-0.2777			06-6036-2868	01-3251-7777
15			22	14:30	72.95	11.39	1.346			00-5720-1635	06-1309-8628
16	2024	Jan	3	14:00	61.34	-0.2222	-0.02868			04-0866-8727	03-7640-5638
17			4	14:05	61.64	0.08199	0.01056			15-6608-9784	18-2508-7781
18			9	13:20	52.68	-8.881	-1.236			14-8299-7228	08-4892-6835
19			23	14:00	59.92	-1.64	-0.2141			12-1922-4773	11-2137-3210
20		Feb	2	14:20	57.13	-4.427	-0.5918			05-5157-4005	07-7973-9309
21			6	13:40	70.57	9.012	1.083			04-6220-8945	00-3964-3519

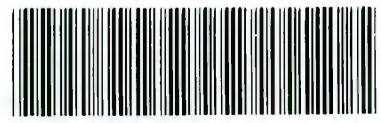


171243

CHAIN OF CUSTODY FORM

Client Name/Address:		Project:		ANALYSIS REQUIRED												Field Readings		Meter serial #			
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year SWTS [011, 018] / INF [001, 002]														Field Readings: (Include units)					
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		SWTS 011 INFLUENT GRAB														Time of Readings: <u>0740</u>					
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)														DO <u>7.11</u> mg/L					
Sampler: Adrien Mobeka		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)														pH <u>5.63</u> pH unit					
																Temp <u>57.8</u> °C (F)					
																TRC <u>0.0</u> mg/L					
																Field readings QC					
																Checked by: <u>[Signature]</u>					
																Date/Time: <u>2-5-2024/0740</u>					
																Comments					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	E. coli (SM9221/ SM9223B) Enthalpy Analytical Orange, CA	Conductivity (SM2510B / E120.1)	Oil & Grease (E1684A-HEM)	1,4-Dioxane (E624 (SW6260M, SIM))	Priority Pollutants-VOCs + cis/trans-1,2-DCE, Freon 113, Freon 123A, Cyclohexane (E624)	Priority Pollutants-VOCs: 2CVE only (E624) Weck Labs in Hacienda Heights, CA								
SWTS 011	INF001_20240205_Grab	2/5/2024 0740	WM	500 mL Poly	1	None	No		X												
			WM	1 L Glass Amber	2	HCl	No			X											
			WM	40 mL VOA	3	HCl	No					X									
			WM	40 mL VOA	3	HCl	No							X							
			WM	40 mL VOA	3	None	No								X						Deliver to Weck Labs in Hacienda Heights, CA
			WM	125mL Sterile Poly	3	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	No	X													
Trip Blanks	TB_INF001_20240205-1	2/5/2024 0740	WQ	40 mL VOA	2	HCl	No					X									
	TB_INF001_20240205-2		WQ	40 mL VOA	2	None	No							X						Deliver to Weck Labs in Hacienda Heights, CA	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm = S



570-171243 Chain of Custody

Relinquished By <u>Michelle Dallalah</u>	Date/Time: <u>2/6/2024</u>	Company: <u>1300 H&amp;A</u>	Received By <u>[Signature]</u>	Date/Time: <u>2/6/24 1300 EC</u>
Relinquished By <u>[Signature]</u>	Date/Time: <u>2/6/24 1630</u>	Company: <u>EC</u>	Received By <u>[Signature]</u>	Date/Time: <u>2/6/24 1630</u>
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

Sample Integrity: (Check)  
Intact: \_\_\_\_\_ On Ice: \_\_\_\_\_  
Store samples for 6 months.  
Data Requirements: (Check)  
No Level IV: \_\_\_\_\_ All Level IV: X

1.2/2.1 1.3/1.5 1.2/1.4 1.4/1.6 1.8/2.0 SC14

CHAIN OF CUSTODY FORM

A/R R+Sm R R R/EP R A/R+SM R+Sm A A R A+Sm

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year SWTS [011, 018] / INF [001, 002]				ANALYSIS REQUIRED												Comments								
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Recoverable Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn																				
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2018-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				TCDD (end all congeners) (E1613E) BOD5 (20 degree C) (E405.1 (SM5210B_BODcalc)) Detergents (MBAS) (SM 5540C / E425.1) TSS (160.2 (SM2540D)) Turbidity, TDS (SM2540C/E180.1) Orthophosphate [PO4], Bromide, Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E300), Perchlorate (E314.0) Ammonia-N (E350.2) Priority Pollutants-Pesticides+PCBs (E608) Weick Labs In Hacienda Heights, CA Priority Pollutants-SVOCs (E625) LL Mercury (E1631E) -- Total Recoverable Cr (VI), Total Recoverable (E218.6)																				
Sampler: Adrien Mobeka																												
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD																					
SWTS 011	INF001_20240205_Grab	2/5/2024 0740	WM	500 mL Poly	1	HNO <sub>3</sub>	Yes	X																				
			WM	1 L Glass Amber	2	None	No		X																			
			WM	1 L Poly	1	None	No		X																			
			WM	1 L Poly	1	None	No		X																			
			WM	500 mL Poly	3	None	No		X	X													48 hour holding time for turbidity					
			WM	500 mL Poly	1	None	No				X													48 hours Holding Time NO3 & NO2				
			WM	500 mL Poly	1	H <sub>2</sub> SO <sub>4</sub>	No				X																	
			WM	1 L Glass Amber	4	None	No					X																
			WM	1 L Glass Amber	2	None	No						X															
			WM	250mL Clear Glass, double bagged	1	HCL	No							X														
			WM	250 mL Poly	1	None	No								X													

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm = SRAM

Relinquished By: <i>Mehelle Dalalal</i> Date/Time: 2/6/2024 1300 Company:	Received By: <i>H&amp;A</i> Date/Time: 2/6/24 1300 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 2/6/24 1630 Company: EC	Received By: <i>[Signature]</i> Date/Time: 2/6/24 1630 Company:	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>

CHAIN OF CUSTODY FORM

<b>Client Name/Address:</b> Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		<b>Project:</b> Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year SWTS [011, 018] / INF [001, 002]		A/R/EP A/EP+Sm R A A A+Sm R+Sm R/EP <b>ANALYSIS REQUIRED</b>																					
<b>Eurofins Calscience Project Manager:</b> Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		<b>Project Manager:</b> Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Si, Tl, V, Zn  Cr (VI), Total Dissolved (E218.6)  Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium (H-3) (E908.0)  Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA  Total Organic Carbon (SM 5310D / E-415.2)  Monomethylhydrazine, Hydrazine, 1,1-Dimethylhydrazine (SM8315M / DV-WC-0077) Weck Labs in Hacienda Heights, CA  Cyanide (SM 4600-CNE / KELADA-01)  LL Mercury (E1631E) -- Total Dissolved																					
<b>TestAmerica's services under this CoC shall be performed in accordance with the T&amp;Cs within Blanket Service Agreements 2019-22-TestAmerica by and between Haley &amp; Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</b>		<b>Field Manager:</b> Mark Dominick 978.234.5033, 818.599.0702 (cell)																							
<b>Sampler:</b> Adrien Mobeka																									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD																		
SWTS 011	INF001_20240205_Grab_F	2/5/2024 0740	WM	1 L Poly	1	None	Yes	X														Filter and preserve w/in 24hrs of receipt at lab.			
			WM	250 mL Poly	1	None	No			X													Filter and preserve w/in 24hrs of receipt at lab.		
			WM	250mL Clear Glass, double bagged	1	None	No																X	Filter and preserve w/in 24hrs of receipt at lab.	
	INF001_20240205_Grab	2/5/2024 0740	WM	2.5 Gal Cube	1	None	No					X											Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.		
			WM	1 L Glass Amber	1	None	No																		
			WM	1 Gal Cube	5	None	No						X											Only test if first rain event of the year. Deliver to ABC Labs in Ventura, CA	
			WM	1 L Glass Amber	1	HCl	No							X											
			WM	1 L Glass Amber	1	None	No								X										Deliver to Weck Labs in Hacienda Heights, CA
WM	250 mL Poly	1	NaOH	No																	X				
<b>Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm = SRAM</b>																									
Relinquished By: <i>Michelle Dallalah</i> Date/Time: 2/6/2024 1300 Company: H&A		Received By: <i>[Signature]</i> Date/Time: 2/6/24 1300 EC		Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____																					
Relinquished By: <i>[Signature]</i> Date/Time: 2/6/24 1630 Company: EC		Received By: <i>[Signature]</i> Date/Time: 2/6/24 1630		Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>																					

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year SWTS [011, 018] / INF [001, 002]  SWTS 011 INFLUENT GRAB				ANALYSIS REQUIRED													
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #67013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				PFAS (Method 537 modified)	SRAM list -E8330A/B	SRAM list -Energetic Constituents, Terphenyls (E625/E270C)	SRAM list -PAHs (E625.1SIM)	SRAM list -SVOCs (E625.1SIM / 8270C)	SRAM list -Glycols (E6321B): Diethylene Glycol, Triethylene glycol	SRAM list -Herbicides (8151A)	SRAM list -Pesticides/PCBs (E608)	SRAM list -PCBs (1668C)	SRAM list -Methyl Mercury (1630 (Mod))	Comments			
Sampler: Adrien Mobeka				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	PFAS (Method 537 modified)	SRAM list -E8330A/B	SRAM list -Energetic Constituents, Terphenyls (E625/E270C)	SRAM list -PAHs (E625.1SIM)	SRAM list -SVOCs (E625.1SIM / 8270C)	SRAM list -Glycols (E6321B): Diethylene Glycol, Triethylene glycol	SRAM list -Herbicides (8151A)	SRAM list -Pesticides/PCBs (E608)	SRAM list -PCBs (1668C)	SRAM list -Methyl Mercury (1630 (Mod))	Comments			
SWTS 011	INF001_20240205_Grab	2/5/2024 0740	WM	250mL HDPE	2	None	No	X													
			WM	1 L Glass Amber	2	None	No		X												
			WM	1 L Glass Amber	2	None	No			X											
			WM	1 L Glass Amber	2	None	No				X										
			WM	1 L Glass Amber	2	None	No					X									
			WM	1 L Glass Amber	2	None	No							X							
			WM	1 L Glass Amber	4	None	No								X						
			WM	1 L Glass Amber	4	None	No									X					
			WM	1 L Glass Amber	4	None	No											H			Put on HOLD
			WM	1 L Glass Amber	2	None	No												X		
QA/QC	EB_INF001_20240205	2/5/2024 0740	WQ	250mL HDPE	2	None	No	X													
	FB_INF001_20240205	2/5/2024 0740	WQ	250mL HDPE	2	None	No	X													

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm = SRAM

Relinquished By <i>Michelle Dallalah</i> Date/Time: 2/6/2024 1300 Company: H&A	Received By <i>[Signature]</i> Date/Time: 2/6/24 1300 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By <i>[Signature]</i> Date/Time: 2/6/24 1630 Company: EC	Received By <i>[Signature]</i> Date/Time: 2/6/24 1630 Company: 1630	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By Date/Time: _____ Company: _____	Received By Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year SWTS [011, 018] / INF [001, 002]  SWTS 011 INFLUENT GRAB		ANALYSIS REQUIRED																	
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Comments																	
Sampler: Adrien Mobeka		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																			
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list - Total Dissolved Metals (E200.8 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW8015B)	SRAM list - TPH: gas, GRO C4-C12 (SW8015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW8015B)	SRAM list - TPH: Oil Range Organics, ORO (SW8015B)	SRAM list - VOCs (E824.1 / 8260B)	SRAM list - Formaldehyde (8351A)	SRAM List - Acetic Acid, n-Butanoic acid (HPLC/UV)					
SWTS 011	INF001_20240205_Grab_F	2/5/2024 0740	WM	1 L Poly	1	None	Yes	H											Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
	INF001_20240205_Grab	2/5/2024 0740	WM	500 mL Poly	1	HNO <sub>3</sub>	Yes		H											Put on HOLD	
			WM	40 mL VOA	3	HCl	No				X										
			WM	1 L Glass Amber	2	None	No					X									
			WM	250mL Glass Amber	1	None	No						X								
			WM	250mL Glass Amber	1	None	No							X							
			WM	40 mL VOA	3	None	No								X						
			WM	100mL Glass Amber	1	None	No									X					
WM	40 mL VOA	2	Phosphoric Acid	No												X					

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm = SRAM

Relinquished By <i>Michelle Dallalah</i> Date/Time: 2/6/2024 1300 Company: <i>FE&amp;A</i>	Received By <i>[Signature]</i> Date/Time: 2/6/24 1300 Company: <i>EC</i>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By <i>[Signature]</i> Date/Time: 2/6/24 1630 Company: <i>EC</i>	Received By <i>[Signature]</i> Date/Time: 2/6/24 1630 Company: <i>EC</i>	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By Date/Time: Company:	Received By Date/Time: Company:	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

Eurofins Calscience

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:																		
Client Contact:		Phone:	E-Mail:	State of Origin:	Page:																		
Shipping/Receiving			Virendra.Patel@et.eurofinsus.com	California	Page 1 of 1																		
Company:			Accreditations Required (See note):		Job #:																		
Eurofins Environment Testing North Cent			State California; State Program California		570-171243-7																		
Address:		Due Date Requested:	<b>Analysis Requested</b>																				
180 S. Van Buren Avenue,		2/19/2024	A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)																				
City:		TAT Requested (days):	<table border="1"> <thead> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>Total Number of containers</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers															
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers																					
Barberton																							
State, Zip:		PO #:																					
OH, 44203		WO #:																					
Phone:																							
330-497-9396(Tel) 330-497-0772(Fax)																							
Email:																							
Project Name:		Project #:																					
Boeing NPDES SSFL SWTS 011 Influent Grab		57013187																					
Site:		SSOW#:																					
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b> (C=Comp, G=grab)	<b>Matrix</b> (W=water, S=solid, O=waste/soll, BT=Blood, A=Air)																		
Preservation Code:																							
INF001_20240205_Grab (570-171243-1)	2/5/24	07:40 Pacific		Water	X																		
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																							
<b>Possible Hazard Identification</b>			<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																				
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For _____ Months																				
Deliverable Requested: I II III, IV Other (specify)		Primary Deliverable Rank: 2	Special Instructions/QC Requirements:																				
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:																			
Relinquished by: <i>VP</i>		Date/Time: 2/18/24 1256	Company:	Received by:	Date/Time:																		
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:																		
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:																		
Custody Seals Intact:	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:																					
△ Yes △ No																							

**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler		Lab PM: Patei, Virendra		Carrier Tracking No(s):		COC No: 570-346787 1					
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patei@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1					
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note): State California; State Program California				Job #: 570-171243-5					
Address: 2425 New Holland Pike,		Due Date Requested: 2/20/2024		<b>Analysis Requested</b>						<b>Preservation Codes:</b> A HCL                      M Hexane B NaOH                    N None C Zn Acetate            O AsNaO2 D Nitric Acid            P Na2O4S E NaHSO4                Q Na2SO3 F MeOH                    R Na2S2O3 G Amchlor               S H2SO4 H Ascorbic Acid        T TSP Dodecahydrate I Ice                        U Acetone J DI Water                V MCAA K EDTA                    W pH 4-5 L EDA                      Y Trizma Z other (specify)  <b>Other:</b>			
City: Lancaster		TAT Requested (days):											
State, Zip: PA, 17601		PO #:											
Phone: 717-656-2300(Tel)		WO #:											
Email:													
Project Name: Boeing NPDES SSFL SWTS 011 Influent Grab		Project #: 57013187											
Site:		SSOW#:											
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=wast/well, BT=Tissue, Air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>625.1 PREC625 Prep_LVI 625.1 Diphenyl Ether/Polycylene (TIC)</b>	<b>8330B/8330_P_SPE</b>	<b>8016C_DA_GL/Y8016_DA1_Prep (MOD) Custom Analyte List</b>	<b>Total Number of Containers</b>	<b>Special Instructions/Note:</b>	
INF001_20240205_Grab (570-171243-1)		2/5/24	07:40 Pacific	Water		X	X	X					
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontractor laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>													
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>							
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III IV Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:							
Empty Kit Relinquished by			Date:		Time:		Method of Shipment:						
Relinquished by:			Date/Time: 2/5/24 1318		Company:		Received by:		Date/Time:		Company:		
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:		
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.				Cooler Temperature(s) °C and Other Remarks:							

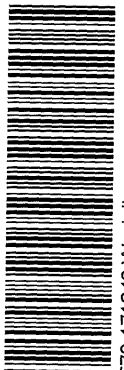
Page 38 of 40

3/16/2024



RT 198 1 10:30 A  
FZ 197 6382 02.09

Part # 159469-434 M/TW EXP 08/24



570-171243 Waybill

ORIGIN ID: DTHA (949) 261-1022  
ARASH AHMADIAN  
EUROFINS CALSCIENCE  
2841 DOW AVE  
SUITE 100  
TUSTIN, CA 927807211  
UNITED STATES US

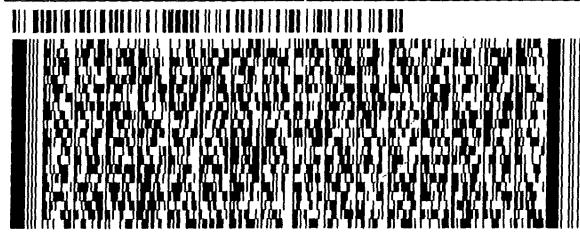
SHIP DATE: 08FEB24  
ACTWGT: 25.00 LB MAN  
CAD: 0343492/CAFE3755

BILL SENDER

TO SHIPPING/RECEIVING  
EUROFINS ENVIRONMENT TESTING NORTHE  
301 ALPHA DRIVE  
RIDC PARK  
PITTSBURGH PA 15238

(412) 963-7058 REF: 8570-95106  
PO: YES

585C5/FC2B/RED7



FedEx Express



J2330223051201 W

TRK# 7286 4125 6382  
0201

FRI - 09 FEB 10:30A  
PRIORITY OVERNIGHT

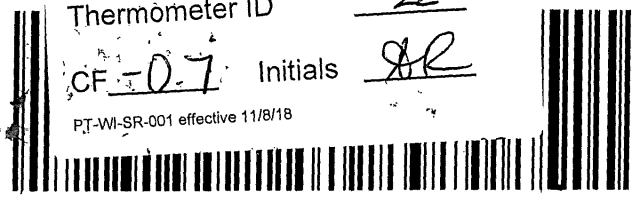
XN AGCA

15238  
PA-US PIT

Uncorrected temp 4.3 °C  
Thermometer ID 22

CF-0.7 Initials AR

PJ-WI-SR-001 effective 11/8/18





## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-171243-6

**Login Number: 171243**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 2/10/2024 10:30:00 AM

## JOB DESCRIPTION

Boeing NPDES SSFL-Annual Influent -SWTS 018 Grab

## JOB NUMBER

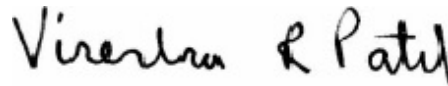
570-166524-6

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



Generated  
2/10/2024 10:30:00 AM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL-Annual Influent -SWTS 018  
Grab

Job ID: 570-166524-6

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL-Annual Influent -SWTS 018 Grab

Job ID: 570-166524-6

**Job ID: 570-166524-6**

**Eurofins Calscience**

## Job Narrative 570-166524-6

### Receipt

The samples were received on 1/2/2024 4:49 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.8° C, 0.9° C, 1.0° C and 1.1° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL-Annual Influent -SWTS 018  
Grab

Job ID: 570-166524-6

---

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

---

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL-Annual Influent -SWTS 018  
Grab

Job ID: 570-166524-6

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166524-1	INF002_20240102_Grab	Water	01/02/24 07:30	01/02/24 16:49

1

2

3

4

5

6

7

8

9





**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.

January 25, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: INF002\_20240102\_Grab\_F (SWTS 018)  
 DATE RECEIVED: 2 Jan - 2024  
 ABC LAB. NO.: CSE0124.002

**CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY**

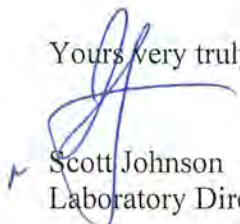
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

REPRODUCTION = PASS    % EFFECT = -18.49 %

Yours very truly,



Scott Johnson  
 Laboratory Director

\*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia.



# CETIS Summary Report

Report Date: 19 Jan-24 12:51 (p 1 of 1)  
 Test Code/ID: CSE0124.002cer / 18-1631-7506

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID: 13-0501-8432	Test Type: Reproduction-Survival (7d)	Analyst:					
Start Date: 03 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 10 Jan-24 13:56	Species: Ceriodaphnia dubia	Brine: Not Applicable					
Test Length: 7d 2h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO		Age: <24			
Sample ID: 15-0659-1842	Code: CSE0124.002cer	Project: Boeing-SSFL NPDES 2023 PERMIT					
Sample Date: 02 Jan-24	Material: Sample Water	Source: Bioassay Report					
Receipt Date: 02 Jan-24 14:08	CAS (PC):	Station: INF002_20240102_Grab					
Sample Age: 36h (5.3 °C)	Client: Calscience Environmental Laboratories, Inc						

## Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
19-3869-5937	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
15-6021-5804	Reproduction	TST-Welch's t Test	<1.0E-05	100% passed reproduction	1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
19-3869-5937	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
15-6021-5804	Reproduction	Control Resp	28.4	15	<<	Yes	Passes Criteria	

## 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

## Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	28.4	26.8	30	24	38	0.7623	3.409	12.00%	0.00%
100		20	33.65	31.97	35.33	26	40	0.8022	3.588	10.66%	-18.49%

## 7d Survival Rate Detail

MD5: E2FCA10CAEB5BD33B061F6901431A2E1

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

## Reproduction Detail

MD5: 31AC075B0A3C40D40B4EB63BC796F144

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	29	28	24	28	28	25	25	25	25	32
		38	31	28	26	30	26	28	31	28	33
100		32	29	26	29	39	34	35	35	39	36
		33	33	29	32	36	34	40	33	35	34

## 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Analytical Report

Report Date: 19 Jan-24 12:50 (p 1 of 2)  
 Test Code/ID: CSE0124.002cer / 18-1631-7506

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-6021-5804	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 7:22	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 16 Jan-24 7:19	MD5 Hash: 31AC075B0A3C40D40B4EB63BC796F144	Editor ID:
Batch ID: 13-0501-8432	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 03 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 10 Jan-24 13:56	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 2h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 15-0659-1842	Code: CSE0124.002cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 02 Jan-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 02 Jan-24 14:08	CAS (PC):	Station: INF002_20240102_Grab
Sample Age: 36h (5.3 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction endpoint

### TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	34	12.54	0.8523	CDF	<1.0E-05	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	28.4	15	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	275.625	275.625	1	22.51	2.9E-05	Significant Effect
Error	465.35	12.246	38			
Total	740.975		39			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.05328	7.353	0.8187	Equal Variances
	Mod Levene Equality of Variance Test	0.1103	7.353	0.7416	Equal Variances
	Variance Ratio F Test	1.108	3.432	0.8261	Equal Variances
Distribution	Anderson-Darling A2 Test	0.4203	3.878	0.3293	Normal Distribution
	D'Agostino Kurtosis Test	0.9826	2.576	0.3258	Normal Distribution
	D'Agostino Skewness Test	1.147	2.576	0.2516	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	2.28	9.21	0.3198	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1004	0.1617	0.3747	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9764	0.9236	0.5572	Normal Distribution

### Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	28.4	26.8	30	28	24	38	0.7623	12.00%	0.00%
100		20	33.65	31.97	35.33	34	26	40	0.8022	10.66%	-18.49%

### Reproduction Detail

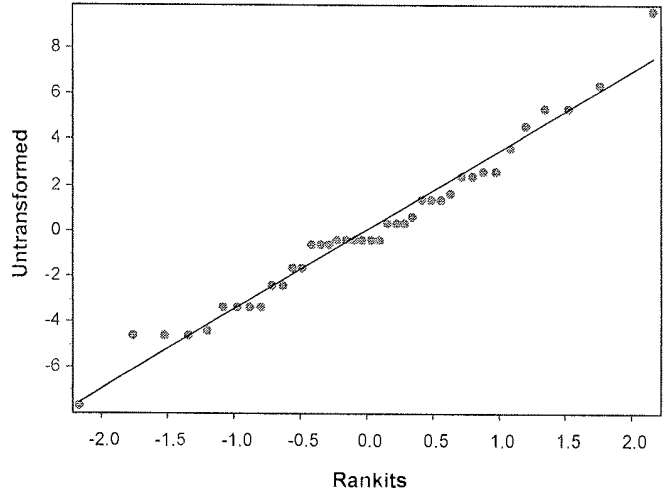
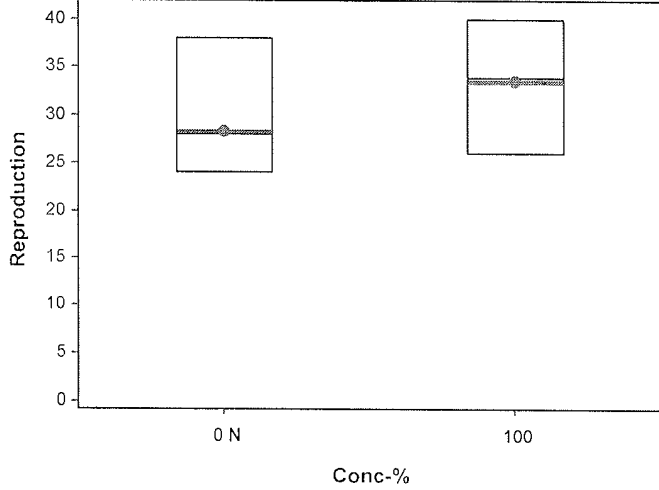
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	29	28	24	28	28	25	25	25	25	32
		38	31	28	26	30	26	28	31	28	33
100		32	29	26	29	39	34	35	35	39	36
		33	33	29	32	36	34	40	33	35	34

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-6021-5804      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
Analyzed: 16 Jan-24 7:22      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 16 Jan-24 7:19      MD5 Hash: 31AC075B0A3C40D40B4EB63BC796F144      Editor ID:

Graphics



CETIS Analytical Report

Report Date: 19 Jan-24 12:50 (p 1 of 2)  
 Test Code/ID: CSE0124.002cer / 18-1631-7506

Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-3869-5937 **Endpoint:** 7d Survival Rate **CETIS Version:** CETISv2.1.4  
 Analyzed: 16 Jan-24 7:22 **Analysis:** Single 2x2 Contingency Table **Status Level:** 1  
 Edit Date: 16 Jan-24 7:19 **MD5 Hash:** E2FCA10CAEB5BD33B061F6901431A2E1 **Editor ID:**

**Batch ID:** 13-0501-8432 **Test Type:** Reproduction-Survival (7d) **Analyst:**  
**Start Date:** 03 Jan-24 12:00 **Protocol:** EPA/821/R-02-013 (2002) **Diluent:** Laboratory Water  
**Ending Date:** 10 Jan-24 13:56 **Species:** Ceriodaphnia dubia **Brine:** Not Applicable  
**Test Length:** 7d 2h **Taxon:** Branchiopoda **Source:** Aquatic Biosystems, CO **Age:** <24

**Sample ID:** 15-0659-1842 **Code:** CSE0124.002cer **Project:** Boeing-SSFL NPDES 2023 PERMIT  
**Sample Date:** 02 Jan-24 **Material:** Sample Water **Source:** Bioassay Report  
**Receipt Date:** 02 Jan-24 14:08 **CAS (PC):** **Station:** INF002\_20240102\_Grab  
**Sample Age:** 36h (5.3 °C) **Client:** Calscience Environmental Laboratories, Inc

Data Transform	Alt Hyp	Comparison Result
Untransformed	C > T	100% passed 7d survival rate endpoint

Fisher Exact Test

Control	vs	Conc-%	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		100	1.0000	Exact	1.0000	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

7d Survival Rate Frequencies

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	20	0	20	1.0000	0.0000	0.00%
100		20	0	20	1.0000	0.0000	0.00%

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

7d Survival Rate Binomials

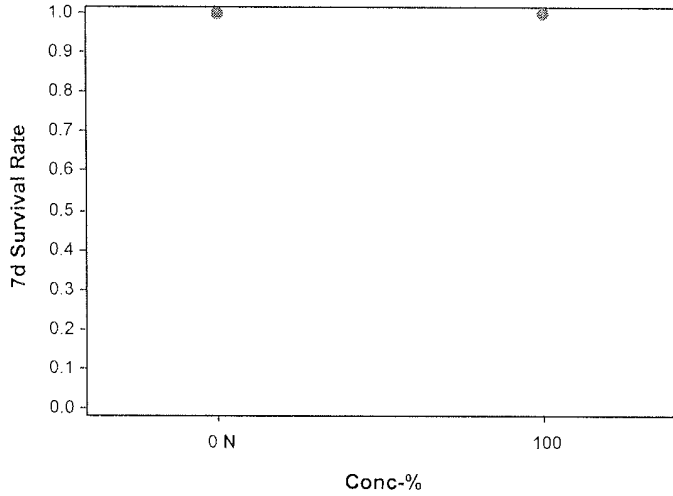
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-3869-5937      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
Analyzed: 16 Jan-24 7:22      Analysis: Single 2x2 Contingency Table      Status Level: 1  
Edit Date: 16 Jan-24 7:19      MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1      Editor ID:

Graphics



# CETIS Measurement Report

Report Date: 19 Jan-24 12:51 (p 1 of 1)  
 Test Code/ID: CSE0124.002cer / 18-1631-7506

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 13-0501-8432	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 03 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 10 Jan-24 13:56	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 2h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 15-0659-1842	Code: CSE0124.002cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 02 Jan-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 02 Jan-24 14:08	CAS (PC):	Station: INF002_20240102_Grab
Sample Age: 36h (5.3 °C)	Client: Calscience Environmental Laboratories, Inc	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	65	61.54	68.46	62	70	0.5175	4.14	6.37%	0
100		8	43	43	43	43	43	0	0	0.00%	0
Overall		16	54	47.76	60.24	43	70	2.927	11.71	21.68%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	378.9	372.2	385.6	364	388	0.9987	7.99	2.11%	0
100		8	324	319.6	328.4	318	333	0.6614	5.292	1.63%	0
Overall		16	351.4	335.9	366.9	318	388	7.271	29.08	8.28%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.913	7.571	8.254	7	8.4	0.05108	0.4086	5.16%	0
100		8	7.75	7.416	8.084	6.9	8.1	0.05	0.4	5.16%	0
Overall		16	7.831	7.618	8.044	6.9	8.4	0.09988	0.3995	5.10%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	88	88	88	88	88	0	0	0.00%	0
Overall		16	94	90.7	97.3	88	100	1.549	6.197	6.59%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.075	7.988	8.162	7.9	8.2	0.01294	0.1035	1.28%	0
100		8	8	8	8	8	8	0	0	0.00%	0
Overall		16	8.038	7.995	8.08	7.9	8.2	0.02016	0.08062	1.00%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.03	23.97	24.08	24	24.2	0.008836	0.07069	0.29%	0
Overall		16	24.01	23.99	24.04	24	24.2	0.0125	0.05	0.21%	0 (0%)

Eurofins CalScience Irvine

CHAIN OF CUSTODY FORM

Client Name/Address:  
 Haley & Aldrich  
 5333 Mission Center Rd Suite 300  
 San Diego, CA 92108

Eurofins CalScience Project Manager: Virendra Patel  
 2941 Dow Avenue, Suite #100  
 Tustin, CA 92780  
 Tel: 714-895-5494  
 ECI Project #57013187

Project:  
 Boeing SSFL NPPDES  
 2023 Permit  
 Annual Influent Monitoring  
 SWTS 018 INFLEUENT  
 GRAB

Project Manager: Katharine Miller  
 520.289.8906, 520.904.6944 (cell)  
 Field Manager: Mark Dominick  
 978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	A/R		A		R		A		A		R				
								Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	Cr (VI), Total Dissolved (E218.6)	Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0)	Chronic Toxicity - Caridophnia (EPA-821-R-02-013) ABC Labs in Ventura, CA	Total Organic Carbon (SM 5310D / E415.2)	Monomethyl hydrazine (SW8315M / DV-WC-0077) Weck Labs in Hacienda Heights, CA	Cyanide (SM 4500-CN-E / KELADA-01)	LL Mercury (E1631E) - Total Dissolved	Filter and preserve w/in 24hrs of receipt at lab.	Filter and preserve w/in 24hrs of receipt at lab.					
SWTS 018	INF002_20240102_Grab_F	1/2/2024	WM	500 mL Poly	1	None	No	X												Comments 502		
			WM	250 mL Poly	1	None	No		X												Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA	
			WM	250mL Clear Glass, double bagged	1	None	No															Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	2.5 Gal Cube	1	None	No															
			WM	1 L Glass Amber	1	HCl	No															
			WM	1 L Glass Amber	1	None	No															
			WM	500 mL Poly	1	NaOH	No															
	INF002_20240102_Grab	1/2/2024	WM	1 Gal Cube	5	None	No															

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: *Mark Dominick* Date/Time: *1-2-2024 1407* Company: *H:A* Received By: *Mark Jopy* Date/Time: *1-2-24 1408*

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_ Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Turn-around time: (Check)  
 24 Hour: \_\_\_ 72 Hour: \_\_\_ 10 Day: \_\_\_ X  
 48 Hour: \_\_\_ 5 Day: \_\_\_ Normal: \_\_\_

Sample Integrity: (Check) On Ice: \_\_\_  
 Intact: \_\_\_  
 Store samples for 6 months. Data Requirements: (Check)  
 No Level IV: \_\_\_ All Level IV: \_\_\_ X

\* Hand delivered to ABC Labs with This copy of NeCOC





**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



## CHRONIC CERIODAPHNIA SURVIVAL AND REPRODUCTION BIOASSAY

DATE: 5 January - 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 10.00 ug/l

EC25 = 17.14 ug/l

EC50 = 24.29 ug/l

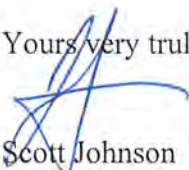
ENDPOINT: REPRODUCTION

NOEC = 10.00 ug/l

IC25 = 15.36 ug/l

IC50 = 20.73 ug/l

Yours very truly,

  
Mr. Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-5328-3144	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	✓ 10	30	17.32	---	1
11-1237-1648	Reproduction	Dunnett Multiple Comparison Test	✓ 10	30	17.32	13.6%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
07-0692-8548	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	14.29	13.33	17.5	1
			EC20	15.71	14.44	20	
			EC25	17.14	15.56	22.5	
			EC40	21.43	18.89	30	
			EC50	24.29	21.11	33.33	
07-9708-4589	Reproduction	Linear Interpolation (ICPIN)	✓ IC15	13.22	12.3	13.48	1
			✓ IC20	14.29	13.4	14.65	
			✓ IC25	15.36	14.51	15.81	
			✓ IC40	18.58	17.81	19.29	
			✓ IC50	20.73	19.98	21.62	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Decision
				Lower	Upper	Overlap	
07-0692-8548	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
14-5328-3144	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
07-9708-4589	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria
11-1237-1648	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria
11-1237-1648	Reproduction	PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
30		10	0.3000	-0.0456	0.6456	0.0000	1.0000	0.1528	0.4830	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	24.8	23.42	26.18	22	28	0.611	1.932	7.79%	0.00%
3		10	27	24.62	29.38	23	32	1.054	3.333	12.35%	-8.87%
5		10	26.6	23.82	29.38	21	32	1.231	3.893	14.64%	-7.26%
10		10	27.6	24.56	30.64	23	34	1.343	4.248	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	8	0.9978	3.155	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

# CETIS Summary Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: AE52350A46AC30A172F710E040BB92B1

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

### Reproduction Detail

MD5: D30251365D8B1138125925092AE28FAC

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	10	30	17.32	---	3.385	13.65%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		3	18	-1.444	2.222	3.385	CDF	0.9939	Non-Significant Effect
		5	18	-1.182	2.222	3.385	CDF	0.9865	Non-Significant Effect
		10	18	-1.838	2.222	3.385	CDF	0.9984	Non-Significant Effect
		30*	18	15.1	2.222	3.385	CDF	<1.0E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	24.8	15	<<	Yes	Passes Criteria
PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4924.32	1231.08	4	106.1	<1.0E-05	Significant Effect
Error	522	11.6	45			
Total	5446.32		49			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	5.346	13.28	0.2536	Equal Variances
	Levene Equality of Variance Test	2.283	3.767	0.0750	Equal Variances
	Mod Levene Equality of Variance Test	1.757	3.767	0.1542	Equal Variances
Distribution	Anderson-Darling A2 Test	0.792	3.878	0.0398	Normal Distribution
	D'Agostino Kurtosis Test	2.111	2.576	0.0347	Normal Distribution
	D'Agostino Skewness Test	0.9295	2.576	0.3526	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.322	9.21	0.0699	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1494	0.1453	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9541	0.9367	0.0502	Normal Distribution

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	24.8	23.42	26.18	24.33	22	28	0.611	7.79%	0.00%
3		10	27	24.62	29.38	27.5	23	32	1.054	12.35%	-8.87%
5		10	26.6	23.82	29.38	27	21	32	1.231	14.64%	-7.26%
10		10	27.6	24.56	30.64	27	23	34	1.343	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	0	8	0.9978	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

Ceriodaphnia 7-d Survival and Reproduction Test

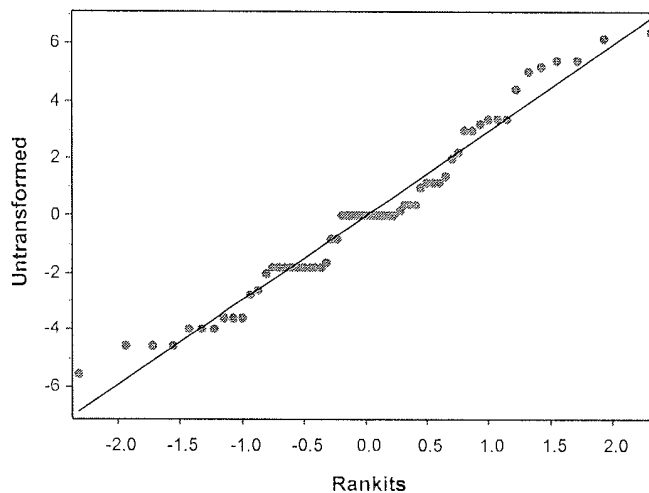
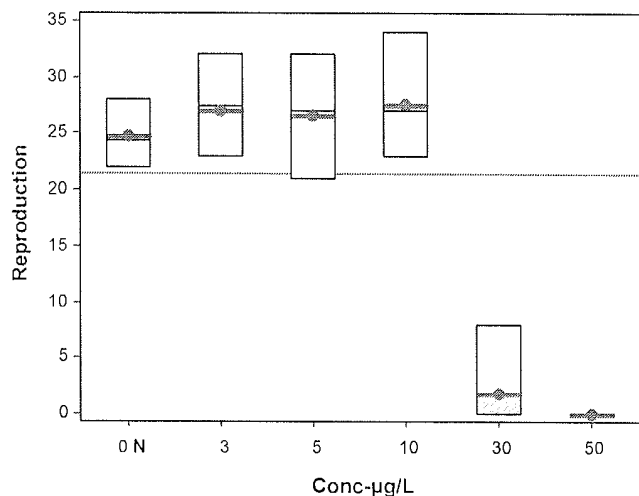
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: D30251365D8B1138125925092AE28FAC      Editor ID: 006-853-889-6

Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

Graphics



CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 1 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	14.29	13.33	17.5
EC20	15.71	14.44	20
EC25	17.14	15.56	22.5
EC40	21.43	18.89	30
EC50	24.29	21.11	33.33

7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
30		10	0.3000	0.0000	0.0000	1.0000	161.02%	70.00%	3/10	0.3000	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	---	100.00%	0/10	0.0000	100.00%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

# CETIS Analytical Report

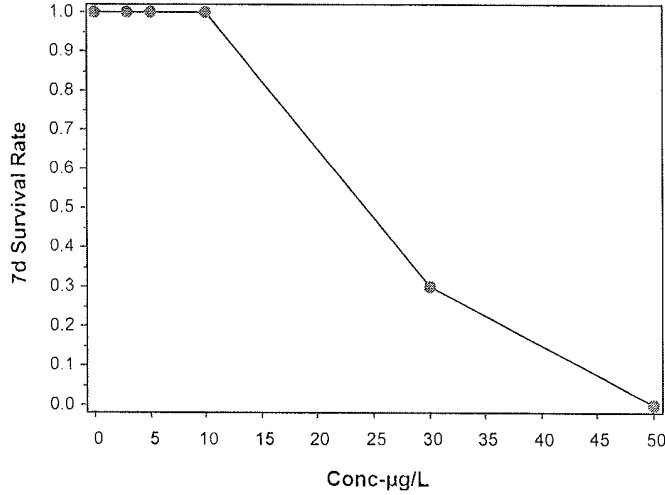
Report Date: 26 Jan-24 13:02 (p 2 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6

### Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 3 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24

Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	992278	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.8	15	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	13.22	12.3	13.48
IC20	14.29	13.4	14.65
IC25	15.36	14.51	15.81
IC40	18.58	17.81	19.29
IC50	20.73	19.98	21.62

**Reproduction Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	10	24.8	24.33	22	28	7.79%	0.00%	26.5	0.00%
3		10	27	27.5	23	32	12.35%	-8.87%	26.5	0.00%
5		10	26.6	27	21	32	14.64%	-7.26%	26.5	0.00%
10		10	27.6	27	23	34	15.39%	-11.29%	26.5	0.00%
30		10	1.8	0	0	8	175.29%	92.74%	1.8	93.21%
50		10	0	0	0	0	---	100.00%	0	100.00%

**Reproduction Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0



# CETIS Analytical Report

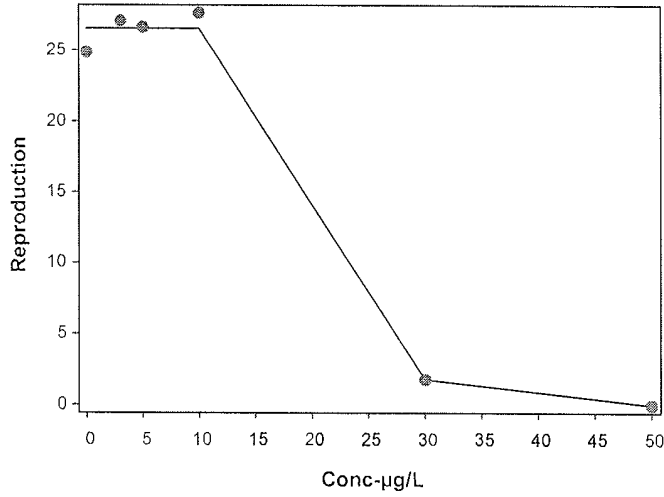
Report Date: 26 Jan-24 13:02 (p 4 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

### Graphics



# CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: STP 2xK Contingency Tables	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units
Untransformed	C > T	10	30	17.32	---

### Fisher Exact/Bonferroni-Holm Test

Control	vs	Conc-µg/L	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		3	1.0000	Exact	1.0000	Non-Significant Effect
		5	1.0000	Exact	1.0000	Non-Significant Effect
		10	1.0000	Exact	1.0000	Non-Significant Effect
		30*	0.0015	Exact	0.0062	Significant Effect
		50*	0.0000	Exact	2.7E-05	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### 7d Survival Rate Frequencies

Conc-µg/L	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	10	0	10	1.0000	0.0000	0.00%
3		10	0	10	1.0000	0.0000	0.00%
5		10	0	10	1.0000	0.0000	0.00%
10		10	0	10	1.0000	0.0000	0.00%
30		3	7	10	0.3000	0.7000	70.00%
50		0	10	10	0.0000	1.0000	100.00%

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
30		10	0.3000	0.0000	0.6456	0.0000	0.0000	1.0000	0.1528	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

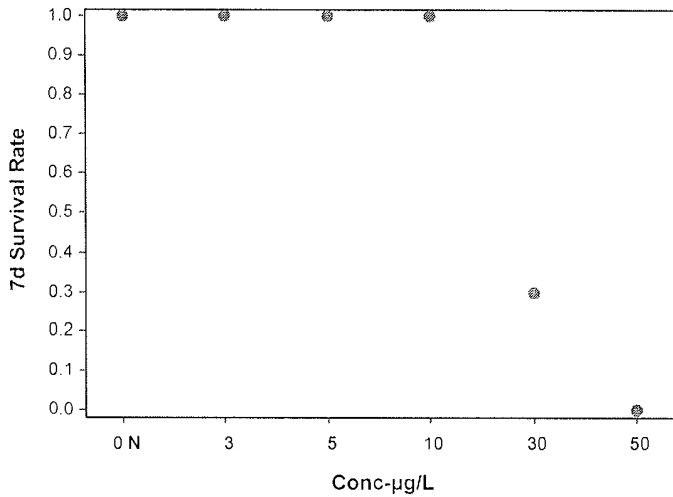
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: AE52350A46AC30A172F710E040BB92B1      Editor ID: 006-853-889-6

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**Graphics**



**CETIS Measurement Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO
		Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Alkalinity (CaCO3)-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	67	63.54	70.46	62	70	0.5175	4.14	6.18%	0
50		6	60	60	60	60	60	0	0	0.00%	0
Overall		14	64	61.28	66.72	60	70	1.258	4.707	7.35%	0 (0%)

**Conductivity-µmhos**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	376.8	384.2	373	387	0.551	4.408	1.16%	0
3		8	371	369.2	372.8	369	375	0.2673	2.138	0.58%	0
5		8	368.4	361.9	374.9	352	376	0.9727	7.782	2.11%	0
10		8	372.1	367.8	376.5	364	379	0.6493	5.194	1.40%	0
30		8	373.9	367	380.8	356	380	1.032	8.254	2.21%	0
50		6	377.8	372.5	383.2	370	383	0.8526	5.115	1.35%	0
Overall		46	373.8	371.7	375.8	352	387	1.023	6.938	1.86%	0 (0%)

**Dissolved Oxygen-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.025	7.817	8.233	7.6	8.4	0.03116	0.2493	3.11%	0
3		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
5		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
10		8	7.938	7.738	8.137	7.4	8.2	0.02983	0.2387	3.01%	0
30		8	7.95	7.745	8.155	7.4	8.2	0.03062	0.2449	3.08%	0
50		5	8.02	7.916	8.124	7.9	8.1	0.01673	0.08367	1.04%	0
Overall		45	7.969	7.904	8.034	7.4	8.4	0.03223	0.2162	2.71%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
50		6	93	93	93	93	93	0	0	0.00%	0
Overall		14	97	94.92	99.08	93	100	0.9608	3.595	3.71%	0 (0%)

**pH-Units**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
3		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
5		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
10		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
30		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
50		5	8.06	7.992	8.128	8	8.1	0.01096	0.05479	0.68%	0
Overall		45	8.073	8.054	8.093	8	8.2	0.009744	0.06537	0.81%	0 (0%)

# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)

Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
3		8	24	24	24	24	24	0	0	0.00%	0
5		8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
30		8	24	24	24	24	24	0	0	0.00%	0
50		5	24	24	24	24	24	0	0	0.00%	0
Overall		45	24	24	24	24	24	0	0	0.00%	0 (0%)



Ceriodaphnia 7-d Survival and Reproduction Test

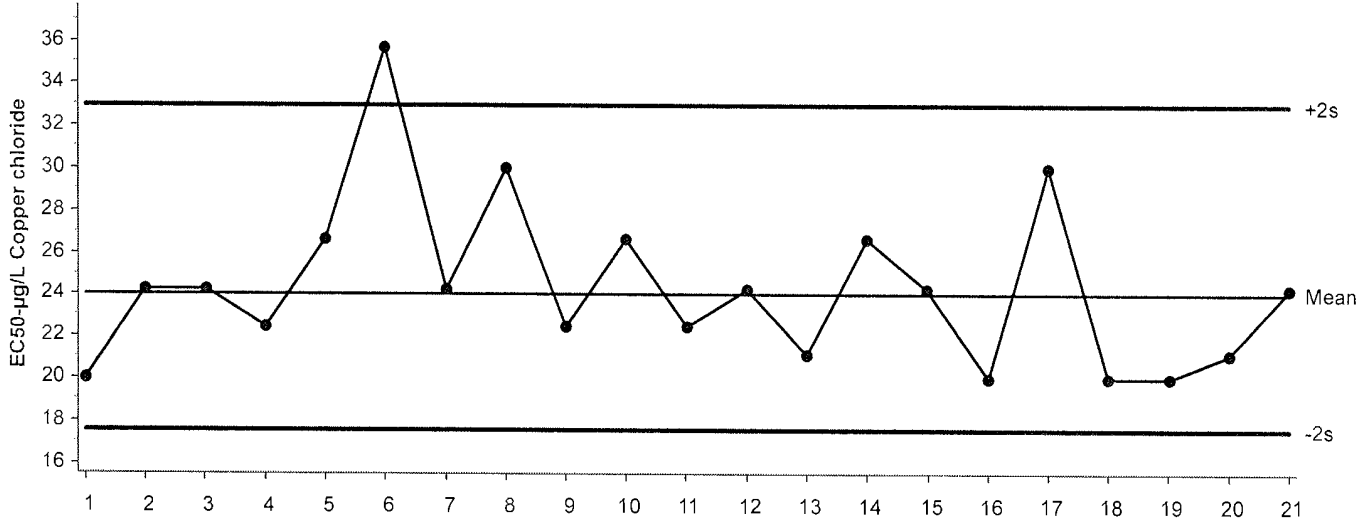
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
 Endpoint: 7d Survival Rate

Material: Copper chloride  
 Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
 7d Survival Rate Endpoint



Mean: 24.05      Count: 20      -2s Action Limit: 17.6  
 Sigma: NA      CV: 15.80%      +2s Action Limit: 32.9

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	20	-4.047	-1.171			15-9267-6325	13-8039-3389
2		Apr	5	13:40	24.29	0.239	0.06286			00-4985-0500	19-4921-0131
3		May	2	14:30	24.29	0.239	0.06286			11-3222-0627	00-2601-8684
4		Jun	6	14:00	22.5	-1.547	-0.4227			08-5473-2211	11-7704-8711
5			7	14:12	26.67	2.62	0.6574			02-3608-9426	17-9182-9169
6			15	15:40	35.71	11.67	2.515	(+)		10-4793-1547	20-4446-4479
7			27	14:40	24.29	0.239	0.06286			16-7344-0663	11-8484-0936
8			29	12:02	30	5.953	1.406			07-2471-0095	15-4161-4480
9		Jul	11	13:52	22.5	-1.547	-0.4227			12-8943-1800	03-0634-2447
10		Aug	8	14:23	26.67	2.62	0.6574			01-9164-3770	13-2486-3042
11			29	14:28	22.5	-1.547	-0.4227			06-3274-6762	20-0784-0120
12		Sep	5	13:20	24.29	0.239	0.06286			14-4921-5003	00-1422-5185
13		Oct	5	13:45	21.11	-2.936	-0.8277			20-2874-3873	04-2467-5752
14			24	13:59	26.67	2.62	0.6574			09-6061-9503	10-9205-4597
15		Nov	7	14:59	24.29	0.239	0.06286			16-2379-1831	01-6526-0546
16			9	16:30	20	-4.047	-1.171			11-1637-2324	18-2560-8953
17			17	12:00	30	5.953	1.406			06-0962-9936	07-2500-6920
18		Dec	5	15:04	20	-4.047	-1.171			06-9736-2705	01-6044-5215
19			13	14:03	20	-4.047	-1.171			01-9164-8741	10-2776-8004
20			22	14:00	21.11	-2.936	-0.8277			12-5671-2450	03-9575-0504
21	2024	Jan	5	12:00	24.29	0.239	0.06286			03-8898-9993	07-0692-8548

Ceriodaphnia 7-d Survival and Reproduction Test

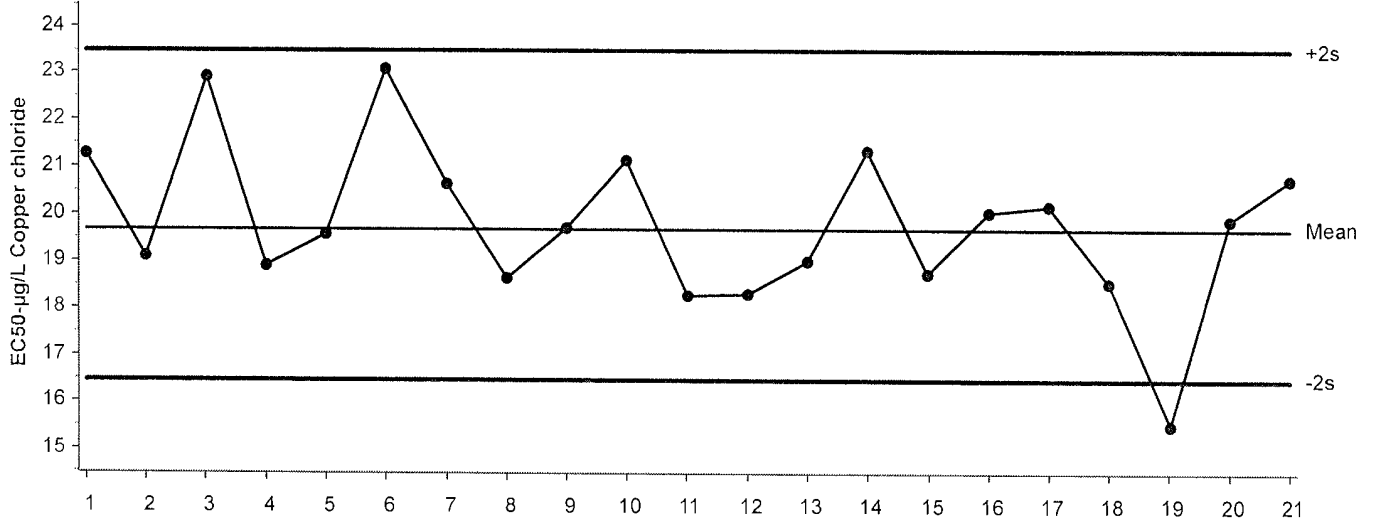
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
 Endpoint: Reproduction

Material: Copper chloride  
 Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
 Reproduction Endpoint



Lognormal Levey-Jennings Plot

Mean: 19.67      Count: 20      -2s Action Limit: 16.5  
 Sigma: NA      CV: 8.90%      +2s Action Limit: 23.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	21.26	1.593	0.8771			15-9267-6325	08-1059-6139
2		Apr	5	13:40	19.09	-0.5735	-0.3333			00-4985-0500	20-3935-2169
3		May	2	14:30	22.9	3.235	1.715			11-3222-0627	01-3728-6873
4		Jun	6	14:00	18.9	-0.7652	-0.447			08-5473-2211	04-5604-9640
5			7	14:12	19.58	-0.0887	-0.05091			02-3608-9426	14-9315-1462
6			15	15:40	23.07	3.399	1.795			10-4793-1547	11-8238-5156
7			27	14:40	20.64	0.9694	0.5419			16-7344-0663	17-6169-0419
8			29	12:02	18.63	-1.042	-0.613			07-2471-0095	11-6621-4104
9		Jul	11	13:52	19.71	0.03976	0.02275			12-8943-1800	06-3315-7505
10		Aug	8	14:23	21.14	1.473	0.8136			01-9164-3770	20-6159-4836
11			29	14:28	18.27	-1.395	-0.8289			06-3274-6762	03-6041-2149
12		Sep	5	13:20	18.28	-1.387	-0.824			14-4921-5003	12-3765-4725
13		Oct	5	13:45	18.99	-0.6762	-0.3941			20-2874-3873	13-5584-5541
14			24	13:59	21.35	1.677	0.9219			09-6061-9503	18-0766-3120
15		Nov	7	14:59	18.72	-0.9434	-0.5537			16-2379-1831	19-1623-7086
16			9	16:30	20.03	0.3645	0.2069			11-1637-2324	10-9594-7716
17			17	12:00	20.15	0.4851	0.2745			06-0962-9936	06-2076-7044
18		Dec	5	15:04	18.53	-1.137	-0.6705			06-9736-2705	06-2601-7564
19			13	14:03	15.51	-4.159	-2.676		(-)	01-9164-8741	04-3685-1503
20			22	14:00	19.87	0.2047	0.1166			12-5671-2450	18-1358-8860
21	2024	Jan	5	12:00	20.73	1.061	0.5916			03-8898-9993	07-9708-4589

**Eurofins Calscience**

284 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



eurofins

Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler: Patel, Virendra		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-335515.1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1	
Company: Weck Laboratories, Inc.		Address: 14859 East Clark Avenue, City of Industry, State: Zip: CA, 917451396		Due Date Requested: 1/15/2024		TAT Requested (days):		Accreditations Required (See note): State of California; State Program - California	
Project Name: Boeing NPDES SSFL - Outfall		Project #: 57013187		PO #:		WO #:		Job #: 570-166524-1	
Site:		SSOW#:		Analysis Requested		Preservation Codes:		Other:	
Sample Identification: Client ID (Lib ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (Water, Soil, Overwater, Tissue, Air)	
INFO2_20240102_6 (570-166524-1)		1/2/24		07:30 Pacific		Water		X X X	
7B-INFO2_20240102_2 (570-166524-3)		1/2/24		07:30 Pacific		Water		X	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Unconfirmed		Primary Deliverable Rank: 2		Return To Client		Disposal By Lab	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:		Relinquished by:	
Relinquished by:		Date/Time: 1/2/24 15:29		Company: EC		Received by: [Signature]		Date/Time: 1/2/24 15:29	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Page 31 of 41		Ver: 06/08/2021	

1  
2  
3  
4  
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ICOC No:  
570-335515

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
5	Amber Glass 1 liter - unpreserved	None
4	Voa Vial 40ml - unpreserved	None

**Subcontract Method Instructions**

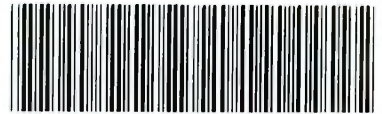
<u>Sample IDs</u>	<u>Method</u>	<u>Method Description</u>	<u>Method Comments</u>
1	SUBCONTRACT	SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list	Level 2 package only, MDL, EQUIS 5C
1	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level 2 package only, MDL, EQUIS 5C
1, 3	SUBCONTRACT	SUB (VOCs-2CVE only (E624))	Level IV package, MDL, EQUIS 5C



CHAIN OF CUSTODY FORM

15RA2

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project Boeing-SSFL NPDES 2023 Permit Annual Influent Monitoring SWTS 018 INFLUENT GRAB		ANALYSIS REQUIRED										Field Readings	Meter serial #					
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		E. coli (SM9221 / SM9223B) Enthalpy Analytical Orange, CA	MST: Bacteroidales, Human (SAM348.357) Source Molecular in Miami Lakes, FL	Conductivity (SM2510B / E120.1)	Oil & Grease (E1664A-HEM)	1,4-Dioxane (E824 (SW8260M_SMI))	cis-1,2-DCE, Freon 113, Freon 123A, Cyclohexane, and Priority Pollutants-VOCs (E824)	Priority Pollutants-VOCs-AAA only (E824)	Priority Pollutants-VOCs-2CVE only (E824)	Week Labs in Hacienda Heights, CA	Field Readings: (Include units) Time of Readings: 0730 DO: 10.72 mg/L pH: 7.81 pH unit Temp: 44.0°C: 0 TRC: 0.11 mg/L							
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)												Field readings QC						
Sampler:														Checked by: <i>[Signature]</i>						
														Date/Time: 1-2-2024/0730						
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD							Comments						
SWTS 018	INF002_20240102_Grab	1/2/2024 0730	WM	500 mL Poly	1	None	No	X												
			WM	1 L Glass Amber	2	HCl	No		X											
			WM	40 mL VOA	3	HCl	No			X										
			WM	40 mL VOA	3	HCl	No				X									
			WM	40 mL VOA	3	None	No					X								
			WM	40 mL VOA	3	None	No						X							
			WM	125mL Sterile Poly	3	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	No		X							Deliver to lab ASAP 8 hr hold time Need 1x, 10x, 100x dilutions				
			WM	500mL Sterile Poly	1	None	No									Deliver to lab ASAP 8 hr hold time				
Trip Blanks	TB-INF002_20240102-1	1-2-2024	WQ	40 mL VOA	2	HCl	No					X								
	<del>TB-INF002_20240102-2</del>	<del>1/2/2024</del>	<del>WQ</del>	<del>40 mL VOA</del>	<del>2</del>	<del>None</del>	<del>No</del>	<del></del>	<del></del>	<del></del>	<del></del>	<del>X</del>								
	TB-INF002_20240102-2	1-2-2024 0730	WQ	40 mL VOA	2	None	No					X								



570-166524 Chain of Custody

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>Michelle Dolelah</i>	Date/Time: 1/2/2024 1300	Company: HEA	Received By <i>[Signature]</i>	Date/Time: 1/2/24 1300	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By <i>[Signature]</i>	Date/Time: 1/2/24 16:47	Company: EL	Received By <i>[Signature]</i>	Date/Time: 1/2/24 1647	Sample integrity: (Check) Intact: _____ On ice: _____
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____

0.7/0.7    0.9/1.1    0.8/1.0    0.6/0.8    0.3/0.5  
1.3/1.5    0.4/0.6    0.2/0.4    1.1/1.3  
Sc14

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Annual Influent Monitoring SWTS 018 INFLUENT GRAB				ANALYSIS REQUIRED																
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				Total Recoverable Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn TCDD (end all congeners) (E1613B) BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc) Detergents (MBAS) (SM 5540C / E425.1) TSS (160.2 (SM2540D)) Turbidity, TDS (SM2540C/E160.1) Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite N, NO3+NO2-N (E300); Perchlorate (E314.0) Ammonia-N (E350.2) Priority Pollutants-Pesticides+PCBs (E608) Weck Labs in Hacienda Heights, CA Priority Pollutants-SVOCs (E625) LL Mercury (E1631E) -- Total Recoverable Cr (VI), Total Recoverable (E218.6)												
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.								Comments																
Sampler:																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD																	
SWTS 018	INF002_20240102_Grab	1/2/2024 0730	WM	500 mL Poly	1	HNO <sub>3</sub>	NO	X																
			WM	1 L Glass Amber	2	None	No		X															
			WM	1 L Poly	1	None	No		X															
			WM	1 L Poly	2	None	No		X	X														
			WM	500 mL Poly	1	None	No			X	48 hour holding time for turbidity													
			WM	500 mL Poly	1	None	No			X	48 hours Holding Time NO3 & NO2													
			WM	500 mL Poly	1	H <sub>2</sub> SO <sub>4</sub>	No			X														
			WM	1 L Glass Amber	4	None	No			X														
			WM	1 L Glass Amber	2	None	No			X														
			WM	250mL Clear Glass, double bagged	1	HCL	No			X														
WM	250 mL Poly	1	None	No			X																	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>Michelle Dallalah</i>	Date/Time: 1/2/24 1300	Company: H&A	Received By <i>[Signature]</i>	Date/Time: 1/2/24 1300	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By <i>[Signature]</i>	Date/Time: 1/2/24 16:49	Company: EC	Received By <i>[Signature]</i>	Date/Time: 1/2/24 1649	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>

CHAIN OF CUSTODY FORM

<b>Client Name/Address:</b> Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		<b>Project:</b> Boeing-SSFL NPDES 2023 Permit <b>Annual Influent Monitoring</b> <b>SWTS 018 INFLUENT</b> <b>GRAB</b>				<b>ANALYSIS REQUIRED</b>																
<b>Eurofins Calscience Project Manager:</b> Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #67013187		<b>Project Manager:</b> Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Dissolved Metals: (E200.7); B. Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn  Cr (VI), Total Dissolved (E218.6)  Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (U-235, U-238 or A-01-R); Tritium (H-3) (E906.0)  Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013) ABC Labs in Ventura, CA  Total Organic Carbon (SM 5310D / E415.2)  Monomethylhydrazine (SM 8315M / DV-WC-0077) West Labs in Hacienda Heights, CA  Cyanide (SM 4500-CN-E / KELADA-01)  LL Mercury (E1631E) - Total Dissolved																
<b>TestAmerica's services under this CoC shall be performed in accordance with the T&amp;Cs within Standard Service Agreements# 2018-22-TestAmerica by and between Haley &amp; Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</b>		<b>Field Manager:</b> Mark Dominick 978.234.5033, 818.599.0702 (cell)														<b>Comments</b>						
<b>Sampler:</b>		<b>Project Manager:</b> Katherine Miller 520.289.8606, 520.904.6944 (cell)																				
<b>Sample Description</b>		<b>Sample I.D.</b>		<b>Sampling Date/Time</b>												<b>Sample Matrix</b>	<b>Container Type</b>	<b># of Cont.</b>	<b>Preservative</b>	<b>MS/MSD</b>		
SWTS 018	INF002_20240102_Grab_F		1/2/2024 0730		WM	500 mL Poly	1	None	No	X	Filter and preserve w/in 24hrs of receipt at lab.											
					WM	250 mL Poly	1	None	No	X	Filter and preserve w/in 24hrs of receipt at lab.											
					WM	250mL Clear Glass, double bagged	1	None	No		X	Filter and preserve w/in 24hrs of receipt at lab.										
	INF002_20240102_Grab		1/2/2024 0730		WM	2.5 Gal Cube	1	None	No		X	Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.										
					WM	1 L Glass Amber	1	None	No			Only test if first or second rain events of the year. Deliver to ABC Labs In Ventura, CA										
					WM	1 Gal Cube	5	None	No		X											
					WM	1 L Glass Amber	1	HCl	No		X											
					WM	1 L Glass Amber	1	None	No			X										
					WM	500 mL Poly	1	NaOH	No			X										
<b>Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual</b>																						
Relinquished By: <i>Michelle Dallalah</i> Date/Time: 1/2/2024 1300 Company: H&A				Received By: <i>[Signature]</i> Date/Time: 1/2/24 1300				Turn-around time: (Check) 24 Hour: _____ 72 Day: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____														
Relinquished By: <i>[Signature]</i> Date/Time: 1/2/24 1649 Company: EC				Received By: <i>[Signature]</i> Date/Time: 1/2/24 1649				Sample Integrity: (Check) Intact: _____ On Ice: _____														
Relinquished By: _____ Date/Time: _____ Company: _____				Received By: _____ Date/Time: _____				Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>														

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108			Project: Boeing-SSFL NPDES 2023 Permit Annual Influent Monitoring SWTS 018 INFLUENT GRAB					ANALYSIS REQUIRED											Comments		
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)					PFAS (Method 537 modified)	SRAM list -E8330A	SRAM list -Energetic Constituents, Terphenyls (E625)	SRAM list -PAHs (E625.1SIM)	SRAM list -SVOCs (E625.1SIM / 8270C)	SRAM list -Glycols (E8321B): Diethylene Glycol, Triethylene glycol		SRAM list -Herbicides, MCPA (8151A)	SRAM list -Pesticides/PCBs (E608)
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																					
Sampler:																					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	PFAS (Method 537 modified)	SRAM list -E8330A	SRAM list -Energetic Constituents, Terphenyls (E625)	SRAM list -PAHs (E625.1SIM)	SRAM list -SVOCs (E625.1SIM / 8270C)	SRAM list -Glycols (E8321B): Diethylene Glycol, Triethylene glycol	SRAM list -Herbicides, MCPA (8151A)	SRAM list -Pesticides/PCBs (E608)	SRAM list -PCBs (1668C)	SRAM list -Methyl Mercury (1630 (Mod))	Comments			
SWTS 018	INF002_20240102_Grab	1/2/2024 0730	WM	250mL HDPE	2	None	No	X													
			WM	1 L Glass Amber	2	None	No		X												
			WM	1 L Glass Amber	2	None	No			X											
			WM	1 L Glass Amber	2	None	No				X										
			WM	1 L Glass Amber	2	None	No					X									
			WM	1 L Glass Amber	2	None	No							X							
			WM	1 L Glass Amber	4	None	No								X						
			WM	1 L Glass Amber	4	None	No									X					
			WM	1 L Glass Amber	4	None	No										H				Put on HOLD
			WM	1 L Glass Amber	2	None	No												X		
QA/QC	EB-INF002_20240102	1/2/2024 0730	WQ	250mL HDPE	2	None	No	X													
	FB-INF002_20240102	1/2/2024 0730	WQ	250mL HDPE	2	None	No	X													

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 1/2/2024 1300 Company: H&A	Received By: <i>[Signature]</i> Date/Time: 1/2/24 1300	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 1/2/24 1649 Company: EC	Received By: <i>[Signature]</i> Date/Time: 1/2/24 1649	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Annual Influent Monitoring SWTS 018 INFLUENT GRAB				ANALYSIS REQUIRED										Comments									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				SRAM list - Total Dissolved Metals (E200.8 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW8015B)	SRAM list - TPH: gas, GRO C4-C12 (SW8015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW8015B)	SRAM list - TPH: Oil Range Organics, ORO (SW8015B)		SRAM list - VOCs (E624.1 / 8260B)								
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.								Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																			
Sampler:																											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD																				
SWTS 018	INF002_20240102_Grab_F	1/2/2024 0730	WM	500 mL Poly	1	None	No		H													Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.					
	INF002_20240102_Grab	1/2/2024 0730	WM	500 mL Poly	1	HNO <sub>3</sub>	No			H													Put on HOLD				
			WM	40 mL VOA	3	HCl	No					X															
			WM	1 L Glass Amber	2	None	No						X														
			WM	250mL Glass Amber	1	None	No							X													
			WM	250mL Glass Amber	1	None	No								X												
			WM	40 mL VOA	3	None	No									X											
Trip Blank	TB-INF002_20240102-4	1/2/2024 0730	WQ	40 mL VOA	2	None	No																				

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Michelle Dallal</i> Date/Time: 1/2/2024 1305 Company: HEA	Received By: <i>[Signature]</i> Date/Time: 1/2/24 1300	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 1/2/24 16:49 Company: EC	Received By: <i>[Signature]</i> Date/Time: 1/2/24 1649	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>	<b>Sampler:</b> Patel, Virendra	<b>Lab PM:</b> Patel, Virendra	<b>Carrier Tracking No(s):</b>	<b>COC No:</b> 570-336918.1
<b>Client Contact:</b> Shipping/Receiving	<b>Phone:</b>	<b>E-Mail:</b> Virendra.Patel@et.eurofinsus.com	<b>State of Origin:</b> California	<b>Page:</b> Page 1 of 1

<b>Company:</b> Eurofins Lancaster Laboratories Environm	<b>Accreditations Required (See note):</b> State - California; State Program - California	<b>Job #:</b> 570-166524-7
---	--	-------------------------------

<b>Address:</b> 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:	<b>Due Date Requested:</b> 1/22/2024 <b>TAT Requested (days):</b>	<b>Analysis Requested</b>		<b>Preservation Codes:</b>
--	---	---------------------------	--	----------------------------

<b>PO #:</b>	<b>Total Number of containers</b>	A - HCL	M - Hexane
<b>WO #:</b>		B - NaOH	N - None
<b>Project Name:</b> Boeing NPDES SSFL-Annual Influent -SWTS 018 Grab		C - Zn Acetate	O - AsNaO2
		D - Nitric Acid	P - Na2O4S
<b>Site:</b>	E - NaHSO4	Q - Na2SO3	
<b>SSOW#:</b>	F - MeOH	R - Na2S2O3	
	G - Amchlor	S - H2SO4	
	H - Ascorbic Acid	T - TSP Dodecahydrate	
	I - Ice	U - Acetone	
	J - DI Water	V - MCAA	
	K - EDTA	W - pH 4-5	
	L - EDA	Y - Trizma	
		Z - other (specify)	

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8330B/8330_P_SPE	8015C_DAI_GLY/8015_DAI_Prep (MOD) Custom Analyte List	1668C/1668_P_Sep Full PCB Congeners w/totals	Total Number of containers	Special Instructions/Note:
INF002_20240102_Grab (570-166524-1)	1/2/24	07:30 Pacific		Water		X	X	X		6	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

<b>Possible Hazard Identification</b> Unconfirmed	<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months
--	--

<b>Deliverable Requested:</b> I, II, III, IV, Other (specify)	<b>Primary Deliverable Rank:</b> 2	<b>Special Instructions/QC Requirements:</b>
---	------------------------------------	--

<b>Empty Kit Relinquished by:</b>	<b>Date:</b>	<b>Time:</b>	<b>Method of Shipment:</b>
-----------------------------------	--------------	--------------	----------------------------

Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
[Signature]	1/5/24 1408				

<b>Custody Seals Intact:</b> Δ Yes Δ No	<b>Custody Seal No.:</b>	<b>Cooler Temperature(s) °C and Other Remarks:</b>
--	--------------------------	--

**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-336952.1																										
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1																										
Company: Eurofins Environment Testing Northern Ca				Accreditations Required (See note): State - California; State Program - California				Job #: 570-166524-4																										
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Due Date Requested: 1/22/2024 TAT Requested (days):		<b>Analysis Requested</b>						<b>Preservation Codes:</b> A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)																								
Project Name: Boeing NPDES SSFL-Annual Influent -SWTS 018 Grab Site:		Project #: 57013187 SSOW#:										PO #:		WO #:		Other:																		
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=Comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=waste/oil, ST=Tissue, A=Air)</b>		<b>Field Filtered Sample (Yes or No)</b>		<b>Perform MS/MSD (Yes or No)</b>		<b>1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals</b>		<b>Total Number of containers</b>		<b>Special Instructions/Note:</b>																
INF002_20240102_Grab (570-166524-1)		1/2/24		07:30 Pacific		Water		Water		X		X		2		See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.																		
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																																		
<b>Possible Hazard Identification</b>										<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																								
Unconfirmed										<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																								
Deliverable Requested: I, II, III, IV, Other (specify)					Primary Deliverable Rank: 2					Special Instructions/QC Requirements:																								
Empty Kit Relinquished by:										Date:					Time:					Method of Shipment:														
Relinquished by:										Date/Time: 1/5/24 1248					Company:					Received by:					Date/Time:					Company:				
Relinquished by:										Date/Time:					Company:					Received by:					Date/Time:					Company:				
Relinquished by:										Date/Time:					Company:					Received by:					Date/Time:					Company:				
Custody Seals Intact:					Custody Seal No.:					Cooler Temperature(s) °C and Other Remarks:																								
Δ Yes Δ No																																		

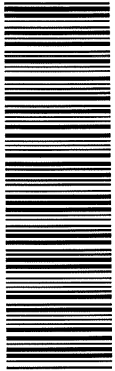


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RT 198  
FZ 197

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10:30  
A  
3618  
01.24

Part #: 159280494 MTW EXP 03/24



570-166524 Waybill

ORIGIN ID: DTHA (949) 261-1022  
ARASH AHMADIAN  
EUROFINS CALSCIENCE  
2841 DOW AVE  
SUITE 100  
TUSTIN, CA 927807211  
UNITED STATES US

SHIP DATE: 23JAN24  
ACTWGT: 19.25 LB  
CAD: 0343492/CAFE3755

BILL SENDER

TO SHIPPING/RECEIVING  
EUROFINS ENVIRONMENT TESTING NORTHE  
301 ALPHA DRIVE  
RIDC PARK  
PITTSBURGH PA 15238

(412) 963-7058  
PO: YES

REF: 6570-93612

585C3/0114/REB7



Uncorrected temp 26 C  
Thermometer ID 20  
CF-0.8 Initials WC  
PT-WI-SR-001 effective 11/8/18

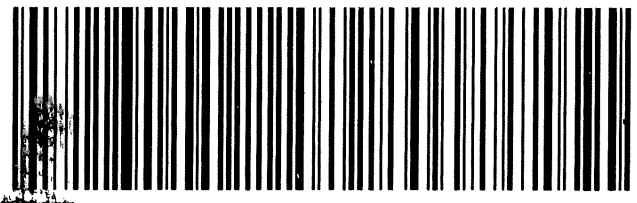


TRK# 7256 7307 3618  
0201

WED - 24 JAN 10:30A  
PRIORITY OVERNIGHT

XN AGCA

15238  
PA-US PIT



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-166524-6

**Login Number: 166524**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/1/2024 6:28:09 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 001 - Comp

## JOB NUMBER

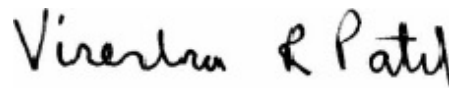
570-170729-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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3/1/2024 6:28:09 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-170729-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-170729-4

**Job ID: 570-170729-4**

**Eurofins Calscience**

## Job Narrative 570-170729-4

### Receipt

The samples were received on 2/2/2024 7:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 2.4° C.

### Receipt Exceptions

The number of containers for the following samples did not match the information listed on the Chain-of-Custody (COC):  
Outfall001\_20240202\_Comp\_Extra (570-170729-2). Received 3 containers, while the COC lists 7.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Fathead Minnow: This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-170729-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001





# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-170729-4

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-170729-1	Outfall001_20240202_Comp	Water	02/02/24 10:15	02/02/24 19:00

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**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



February 27, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 001\_20240202\_Comp  
 DATE RECEIVED: 2 Feb - 2024  
 ABC LAB. NO.: CSE0224.020

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS      % EFFECT = 0.00 %

GROWTH = PASS      % EFFECT = 2.79 %

Yours very truly,

Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 22 Feb-24 16:21 (p 1 of 1)  
 Test Code/ID: CSE0224.020fml / 13-6893-7399

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 08-8699-4887	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:05	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:30	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 17-8161-2505	<b>Code:</b> CSE0224.020fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 10:15	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 5h (3.3 °C)	<b>Client:</b> Eurofins Calscience	

### Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
18-1592-1402	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
05-9955-2418	Mean Dry Biomass-mg	TST-Welch's t Test	2.3E-05	100% passed mean dry biomass-mg	1

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
18-1592-1402	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
05-9955-2418	Mean Dry Biomass-mg	Control Resp	0.3462	0.25	<<	Yes	Passes Criteria

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3462	0.3397	0.3528	0.3373	0.3633	0.002789	0.007888	2.28%	0.00%
100		8	0.3366	0.3168	0.3564	0.2787	0.3493	0.008363	0.02365	7.03%	2.79%

### 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Mean Dry Biomass-mg Detail

MD5: 88FC5D31456198BFAECD8035C17B207B

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3633	0.3447	0.344	0.3373	0.346	0.3507	0.3427	0.3413
100		0.3427	0.3407	0.2787	0.3493	0.3493	0.3447	0.3407	0.3467

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 22 Feb-24 16:21 (p 1 of 4)  
 Test Code/ID: CSE0224.020fml / 13-6893-7399

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 18-1592-1402	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:20	<b>Analysis:</b> Parametric Bioequivalence-Two Sample	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:20	<b>MD5 Hash:</b> F33D79D05FEF902C5DB24788526CB24A	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 08-8699-4887	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:05	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:30	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 17-8161-2505	<b>Code:</b> CSE0224.020fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 10:15	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 5h (3.3 °C)	<b>Client:</b> Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

### TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	--		<0.25	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

### 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

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

### Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

### 7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

# CETIS Analytical Report

Report Date: 22 Feb-24 16:21 (p 2 of 4)  
 Test Code/ID: CSE0224.020fml / 13-6893-7399

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

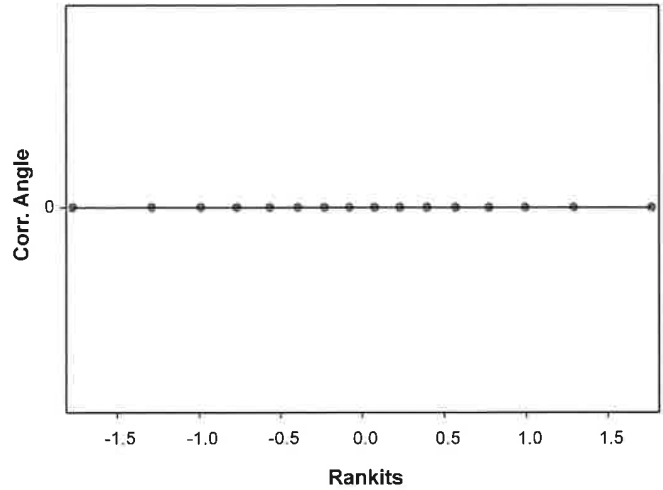
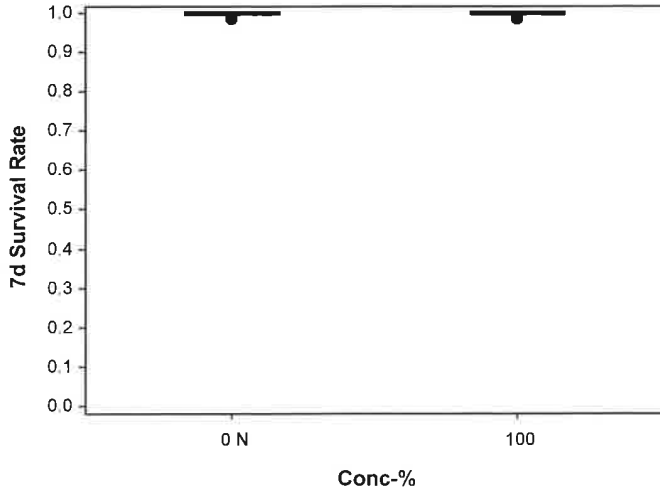
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-1592-1402      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:20      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 22 Feb-24 16:20      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

### Graphics



**CETIS Analytical Report**

Report Date: 22 Feb-24 16:21 (p 3 of 4)  
 Test Code/ID: CSE0224.020fml / 13-6893-7399

**Fathead Minnow 7-d Larval Survival and Growth Test** **Aquatic Bioassay & Consulting Labs, Inc.**

<b>Analysis ID:</b> 05-9955-2418	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:20	<b>Analysis:</b> Parametric Bioequivalence-Two Sample	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:20	<b>MD5 Hash:</b> 88FC5D31456198BFAECD8035C17B207B	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 08-8699-4887	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:05	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:30	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 17-8161-2505	<b>Code:</b> CSE0224.020fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 10:15	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 5h (3.3 °C)	<b>Client:</b> Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	7	8.92	0.7111	CDF	2.3E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3462	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0003738	0.0003738	1	1.202	0.2914	Non-Significant Effect
Error	0.0043523	0.0003109	14			
Total	0.0047261		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.899	8.862	0.1898	Equal Variances
	Mod Levene Equality of Variance Test	0.5544	8.862	0.4688	Equal Variances
	Variance Ratio F Test	8.994	8.885	0.0096	Unequal Variances
Distribution	Anderson-Darling A2 Test	1.834	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Skewness Test	4	2.576	6.3E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.2614	0.2471	0.0046	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.6873	0.8408	0.0001	Non-Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3462	0.3397	0.3528	0.3443	0.3373	0.3633	0.002789	2.28%	0.00%
100		8	0.3366	0.3168	0.3564	0.3437	0.2787	0.3493	0.008363	7.03%	2.79%

**Mean Dry Biomass-mg Detail**

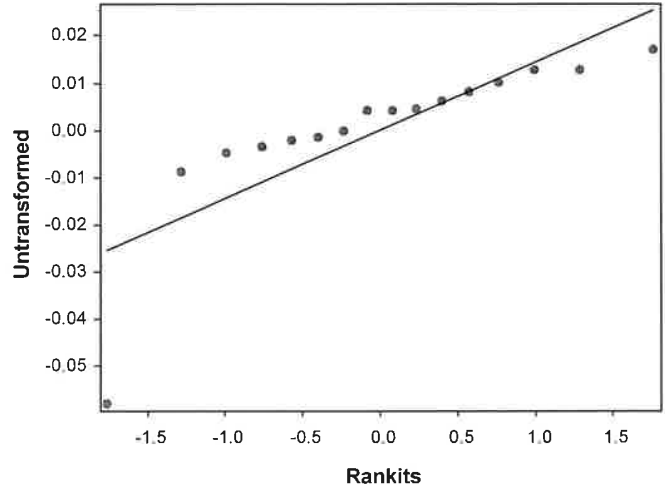
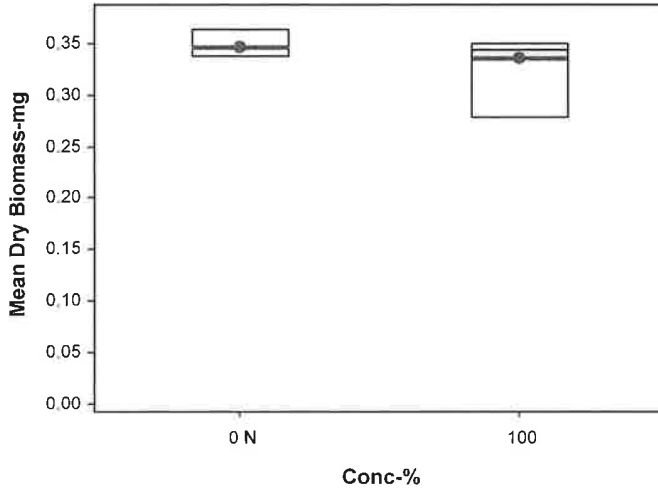
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3633	0.3447	0.344	0.3373	0.346	0.3507	0.3427	0.3413
100		0.3427	0.3407	0.2787	0.3493	0.3493	0.3447	0.3407	0.3467

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-9955-2418      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 22 Feb-24 16:20      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 22 Feb-24 16:20      MD5 Hash: 88FC5D31456198BFAECD8035C17B207B      Editor ID: 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 22 Feb-24 16:21 (p 1 of 1)  
 Test Code/ID: CSE0224.020fml / 13-6893-7399

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 08-8699-4887	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:05	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:30	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 17-8161-2505	<b>Code:</b> CSE0224.020fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 10:15	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 001
<b>Sample Age:</b> 5h (3.3 °C)	<b>Client:</b> Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	38	38	38	38	38	0	0	0.00%	0
Overall		16	50	43.4	56.6	38	62	3.098	12.39	24.79%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	379	375.1	382.9	372	386	0.5825	4.66	1.23%	0
100		8	458.1	451.3	465	447	470	1.025	8.202	1.79%	0
Overall		16	418.6	396.5	440.6	372	470	10.34	41.36	9.88%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.963	7.854	8.071	7.8	8.2	0.01628	0.1302	1.64%	0
100		8	8.075	7.79	8.36	7.9	8.9	0.04265	0.3412	4.23%	0
Overall		16	8.019	7.882	8.155	7.8	8.9	0.06404	0.2562	3.20%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98.5	97.16	99.84	97	100	0.2004	1.604	1.63%	0
100		8	70	70	70	70	70	0	0	0.00%	0
Overall		16	84.25	76.39	92.11	70	100	3.69	14.76	17.52%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.137	8.038	8.237	7.9	8.2	0.01485	0.1188	1.46%	0
100		8	8.175	8.068	8.282	8	8.4	0.01602	0.1282	1.57%	0
Overall		16	8.156	8.092	8.221	7.9	8.4	0.03023	0.1209	1.48%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)





CHAIN OF CUSTODY FORM

Handwritten notes: Temp. deg C = 9.3°C, Chlorine (mg/L) = 0.1, and other calculations.

ANALYSIS REQUIRED

Client Name/Address: Haley & Aldrich, 5333 Mission Center Rd Suite 300, San Diego, CA 92108

Project: Boeing-SFSL NPDES, Permit 2023, Annual Outfall 001, 002, 011, 018J, Outfall 001 COMPOSITE

Project Manager: Katherine Miller, 520 289 8606, 520 904 6944 (cell), 978 234 5033, 818 599 0702 (cell)

Field Manager: Mark Dominick, 978 234 5033, 818 599 0702 (cell)

Table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont., Preservative, Bottle #, MS/MSD, Total Dissolved Metals, Cr (VI), Gross Alpha, Chronic Toxicity, 1,4-Dioxane, Total Organic Carbon, Monomethyl hydrazine, LL Mercury, Cyanide, and Comments.

\* HAND-DELIVERED TO ABC WITH THIS COPY OF COC

Relinquished By: [Signature], Date/Time: 2.2.24/1355 W.A.J. Company: W.A.J.

Received By: [Signature], Date/Time: 2/2/24 1306



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

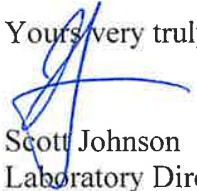


**CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY**

DATE: 2 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 19.00 ug/l  
EC25 = 45.85 ug/l  
EC50 = 62.67 ug/l

ENDPOINT: GROWTH  
NOEC = 19.00 ug/l  
IC25 = 38.87 ug/l  
IC50 = 57.13 ug/l

Yours very truly,

  
✓ Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 28 Feb-24 11:19 (p 1 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

## Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
06-8378-3644	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 19	38	26.87	5.23%	1
08-8523-0494	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	✓ 19	38	26.87	13.3%	1

## Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
09-6073-8693	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	39.12	32.26	42.55	1
			EC20	42.48	39.01	45.76	
			EC25	45.85	42.54	48.96	
			EC40	55.94	53.14	58.58	
			EC50	62.67	59.76	64.99	
07-7973-9309	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	28	17.65	44.15	1
			✓ IC20	33.68	22.96	45.87	
			✓ IC25	38.87	26.38	47.57	
			✓ IC40	49.83	38.69	58.03	
			✓ IC50	57.13	48.62	65.22	

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
06-8378-3644	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
09-6073-8693	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
07-7973-9309	Mean Dry Biomass-mg	Control Resp	0.3465	0.25	<<	Yes	Passes Criteria
08-8523-0494	Mean Dry Biomass-mg	Control Resp	0.3465	0.25	<<	Yes	Passes Criteria
08-8523-0494	Mean Dry Biomass-mg	PMSD	0.1334	0.12	0.3	Yes	Passes Criteria

## 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	0.9833	0.9303	1.0360	0.9333	1.0000	0.0167	0.0333	3.39%	1.67%
19		4	0.9500	0.8970	1.0030	0.9333	1.0000	0.0167	0.0333	3.51%	5.00%
38		4	0.8667	0.7801	0.9533	0.8000	0.9333	0.0272	0.0544	6.28%	13.33%
75		4	0.3167	0.2636	0.3697	0.2667	0.3333	0.0167	0.0333	10.53%	68.33%
150		4	0.0167	-0.0364	0.0697	0.0000	0.0667	0.0167	0.0333	200.00%	98.33%

## Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3465	0.3357	0.3573	0.34	0.356	0.003403	0.006807	1.96%	0.00%
10		4	0.3397	0.3278	0.3515	0.3293	0.346	0.003717	0.007434	2.19%	1.97%
19		4	0.322	0.2853	0.3587	0.298	0.3467	0.01153	0.02306	7.16%	7.07%
38		4	0.264	0.2015	0.3265	0.2093	0.3027	0.01965	0.0393	14.89%	23.81%
75		4	0.0885	0.02436	0.1526	0.038	0.1367	0.02016	0.04031	45.55%	74.46%
150		4	0.0125	-0.02728	0.05228	0	0.05	0.0125	0.025	200.00%	96.39%

# CETIS Summary Report

Report Date: 28 Feb-24 11:19 (p 2 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 8A5A24FE371BD34EBBA55AE0620ED60B

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: B4A8AFD716D4543A3E3A812D513D64AD

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 1 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

**Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID: 06-8378-3644      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

Batch ID: 12-1869-3585      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 02 Feb-24 14:20      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 09 Feb-24 14:00      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 10-4352-0612      Code: FML020224      Project: REF TOX  
 Sample Date: 02 Feb-24 14:20      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	19	38	26.87	---	0.05227	5.23%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	16	10	1	CDF	0.6105	Non-Significant Effect
		19	6	12	10	1	CDF	0.1424	Non-Significant Effect
		38*	6	10	10	0	CDF	0.0417	Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.51927	1.10385	5	312.2	<1.0E-05	Significant Effect
Error	0.0636342	0.0035352	18			
Total	5.5829		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	1.578	4.248	0.2165	Equal Variances
	Mod Levene Equality of Variance Test	0.394	4.248	0.8464	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7299	3.878	0.0568	Normal Distribution
	D'Agostino Kurtosis Test	0.6599	2.576	0.5093	Normal Distribution
	D'Agostino Skewness Test	0.77	2.576	0.4413	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.028	9.21	0.5980	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1407	0.2056	0.2494	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9342	0.884	0.1213	Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	0.9833	0.9303	1.0000	1.0000	0.9333	1.0000	0.0167	3.39%	1.67%
19		4	0.9500	0.8970	1.0000	0.9333	0.9333	1.0000	0.0167	3.51%	5.00%
38		4	0.8667	0.7801	0.9533	0.8667	0.8000	0.9333	0.0272	6.28%	13.33%
75		4	0.3167	0.2636	0.3697	0.3333	0.2667	0.3333	0.0167	10.53%	68.33%
150		4	0.0167	0.0000	0.0697	0.0000	0.0000	0.0667	0.0167	200.00%	98.33%

**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 2 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

**Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID: 06-8378-3644      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

**Angular (Corrected) Transformed Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4080	1.3040	1.5130	1.4410	1.3100	1.4410	0.0329	4.68%	2.28%
19		4	1.3430	1.2380	1.4470	1.3100	1.3100	1.4410	0.0329	4.90%	6.85%
38		4	1.2030	1.0710	1.3350	1.1970	1.1070	1.3100	0.0415	6.90%	16.56%
75		4	0.5973	0.5393	0.6552	0.6155	0.5426	0.6155	0.0182	6.10%	58.56%
150		4	0.1624	0.0576	0.2672	0.1295	0.1295	0.2612	0.0329	40.55%	88.73%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

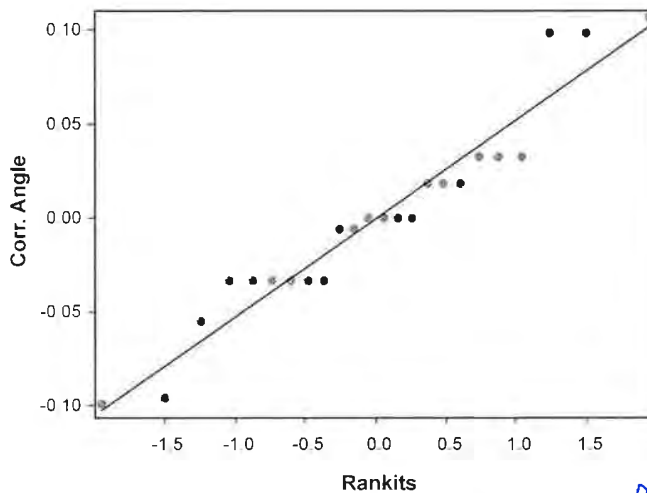
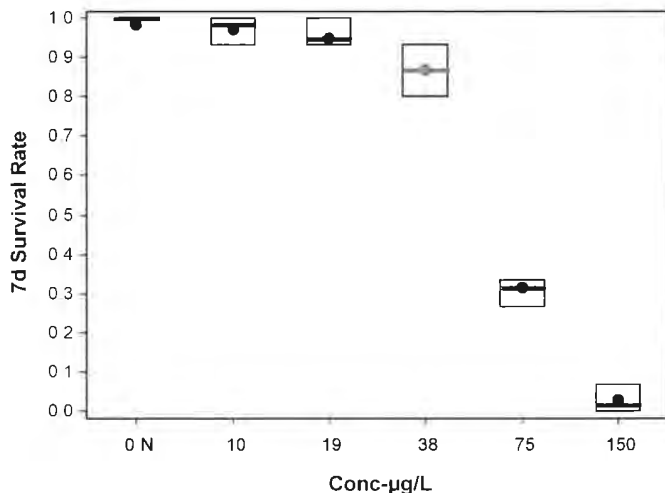
**Angular (Corrected) Transformed Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.3100	1.4410	1.4410	1.4410
19		1.3100	1.3100	1.4410	1.3100
38		1.1070	1.1970	1.3100	1.1970
75		0.5426	0.6155	0.6155	0.6155
150		0.2612	0.1295	0.1295	0.1295

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

**Graphics**



**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 3 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 08-8523-0494	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:09	<b>Analysis:</b> Parametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:08	<b>MD5 Hash:</b> B4A8AFD716D4543A3E3A812D513D64AD	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	19	38	26.87	---	0.04624	13.34%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	0.3557	2.407	0.04624	CDF	0.7081	Non-Significant Effect
		19	6	1.275	2.407	0.04624	CDF	0.3074	Non-Significant Effect
		38*	6	4.295	2.407	0.04624	CDF	0.0010	Significant Effect
		75*	6	13.43	2.407	0.04624	CDF	2.7E-05	Significant Effect
		150*	6	17.39	2.407	0.04624	CDF	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3465	0.25	<<	Yes	Passes Criteria
PMSD	0.1334	0.12	0.3	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.410159	0.0820318	5	111.2	<1.0E-05	Significant Effect
Error	0.0132841	0.0007380	18			
Total	0.423443		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	11.49	15.09	0.0425	Equal Variances
	Levene Equality of Variance Test	1.456	4.248	0.2526	Equal Variances
	Mod Levene Equality of Variance Test	0.9075	4.248	0.4979	Equal Variances
Distribution	Anderson-Darling A2 Test	0.6354	3.878	0.0982	Normal Distribution
	D'Agostino Kurtosis Test	1.139	2.576	0.2546	Normal Distribution
	D'Agostino Skewness Test	0.5625	2.576	0.5738	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.614	9.21	0.4461	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1458	0.2056	0.2047	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9467	0.884	0.2299	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3465	0.3357	0.3573	0.345	0.34	0.356	0.003403	1.96%	0.00%
10		4	0.3397	0.3278	0.3515	0.3417	0.3293	0.346	0.003717	2.19%	1.97%
19		4	0.322	0.2853	0.3587	0.3217	0.298	0.3467	0.01153	7.16%	7.07%
38		4	0.264	0.2015	0.3265	0.272	0.2093	0.3027	0.01965	14.89%	23.81%
75		4	0.0885	0.02436	0.1526	0.08967	0.038	0.1367	0.02016	45.55%	74.46%
150		4	0.0125	-0.02728	0.05228	0	0	0.05	0.0125	200.00%	96.39%

# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 4 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

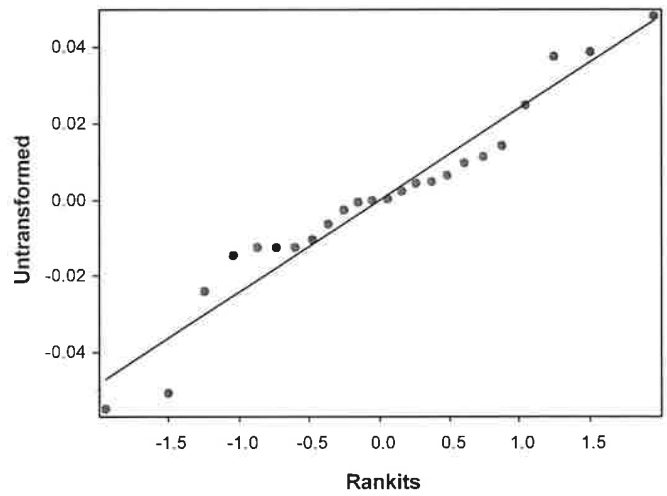
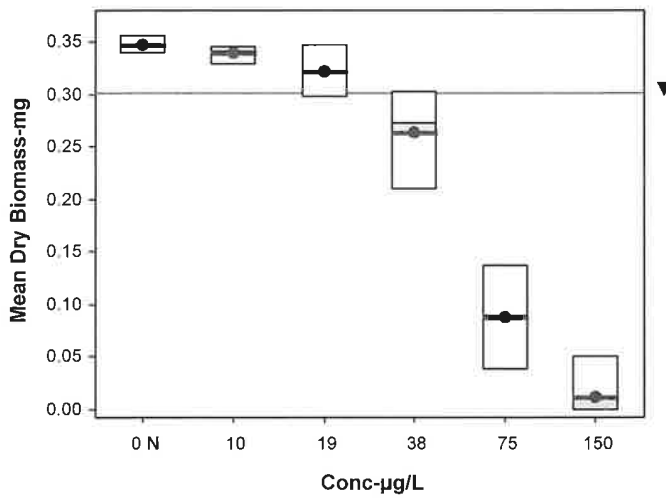
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-8523-0494      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD      Editor ID: 009-702-627-3

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

### Graphics





**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 1 of 4)  
 Test Code/ID: FML020224 / 05-5157-4005

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

**Aquatic Bioassay & Consulting Labs, Inc.**

<b>Analysis ID:</b> 09-6073-8693	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:09	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:08	<b>MD5 Hash:</b> 8A5A24FE371BD34EBBA55AE0620ED60B	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	39.12	32.26	42.55
EC20	42.48	39.01	45.76
EC25	45.85	42.54	48.96
EC40	55.94	53.14	58.58
EC50	62.67	59.76	64.99

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)						Isotonic Variate		
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	0.9833	1.0000	0.9333	1.0000	3.39%	1.67%	59/60	0.9833	1.67%
19		4	0.9500	0.9333	0.9333	1.0000	3.51%	5.00%	57/60	0.9500	5.00%
38		4	0.8667	0.8667	0.8000	0.9333	6.28%	13.33%	52/60	0.8667	13.33%
75		4	0.3167	0.3333	0.2667	0.3333	10.53%	68.33%	19/60	0.3167	68.33%
150		4	0.0167	0.0000	0.0000	0.0667	200.00%	98.33%	1/60	0.0167	98.33%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

# CETIS Analytical Report

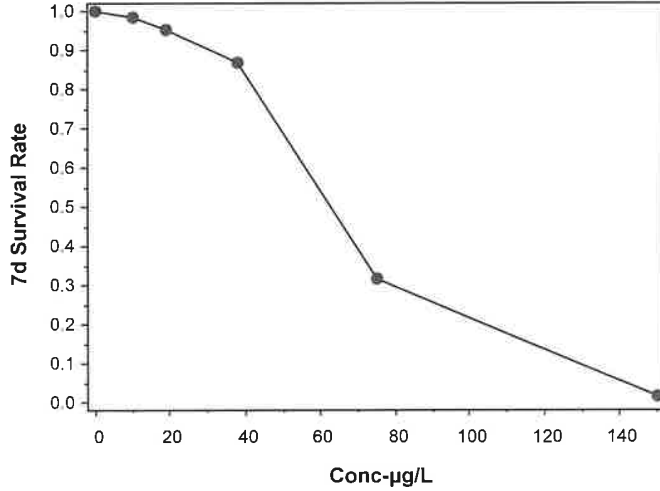
Report Date: 28 Feb-24 11:19 (p 2 of 4)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-6073-8693      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
Analyzed: 22 Feb-24 16:09      Analysis: Linear Interpolation (ICPIN)      Status Level: 1  
Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

### Graphics



# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 3 of 4)  
 Test Code/ID: FML020224 / 05-5157-4005

**Fathead Minnow 7-d Larval Survival and Growth Test** **Aquatic Bioassay & Consulting Labs, Inc.**

<b>Analysis ID:</b> 07-7973-9309	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:09	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:08	<b>MD5 Hash:</b> B4A8AFD716D4543A3E3A812D513D64AD	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	738144	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3465	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	28	17.65	44.15
IC20	33.68	22.96	45.87
IC25	38.87	26.38	47.57
IC40	49.83	38.69	58.03
IC50	57.13	48.62	65.22

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3465	0.345	0.34	0.356	1.96%	0.00%	0.3465	0.00%
10		4	0.3397	0.3417	0.3293	0.346	2.19%	1.97%	0.3397	1.96%
19		4	0.322	0.3217	0.298	0.3467	7.16%	7.07%	0.322	7.07%
38		4	0.264	0.272	0.2093	0.3027	14.89%	23.81%	0.264	23.81%
75		4	0.0885	0.08967	0.038	0.1367	45.55%	74.46%	0.0885	74.46%
150		4	0.0125	0	0	0.05	200.00%	96.39%	0.0125	96.39%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

# CETIS Analytical Report

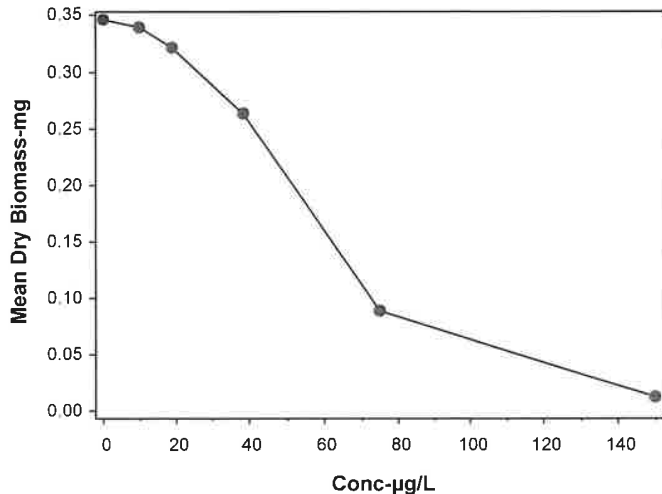
Report Date: 28 Feb-24 11:19 (p 4 of 4)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-7973-9309	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 22 Feb-24 16:09	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 22 Feb-24 16:08	MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 28 Feb-24 11:19 (p 1 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Age:</b>
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Project:</b> REF TOX
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Source:</b> Reference Toxicant
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	<b>Station:</b> REF TOX

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	63	63	63	63	63	0	0	0.00%	0
Overall		16	62.5	62.22	62.78	62	63	0.1291	0.5164	0.83%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	379	375.1	382.9	372	386	0.5825	4.66	1.23%	0
10		8	377	374.2	379.8	372	384	0.4226	3.381	0.90%	0
19		8	378.4	373.2	383.6	374	393	0.7761	6.209	1.64%	0
38		8	379.4	375.6	383.2	376	390	0.5667	4.534	1.20%	0
75		8	381.1	376.2	386.1	377	395	0.7423	5.939	1.56%	0
150		8	385	380.4	389.6	380	395	0.6911	5.529	1.44%	0
Overall		48	380	378.4	381.6	372	395	0.7936	5.499	1.45%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.963	7.854	8.071	7.8	8.2	0.01628	0.1302	1.64%	0
10		8	7.925	7.818	8.032	7.8	8.1	0.01602	0.1282	1.62%	0
19		8	7.913	7.818	8.007	7.8	8.1	0.01408	0.1126	1.42%	0
38		8	7.913	7.808	8.017	7.7	8.1	0.01558	0.1246	1.58%	0
75		8	7.9	7.791	8.009	7.7	8.1	0.01637	0.1309	1.66%	0
150		8	7.913	7.818	8.007	7.8	8.1	0.01408	0.1126	1.42%	0
Overall		48	7.921	7.886	7.955	7.7	8.2	0.01709	0.1184	1.50%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98.5	97.16	99.84	97	100	0.2004	1.604	1.63%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	99.25	98.54	99.96	97	100	0.3354	1.342	1.35%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.137	8.038	8.237	7.9	8.2	0.01485	0.1188	1.46%	0
10		8	8.088	7.993	8.182	7.9	8.2	0.01408	0.1126	1.39%	0
19		8	8.088	7.993	8.182	7.9	8.2	0.01408	0.1126	1.39%	0
38		8	8.088	8.018	8.157	8	8.2	0.01043	0.08346	1.03%	0
75		8	8.113	8.043	8.182	8	8.2	0.01043	0.08346	1.03%	0
150		8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
Overall		48	8.102	8.074	8.13	7.9	8.2	0.01412	0.09783	1.21%	0 (0%)

# CETIS Measurement Report

Report Date: 28 Feb-24 11:19 (p 2 of 2)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

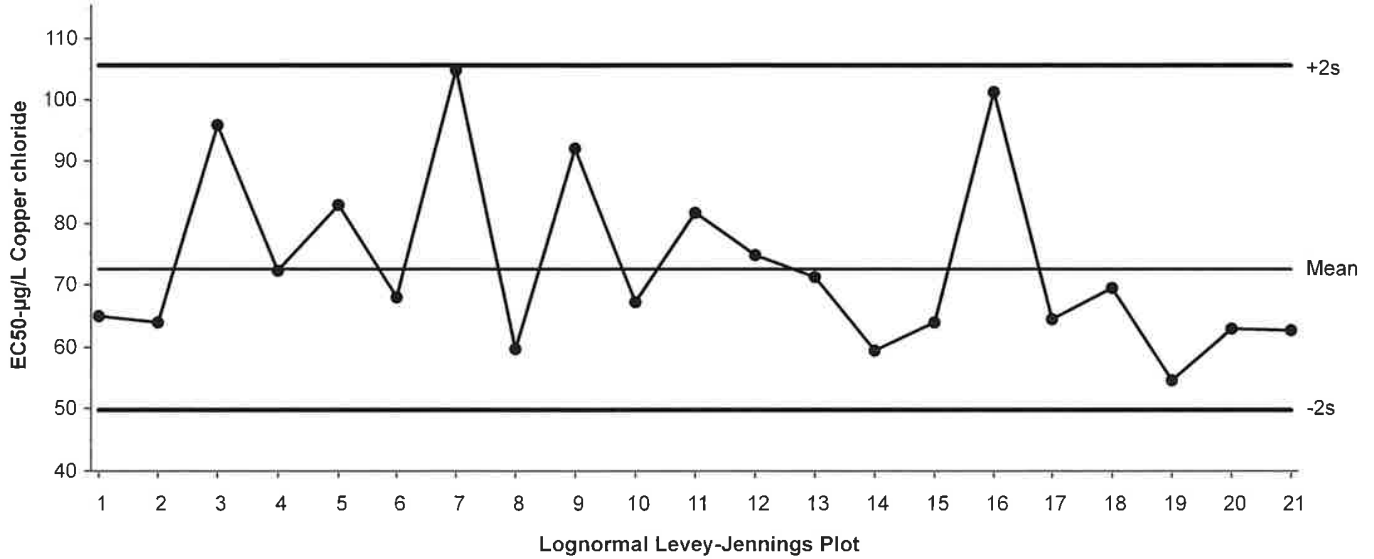
### Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)



<b>Fathead Minnow 7-d Larval Survival and Growth Test</b>		<b>Aquatic Bioassay &amp; Consulting Labs, Inc.</b>	
<b>Test Type:</b> Growth-Survival (7d)	<b>Organism:</b> Pimephales promelas	<b>Material:</b> Copper chloride	
<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Endpoint:</b> 7d Survival Rate	<b>Source:</b> Reference Toxicant-REF	

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint

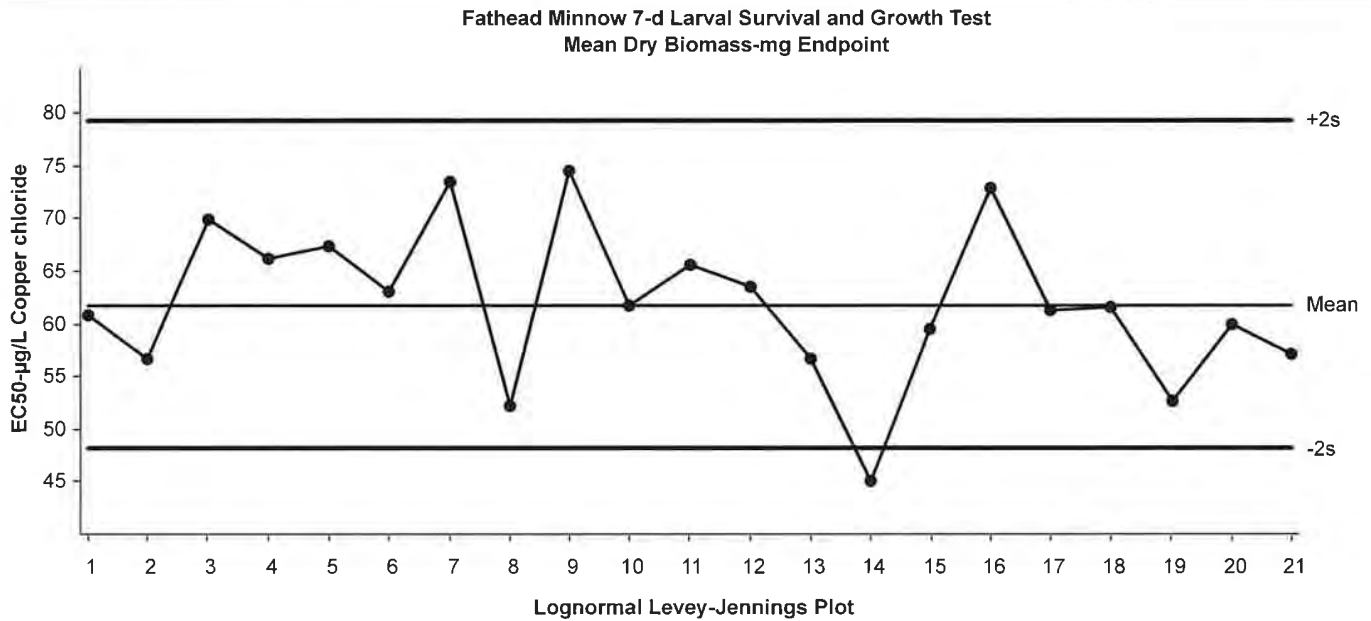


Mean: 72.53      Count: 20      -2s Action Limit: 49.9  
 Sigma: NA      CV: 18.90%      +2s Action Limit: 105

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	5	13:15	64.91	-7.621	-0.593			07-7980-5469	03-0584-6653
2			6	14:45	63.9	-8.63	-0.6767			18-8099-7551	11-3195-6885
3			10	14:30	95.83	23.3	1.488			00-9395-0169	09-6776-4624
4			17	14:45	72.45	-0.08171	-0.00602			10-4602-8256	00-4017-6619
5			24	13:40	83.04	10.51	0.7226			01-7885-2189	13-0007-2758
6			25	12:16	67.98	-4.553	-0.3463			11-1982-8946	16-3131-2159
7			31	15:30	104.9	32.39	1.972			07-7265-5981	14-1873-8638
8		Nov	7	15:10	59.58	-12.95	-1.05			19-2888-5334	07-9547-8315
9			14	15:30	92.05	19.52	1.273			18-8754-0700	05-2558-7597
10			17	14:01	67.38	-5.148	-0.3933			17-0726-1937	14-0961-0371
11			28	14:49	81.82	9.288	0.6437			10-1970-7599	00-2724-7341
12		Dec	5	13:45	75	2.47	0.1789			19-1204-9208	03-6141-0747
13			12	13:30	71.3	-1.23	-0.09137			03-7560-9108	05-6885-8439
14			13	12:15	59.42	-13.11	-1.065			14-7892-5887	04-9254-9827
15			21	13:29	64	-8.53	-0.6684			06-6036-2868	13-4891-1637
16			22	14:30	101.4	28.82	1.787			00-5720-1635	14-1952-0593
17	2024	Jan	3	14:00	64.43	-8.101	-0.6327			04-0866-8727	01-4746-8383
18			4	14:05	69.52	-3.011	-0.2265			15-6608-9784	08-1717-2208
19			9	13:20	54.55	-17.98	-1.522			14-8299-7228	00-5651-6529
20			23	14:00	63	-9.53	-0.7525			12-1922-4773	10-8689-4329
21		Feb	2	14:20	62.67	-9.863	-0.7808			05-5157-4005	09-6073-8693

<b>Fathead Minnow 7-d Larval Survival and Growth Test</b>		<b>Aquatic Bioassay &amp; Consulting Labs, Inc.</b>
<b>Test Type:</b> Growth-Survival (7d)	<b>Organism:</b> Pimephales promelas	<b>Material:</b> Copper chloride
<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>Source:</b> Reference Toxicant-REF



**Mean:** 61.81      **Count:** 20      **-2s Action Limit:** 48.1  
**Sigma:** NA      **CV:** 12.50%      **+2s Action Limit:** 79.3

**Quality Control Data**

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	5	13:15	60.85	-0.953	-0.1244			07-7980-5469	07-5020-1148
2			6	14:45	56.73	-5.073	-0.6857			18-8099-7551	15-1441-4720
3			10	14:30	69.86	8.052	0.9805			00-9395-0169	18-9888-9667
4			17	14:45	66.23	4.42	0.553			10-4602-8256	13-8119-0525
5			24	13:40	67.38	5.578	0.6918			01-7885-2189	06-8805-4487
6			25	12:16	63.01	1.204	0.1544			11-1982-8946	04-1492-8778
7			31	15:30	73.46	11.65	1.383			07-7265-5981	21-3432-7293
8		Nov	7	15:10	52.21	-9.593	-1.35			19-2888-5334	11-0119-4879
9			14	15:30	74.52	12.72	1.498			18-8754-0700	03-4458-8213
10			17	14:01	61.66	-0.1449	-0.0188			17-0726-1937	06-0317-0204
11			28	14:49	65.63	3.828	0.4811			10-1970-7599	09-5836-2004
12		Dec	5	13:45	63.46	1.652	0.2111			19-1204-9208	02-5721-3294
13			12	13:30	56.61	-5.194	-0.7028			03-7560-9108	19-0990-5343
14			13	12:15	45.01	-16.79	-2.539		(-)	14-7892-5887	19-1033-5713
15			21	13:29	59.44	-2.365	-0.3124			06-6036-2868	01-3251-7777
16			22	14:30	72.95	11.14	1.327			00-5720-1635	06-1309-8628
17	2024	Jan	3	14:00	61.34	-0.469	-0.06098			04-0866-8727	03-7640-5638
18			4	14:05	61.64	-0.1647	-0.02137			15-6608-9784	18-2508-7781
19			9	13:20	52.68	-9.128	-1.279			14-8299-7228	08-4892-6835
20			23	14:00	59.92	-1.886	-0.2482			12-1922-4773	11-2137-3210
21		Feb	2	14:20	57.13	-4.673	-0.6295			05-5157-4005	07-7973-9309



170729

CHAIN OF CUSTODY FORM



Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

570-170729 Chain of Custody

Eurofins Calscience Project Manager: Virendra Patel
2841 Dow Avenue, Suite #100
Tustin, CA 92780
Tel: 714-895-5494
ECI Project #57013187

Eurofins Calscience's services under this CoC shall be performed in accordance with the TCOs with Standard Service Agreements 2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.

Sampler: Adrien Mobeka

Project:
Boeing-SSFL NPDES
Permit 2023
Annual Outfall [001, 002, 011, 018]
Outfall 001
COMPOSITE

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

A/R R R R A/R R R A A R A R A

ANALYSIS REQUIRED

Table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont., Preservative, Bottle #, MS/MSD, and various analysis parameters (Total Recoverable Metals, TOC, BOD5, etc.). Includes handwritten notes like 'Hold' and 'Extract and Hold'.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Handwritten signatures and dates for 'Relinquished By' and 'Received By' sections, including dates like 2/2/24 and 2/2/24.

2.4/2.4, 1.9/1.9 SC12

BAE 3/1/2024

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018] Outfall 001 COMPOSITE	<b>ANALYSIS REQUIRED</b>
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #67013187	Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)	Total Dissolved Metals: (E200.7); B. Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Si, Ti, V, Zn  Cr (VI), Total Dissolved (E218.6)  Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0)  Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA  1,4-Dioxane (E624 (SW8260M_SIM))  Total Organic Carbon (415.2 (SM 5310B))  Monomethyl hydrazine (SW8315M/DV-MC-0077) Weck Labs in Hacienda Heights, CA  LL Mercury (E1631E) -- Total Dissolved Cyanide (SM4500-CN-E / E335.2)  Asbestos
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Standard Services Agreement#2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)	
Sampler: Adrian Mobeka	Comments	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED										Comments										
Outfall 001	Outfall001_20240202_Comp	2/2/2024 / 1015	WM	500 mL Poly	1	None			H																	Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.			
			WM	250 mL Poly	1	None				X																	Filter w/in 24hrs of receipt at lab.		
			WM	250mL Clear Glass, double bagged	1	None															H								Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.  Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	WM	250 mL Poly	1	NaOH																									
	WM	2.5 Gal Cube	1	None											X													Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	
	WM	1 L Glass Amber	1	None																									
	WM	1 Gal Cube	5	None																X									Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
	WM	40 mL VOA	3	HCl																								Extract and Hold	
	WM	1 L Glass Amber	1	HCl																									
	WM	1 L Glass Amber	1	None																									Extract and Hold
WM	1 L Poly	1	None																										

**Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual**

Relinquished By: <i>Nichelle Dallal</i> Date/Time: 2/2/24 4pm Company: <i>HA</i>	Received By: <i>MKL</i> Date/Time: 2/2/24 4pm Company:	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>MKL</i> Date/Time: 2/2/24 1900 Company:	Received By: <i>MKL</i> Date/Time: 2/2/24 1900 Company:	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>

*BA 9/1/2024*

# Eurofins Calscience

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

## Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler	Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-345931 1						
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1						
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State California; State Program California				Job #: 570-170729-6							
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Due Date Requested: 3/6/2024	Analysis Requested						Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2SO4 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (specify) Other:				
Project Name: Boeing NPDES SSFL Outfall 001 Comp Site:		TAT Requested (days):	Total Number of Containers						Special Instructions/Note:				
Project #: 57013187 SSOW#:		PO #:	Field Filled Sample (Yes or No)						Preservation Code:				
WO #:		Matrix (W=water, S=solid, O=wast/will, BT=Tissue, AM=Air)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	901.1_CaFill_Geo_0 K-40 and Cesium-137	A01R_U/EtChrom_Actin Total Uranium	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228		905_Sr90/PrecSep_7 Strontium-90	906.0/LiSC_Dist_Susp Tritium		
Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix							Special Instructions/Note:		
Outfall001_20240202_Comp (570-170729-1)	2/2/24	10:15 Pacific	Water		X	X	X	X	X	X	X	2	Boeing SSFL, DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

<b>Possible Hazard Identification</b>			<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>		
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Deliverable Requested: I, II, III, IV Other (specify)		Primary Deliverable Rank: 2	Special Instructions/QC Requirements:		

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by:		Date/Time: 2/6/24 1257	Company:	Received by:	Date/Time:
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:

Custody Seals Intact	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:
Δ Yes Δ No		



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-170729-4

**Login Number: 170729**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004  
Generated 3/22/2024 3:52:07 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 001 - Comp

## JOB NUMBER

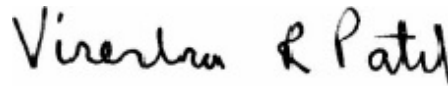
570-173128-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



Generated  
3/22/2024 3:52:07 PM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-173128-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count



# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-173128-4

**Job ID: 570-173128-4**

**Eurofins Calscience**

## Job Narrative 570-173128-4

### Receipt

The samples were received on 2/20/2024 5:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.7° C, 2.2° C and 2.8° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-173128-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 001 - Comp

Job ID: 570-173128-4

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-173128-1	Outfall001_2240220_Comp	Water	02/20/24 10:05	02/20/24 17:30

1

2

3

4

5

6

7

8

9



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 21, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 001\_20240220\_Comp\_F  
 DATE RECEIVED: 20 Feb - 2024  
 ABC LAB. NO.: CSE0224.169

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**


IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

GROWTH = PASS    % EFFECT = -1.33 %

Yours very truly,

  
 Scott Johnson  
 Laboratory Director

**CETIS Summary Report**

Report Date: 20 Mar-24 10:14 (p 1 of 1)  
 Test Code/ID: CSE0224.169fml / 20-9201-7730

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 15-3483-9671	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:37	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:55	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 13-5251-9770	Code: CSE0224.169fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 10:05	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 001
Sample Age: 5h (4.8 °C)	Client: Eurofins Calscience	

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
14-8731-4718	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
08-9640-6620	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
14-8731-4718	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
08-9640-6620	Mean Dry Biomass-mg	Control Resp	0.3578	0.25	<<	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3578	0.3468	0.3687	0.338	0.378	0.004612	0.01304	3.65%	0.00%
100		8	0.3625	0.3495	0.3755	0.3347	0.3807	0.005497	0.01555	4.29%	-1.33%

**7d Survival Rate Detail**

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Mean Dry Biomass-mg Detail**

MD5: 467D1CBE50DC929F26A5AA3EDA3C03A5

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.366	0.37	0.338	0.356	0.3553	0.346	0.3527	0.378
100		0.3753	0.3627	0.3807	0.3347	0.3607	0.3547	0.3787	0.3527

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 20 Mar-24 10:14 (p 1 of 4)  
 Test Code/ID: CSE0224.169fml / 20-9201-7730

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-8731-4718	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 10:13	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Mar-24 10:13	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3
Batch ID: 15-3483-9671	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:37	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:55	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 13-5251-9770	Code: CSE0224.169fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 10:05	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 001
Sample Age: 5h (4.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

### TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

### 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

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

### Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

### 7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

# CETIS Analytical Report

Report Date: 20 Mar-24 10:14 (p 2 of 4)  
Test Code/ID: CSE0224.169fml / 20-9201-7730

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

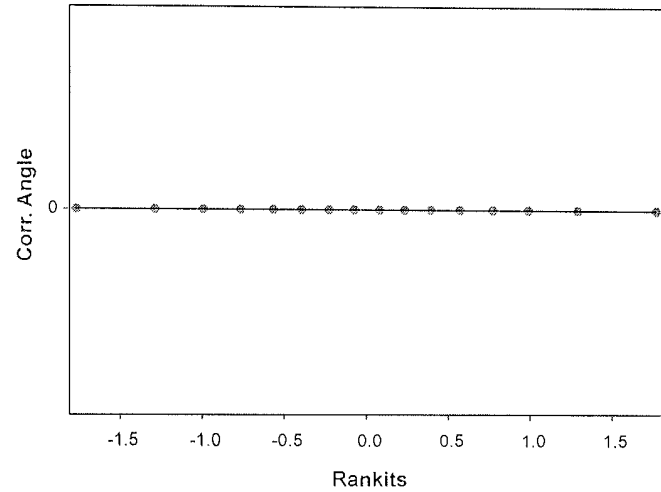
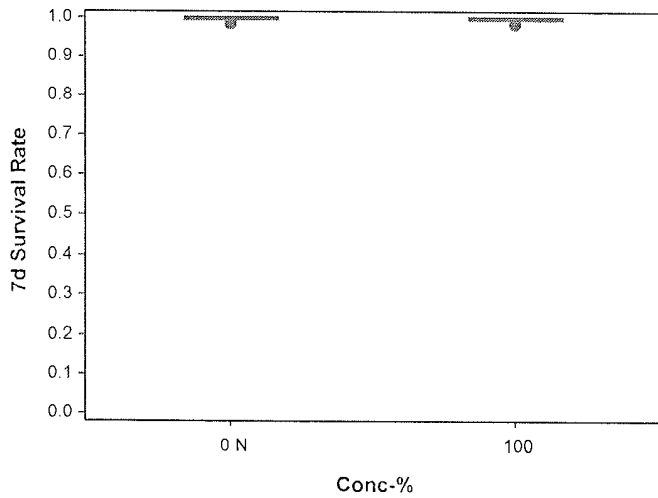
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-8731-4718      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
Analyzed: 20 Mar-24 10:13      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 20 Mar-24 10:13      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

### Graphics



**CETIS Analytical Report**

Report Date: 20 Mar-24 10:14 (p 3 of 4)  
 Test Code/ID: CSE0224.169fml / 20-9201-7730

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-9640-6620	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 10:13	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Mar-24 10:13	MD5 Hash: 467D1CBE50DC929F26A5AA3EDA3C03A	Editor ID: 009-702-627-3
Batch ID: 15-3483-9671	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:37	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:55	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 13-5251-9770	Code: CSE0224.169fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 10:05	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 001
Sample Age: 5h (4.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	11	14.5	0.6974	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3578	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	9.025E-05	9.025E-05	1	0.4382	0.5187	Non-Significant Effect
Error	0.0028833	0.0002059	14			
Total	0.0029735		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.1626	8.862	0.6928	Equal Variances
	Mod Levene Equality of Variance Test	0.2331	8.862	0.6367	Equal Variances
	Variance Ratio F Test	1.421	8.885	0.6547	Equal Variances
Distribution	Anderson-Darling A2 Test	0.3028	3.878	0.6037	Normal Distribution
	D'Agostino Skewness Test	0.5042	2.576	0.6141	Normal Distribution
	Kolmogorov-Smirnov D Test	0.124	0.2471	0.8276	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9604	0.8408	0.6692	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3578	0.3468	0.3687	0.3557	0.338	0.378	0.004612	3.65%	0.00%
100		8	0.3625	0.3495	0.3755	0.3617	0.3347	0.3807	0.005497	4.29%	-1.33%

**Mean Dry Biomass-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.366	0.37	0.338	0.356	0.3553	0.346	0.3527	0.378
100		0.3753	0.3627	0.3807	0.3347	0.3607	0.3547	0.3787	0.3527

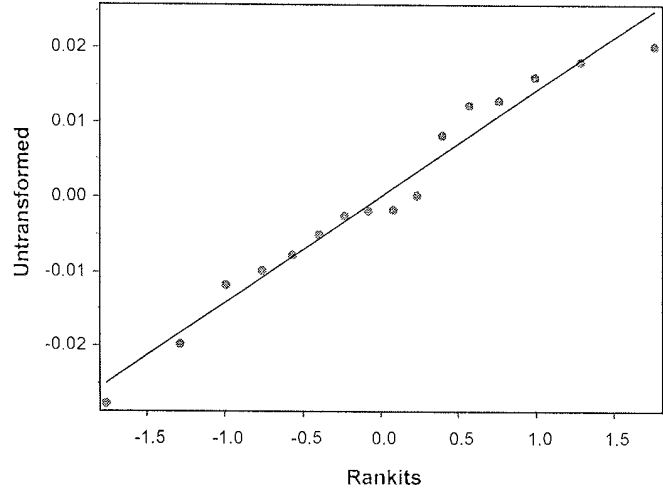
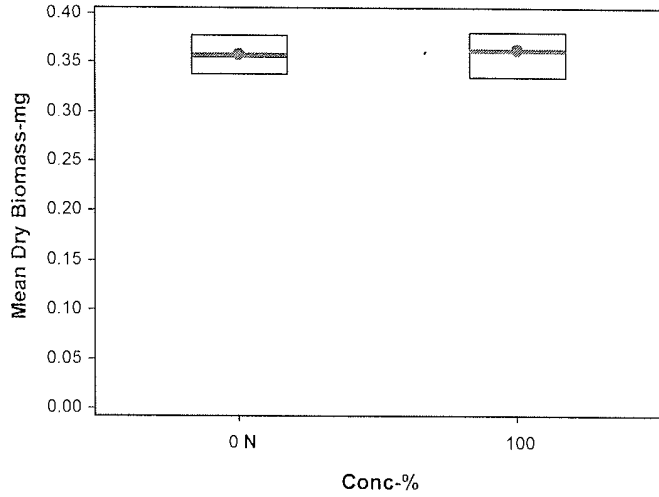


Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-9640-6620      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 20 Mar-24 10:13      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 20 Mar-24 10:13      MD5 Hash: 467D1CBE50DC929F26A5AA3EDA3C03A      Editor ID: 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 20 Mar-24 10:14 (p 1 of 1)  
 Test Code/ID: CSE0224.169fml / 20-9201-7730

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 15-3483-9671	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:37	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:55	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 13-5251-9770	Code: CSE0224.169fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 10:05	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 001
Sample Age: 5h (4.8 °C)	Client: Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	63.62	63.19	64.06	63	64	0.06469	0.5175	0.81%	0
100		8	58	58	58	58	58	0	0	0.00%	0
Overall		16	60.81	59.25	62.37	58	64	0.7315	2.926	4.81%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	376.4	371.8	380.9	367	385	0.6812	5.449	1.45%	0
100		8	254.4	251.9	256.8	251	259	0.3656	2.925	1.15%	0
Overall		16	315.4	281.7	349	251	385	15.79	63.14	20.02%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.925	7.571	8.279	6.9	8.2	0.05293	0.4234	5.34%	0
100		8	8.087	7.697	8.478	7	8.5	0.05842	0.4673	5.78%	0
Overall		16	8.006	7.772	8.24	6.9	8.5	0.1097	0.4389	5.48%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	70	70	70	70	70	0	0	0.00%	0
Overall		16	85	76.74	93.26	70	100	3.873	15.49	18.23%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	7.965	8.285	7.7	8.3	0.02386	0.1909	2.35%	0
100		8	7.938	7.849	8.026	7.7	8	0.01326	0.1061	1.34%	0
Overall		16	8.031	7.936	8.126	7.7	8.3	0.04446	0.1778	2.21%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.08	23.98	24.17	24	24.3	0.01456	0.1165	0.48%	0
Overall		16	24.04	23.99	24.08	24	24.3	0.02213	0.08851	0.37%	0 (0%)

Eurofins Calscience

CHAIN OF CUSTODY FORM

ADDED CT = + 0.3°C  
 Temp. deg. C = 4.7°C  
 Chlorine (mg/L) = 2.0  
 ANALYSIS REQUIRED = 10.1

3/22/2024  
 Page 2 of 2

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018]		Outfall 001 COMPOSITE	
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)	
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24- Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.					
Sampler: Adnen Mobeka					

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.8), Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM500.CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E905.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA	LL Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA	1,4-Dioxane (E624 (SW8260M_SIMI))	Comments	
Outfall 001	Outfall001_20240220_Comp_F	2/20/2024 1005	WM	1L Poly	1	None	200	Yes	H							Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.	
			WM	250mL Glass, double bagged	1	None	999							X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD IF OF001/002
	Outfall001_20240220_Comp	2/20/2024 1005	WM	250 mL Poly	1	NaOH	220				X						
			WM	2.5 Gal Cube	1	None	225										
			WM	1 L Glass Amber	1	None	230					X					Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	5	None	235						X				Only test if first or second discharge events of the year. Deliver to ABC Labs in Ventura, CA.
			WM	1 L Glass Amber	1	None								X			
WM	40 mL VOA	3	HCl										X				

\* Hand-delivered to ABC Labs with this copy of the CoC

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: Michelle Dellelah Date/Time: 2/20/24 / 1350 Company: H&A	Received By: Victor Moya Date/Time: 2/20/24 1350
Relinquished By:	Received By:
Relinquished By:	Received By:



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



## CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 20 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 38.00 ug/l  
EC25 = 55.90 ug/l  
EC50 = 73.81 ug/l

ENDPOINT: GROWTH  
NOEC = 38.00 ug/l  
IC25 = 50.12 ug/l  
IC50 = 63.54 ug/l

Yours very truly,

  
Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 19 Mar-24 16:54 (p 1 of 2)  
 Test Code/ID: FML022024 / 08-4635-5285

Fathead Minnow 7-d Larval Survival and Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age: <24		
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX			
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: ABC Labs				

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
15-8471-1056	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	6.69%	1
04-7965-7265	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	✓ 38	75	53.39	8.81%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
12-7660-0176	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	48.74	45.58	53.75	1
			EC20	52.32	48.1	59.01	
			EC25	55.9	50.63	64.26	
			EC40	66.65	58.2	80.01	
			EC50	73.81	63.25	98.94	
06-8568-1699	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	44.76	42.2	46.88	1
			✓ IC20	47.44	44.84	49.76	
			✓ IC25	50.12	47.33	52.7	
			✓ IC40	58.17	54.5	62.02	
			✓ IC50	63.54	59.21	68.18	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Decision
				Lower	Upper	Overlap	
12-7660-0176	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
15-8471-1056	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
04-7965-7265	Mean Dry Biomass-mg	Control Resp	0.3572	0.25	<<	Yes	Passes Criteria
06-8568-1699	Mean Dry Biomass-mg	Control Resp	0.3572	0.25	<<	Yes	Passes Criteria
04-7965-7265	Mean Dry Biomass-mg	PMSD	0.08813	0.12	0.3	Yes	Below Criteria

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.4833	0.2481	0.7186	0.3333	0.6667	0.0739	0.1478	30.58%	51.67%
150		4	0.0833	-0.0182	0.1849	0.0000	0.1333	0.0319	0.0638	76.59%	91.67%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3572	0.3372	0.3772	0.344	0.3707	0.00628	0.01256	3.52%	0.00%
10		4	0.3607	0.3399	0.3814	0.3447	0.376	0.006515	0.01303	3.61%	-0.98%
19		4	0.3492	0.3295	0.3689	0.3407	0.3673	0.006191	0.01238	3.55%	2.24%
38		4	0.3513	0.3368	0.3659	0.344	0.364	0.00457	0.009141	2.60%	1.63%
75		4	0.1028	0.0513	0.1544	0.07133	0.1413	0.01619	0.03239	31.50%	71.21%
150		4	0.025	-0.00833	0.05833	0	0.046	0.01047	0.02094	83.78%	93.00%

**CETIS Summary Report**

Report Date: 19 Mar-24 16:54 (p 2 of 2)  
 Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: ABBC1B7016A9ECA77F5C90D6B4E58FA4

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.4000	0.5333	0.3333
150		0.1333	0.1333	0.0667	0.0000

**Mean Dry Biomass-mg Detail**

MD5: E63EFCB4509A50ACFA672AB621AADC4B

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.344	0.3493	0.3707	0.3647
10		0.376	0.3447	0.358	0.364
19		0.342	0.3673	0.3467	0.3407
38		0.3453	0.364	0.352	0.344
75		0.1413	0.08133	0.1173	0.07133
150		0.046	0.038	0.016	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	6/15	8/15	5/15
150		2/15	2/15	1/15	0/15



# CETIS Analytical Report

Report Date: 19 Mar-24 16:53 (p 1 of 3)  
 Test Code/ID: FML022024 / 08-4635-5285

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-8471-1056	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA	Editor ID: 009-702-627-3
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.06686	6.69%

Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	1	0.8	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.93156	0.986312	5	163.8	<1.0E-05	Significant Effect
Error	0.108389	0.0060216	18			
Total	5.03995		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	10.46	4.248	7.9E-05	Unequal Variances
	Mod Levene Equality of Variance Test	8.245	4.248	0.0003	Unequal Variances
Distribution	Anderson-Darling A2 Test	3.339	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.269	2.576	0.0233	Normal Distribution
	D'Agostino Skewness Test	0.04631	2.576	0.9631	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.148	9.21	0.0762	Normal Distribution
	Kolmogorov-Smirnov D Test	0.3333	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7692	0.884	9.6E-05	Non-Normal Distribution

7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.4833	0.2481	0.7186	0.4667	0.3333	0.6667	0.0739	30.58%	51.67%
150		4	0.0833	0.0000	0.1849	0.1111	0.0000	0.1333	0.0319	76.59%	91.67%

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-8471-1056      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 19 Mar-24 16:52      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 19 Mar-24 16:51      MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA      Editor ID: 009-702-627-3

Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.7686	0.5292	1.0080	0.7517	0.6155	0.9553	0.0752	19.57%	46.68%
150		4	0.2846	0.0996	0.4695	0.3362	0.1295	0.3738	0.0581	40.85%	80.26%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.4000	0.5333	0.3333
150		0.1333	0.1333	0.0667	0.0000

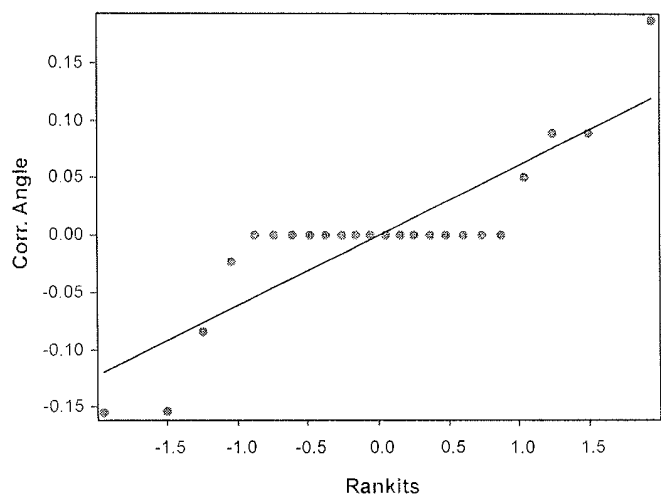
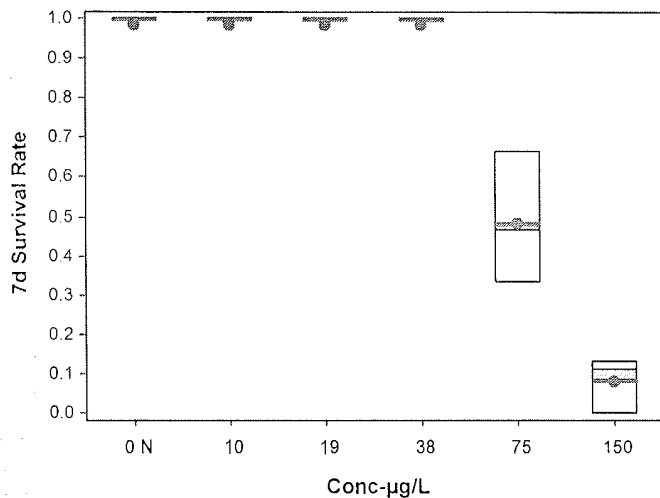
Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.6847	0.8188	0.6155
150		0.3738	0.3738	0.2612	0.1295

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	6/15	8/15	5/15
150		2/15	2/15	1/15	0/15

Graphics





**CETIS Analytical Report**

Report Date: 19 Mar-24 16:53 (p 3 of 3)  
 Test Code/ID: FML022024 / 08-4635-5285

<b>Fathead Minnow 7-d Larval Survival and Growth Test</b>			<b>Aquatic Bioassay &amp; Consulting Labs, Inc.</b>		
Analysis ID: 04-7965-7265	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4			
Analyzed: 19 Mar-24 16:52	Analysis: Parametric-Control vs Treatments	Status Level: 1			
Edit Date: 19 Mar-24 16:51	MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4	Editor ID: 009-702-627-3			
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24			
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX			
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: ABC Labs				

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.03148	8.81%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	-0.2676	2.407	0.03148	CDF	0.9000	Non-Significant Effect
		19	6	0.6118	2.407	0.03148	CDF	0.5980	Non-Significant Effect
		38	6	0.4461	2.407	0.03148	CDF	0.6707	Non-Significant Effect
		75*	6	19.45	2.407	0.03148	CDF	2.7E-05	Significant Effect
		150*	6	25.4	2.407	0.03148	CDF	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3572	0.25	<<	Yes	Passes Criteria
PMSD	0.08813	0.12	0.3	Yes	Below Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.463048	0.0926097	5	270.8	<1.0E-05	Significant Effect
Error	0.0061561	0.0003420	18			
Total	0.469204		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	6.152	15.09	0.2918	Equal Variances
	Levene Equality of Variance Test	4.401	4.248	0.0086	Unequal Variances
	Mod Levene Equality of Variance Test	3.517	4.248	0.0216	Equal Variances
Distribution	Anderson-Darling A2 Test	0.3149	3.878	0.5691	Normal Distribution
	D'Agostino Kurtosis Test	0.2706	2.576	0.7867	Normal Distribution
	D'Agostino Skewness Test	0.4876	2.576	0.6258	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.311	9.21	0.8560	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1139	0.2056	0.5917	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9779	0.884	0.8540	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3572	0.3372	0.3772	0.357	0.344	0.3707	0.00628	3.52%	0.00%
10		4	0.3607	0.3399	0.3814	0.361	0.3447	0.376	0.006515	3.61%	-0.98%
19		4	0.3492	0.3295	0.3689	0.3443	0.3407	0.3673	0.006191	3.55%	2.24%
38		4	0.3513	0.3368	0.3659	0.3487	0.344	0.364	0.00457	2.60%	1.63%
75		4	0.1028	0.0513	0.1544	0.09933	0.07133	0.1413	0.01619	31.50%	71.21%
150		4	0.025	-0.00833	0.05833	0.027	0	0.046	0.01047	83.78%	93.00%

Fathead Minnow 7-d Larval Survival and Growth Test

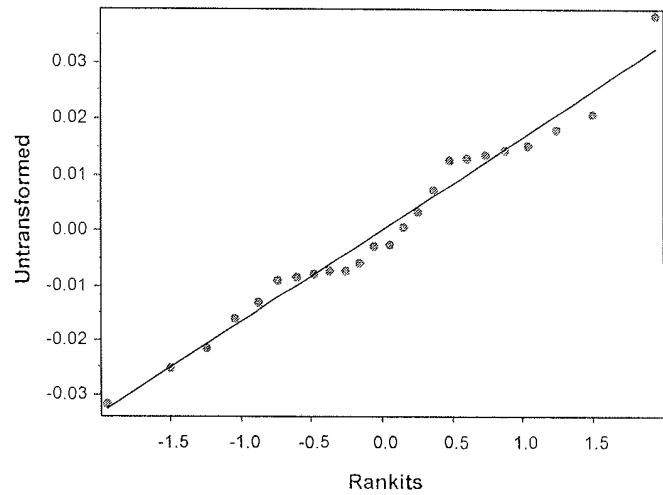
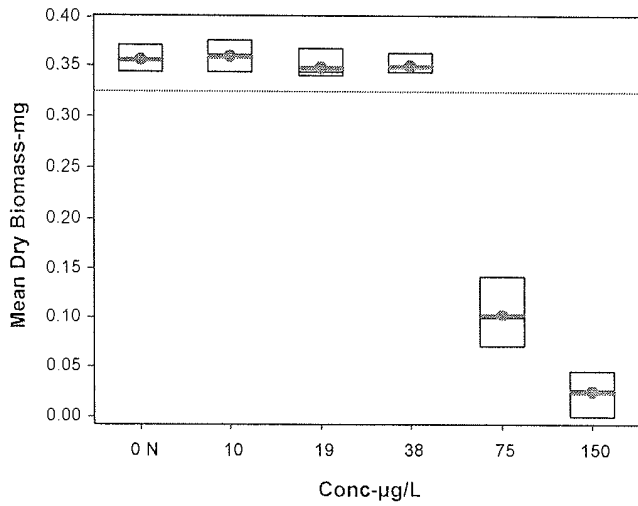
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-7965-7265      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 19 Mar-24 16:52      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 19 Mar-24 16:51      MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.344	0.3493	0.3707	0.3647
10		0.376	0.3447	0.358	0.364
19		0.342	0.3673	0.3467	0.3407
38		0.3453	0.364	0.352	0.344
75		0.1413	0.08133	0.1173	0.07133
150		0.046	0.038	0.016	0

Graphics



**CETIS Analytical Report**

Report Date: 19 Mar-24 16:54 (p 1 of 4)  
 Test Code/ID: FML022024 / 08-4635-5285

Fathead Minnow 7-d Larval Survival and Growth Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 12-7660-0176	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4		Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1	
Edit Date: 19 Mar-24 16:51	MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA	Editor ID: 009-702-627-3		Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:	
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water		Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable	
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age: <24	Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX	
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant		Receipt Date:	CAS (PC):	Station: REF TOX	
Sample Age: ---	Client: ABC Labs						

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	1	0.8	<<	Yes	Passes Criteria

Point Estimates				
Level	µg/L	95% LCL	95% UCL	
EC15	48.74	45.58	53.75	
EC20	52.32	48.1	59.01	
EC25	55.9	50.63	64.26	
EC40	66.65	58.2	80.01	
EC50	73.81	63.25	98.94	

7d Survival Rate Summary			Calculated Variate(A/B)							Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.4833	0.4667	0.3333	0.6667	30.58%	51.67%	29/60	0.4833	51.67%
150		4	0.0833	0.1111	0.0000	0.1333	76.59%	91.67%	5/60	0.0833	91.67%

7d Survival Rate Detail						
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	1.0000	1.0000	
10		1.0000	1.0000	1.0000	1.0000	
19		1.0000	1.0000	1.0000	1.0000	
38		1.0000	1.0000	1.0000	1.0000	
75		0.6667	0.4000	0.5333	0.3333	
150		0.1333	0.1333	0.0667	0.0000	

7d Survival Rate Binomials						
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	15/15	15/15	15/15	15/15	
10		15/15	15/15	15/15	15/15	
19		15/15	15/15	15/15	15/15	
38		15/15	15/15	15/15	15/15	
75		10/15	6/15	8/15	5/15	
150		2/15	2/15	1/15	0/15	

# CETIS Analytical Report

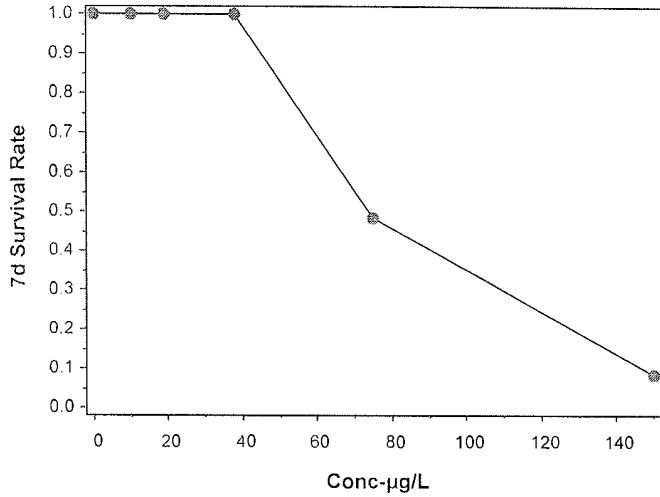
Report Date: 19 Mar-24 16:54 (p 2 of 4)  
Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-7660-0176	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA	Editor ID: 009-702-627-3

### Graphics



**CETIS Analytical Report**

Report Date: 19 Mar-24 16:54 (p 3 of 4)  
 Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8568-1699	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4	Editor ID: 009-702-627-3
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	936611	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3572	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	44.76	42.2	46.88
IC20	47.44	44.84	49.76
IC25	50.12	47.33	52.7
IC40	58.17	54.5	62.02
IC50	63.54	59.21	68.18

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3572	0.357	0.344	0.3707	3.52%	0.00%	0.3589	0.00%
10		4	0.3607	0.361	0.3447	0.376	3.61%	-0.98%	0.3589	0.00%
19		4	0.3492	0.3443	0.3407	0.3673	3.55%	2.24%	0.3503	2.40%
38		4	0.3513	0.3487	0.344	0.364	2.60%	1.63%	0.3503	2.40%
75		4	0.1028	0.09933	0.07133	0.1413	31.50%	71.21%	0.1028	71.36%
150		4	0.025	0.027	0	0.046	83.78%	93.00%	0.025	93.03%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.344	0.3493	0.3707	0.3647
10		0.376	0.3447	0.358	0.364
19		0.342	0.3673	0.3467	0.3407
38		0.3453	0.364	0.352	0.344
75		0.1413	0.08133	0.1173	0.07133
150		0.046	0.038	0.016	0

# CETIS Analytical Report

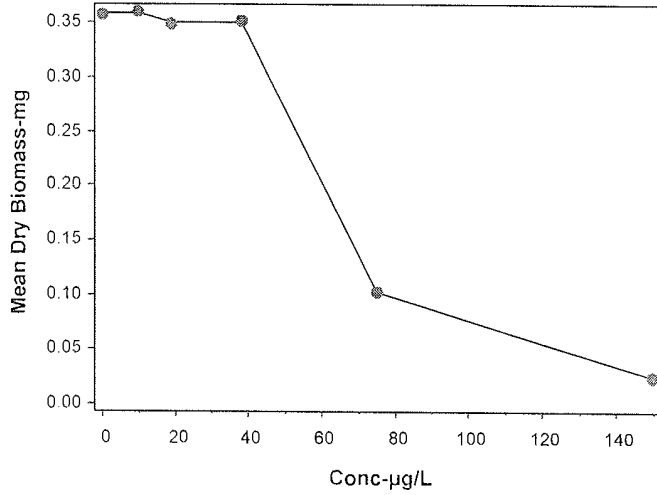
Report Date: 19 Mar-24 16:54 (p 4 of 4)  
Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8568-1699	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 19 Mar-24 16:54 (p 1 of 2)  
 Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	63.62	63.19	64.06	63	64	0.06469	0.5175	0.81%	0
150		8	60	60	60	60	60	0	0	0.00%	0
Overall		16	61.81	60.8	62.83	60	64	0.4763	1.905	3.08%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	376.4	371.8	380.9	367	385	0.6812	5.449	1.45%	0
10		8	384.5	374	395	370	398	1.566	12.52	3.26%	0
19		8	383.8	374.8	392.7	373	397	1.339	10.71	2.79%	0
38		8	384.5	376.9	392.1	375	395	1.136	9.087	2.36%	0
75		8	385.1	378	392.3	377	396	1.068	8.543	2.22%	0
150		8	387	380.4	393.6	379	396	0.9865	7.892	2.04%	0
Overall		48	383.5	380.8	386.3	367	398	1.361	9.426	2.46%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.925	7.571	8.279	6.9	8.2	0.05293	0.4234	5.34%	0
10		8	7.875	7.502	8.248	6.8	8.1	0.0558	0.4464	5.67%	0
19		8	7.875	7.466	8.284	6.7	8.2	0.06115	0.4892	6.21%	0
38		8	7.863	7.46	8.265	6.7	8.1	0.06011	0.4809	6.12%	0
75		8	7.863	7.46	8.265	6.7	8.1	0.06011	0.4809	6.12%	0
150		8	7.863	7.46	8.265	6.7	8.1	0.06011	0.4809	6.12%	0
Overall		48	7.877	7.749	8.006	6.7	8.2	0.06388	0.4425	5.62%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	7.965	8.285	7.7	8.3	0.02386	0.1909	2.35%	0
10		8	8.05	7.883	8.217	7.7	8.2	0.025	0.2	2.48%	0
19		8	8.037	7.871	8.204	7.7	8.2	0.02494	0.1996	2.48%	0
38		8	8.012	7.837	8.188	7.7	8.2	0.02625	0.21	2.62%	0
75		8	7.987	7.796	8.179	7.7	8.2	0.02869	0.2295	2.87%	0
150		8	8	7.821	8.179	7.8	8.2	0.02673	0.2138	2.67%	0
Overall		48	8.035	7.977	8.094	7.7	8.3	0.0291	0.2016	2.51%	0 (0%)

# CETIS Measurement Report

Report Date: 19 Mar-24 16:54 (p 2 of 2)  
Test Code/ID: FML022024 / 08-4635-5285

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

## Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)





Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

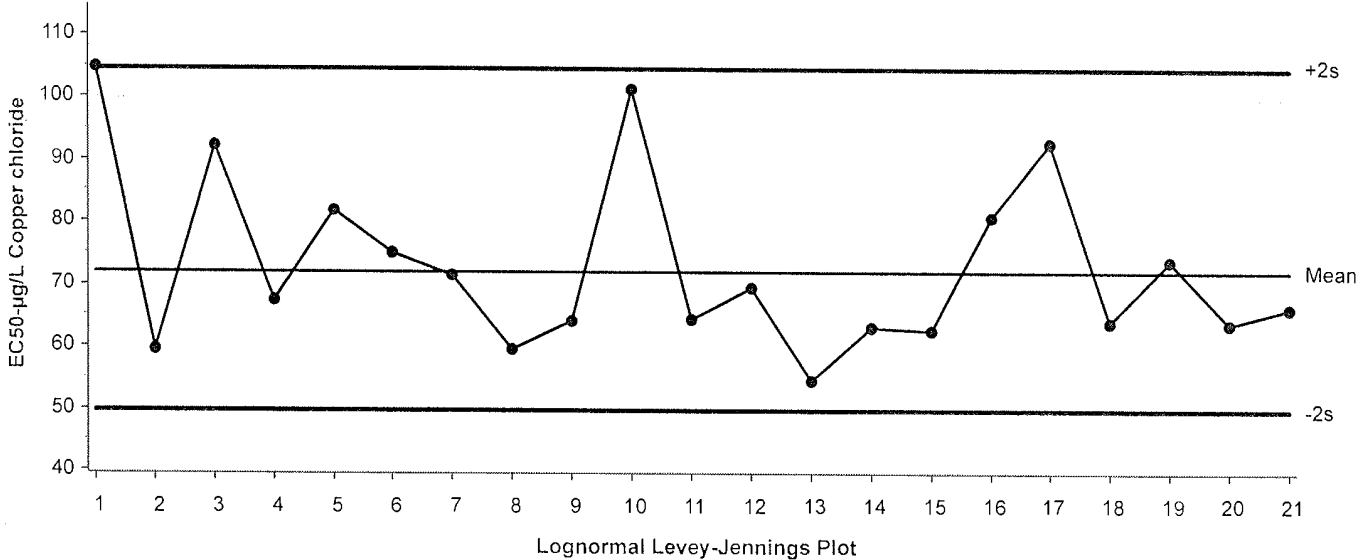
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



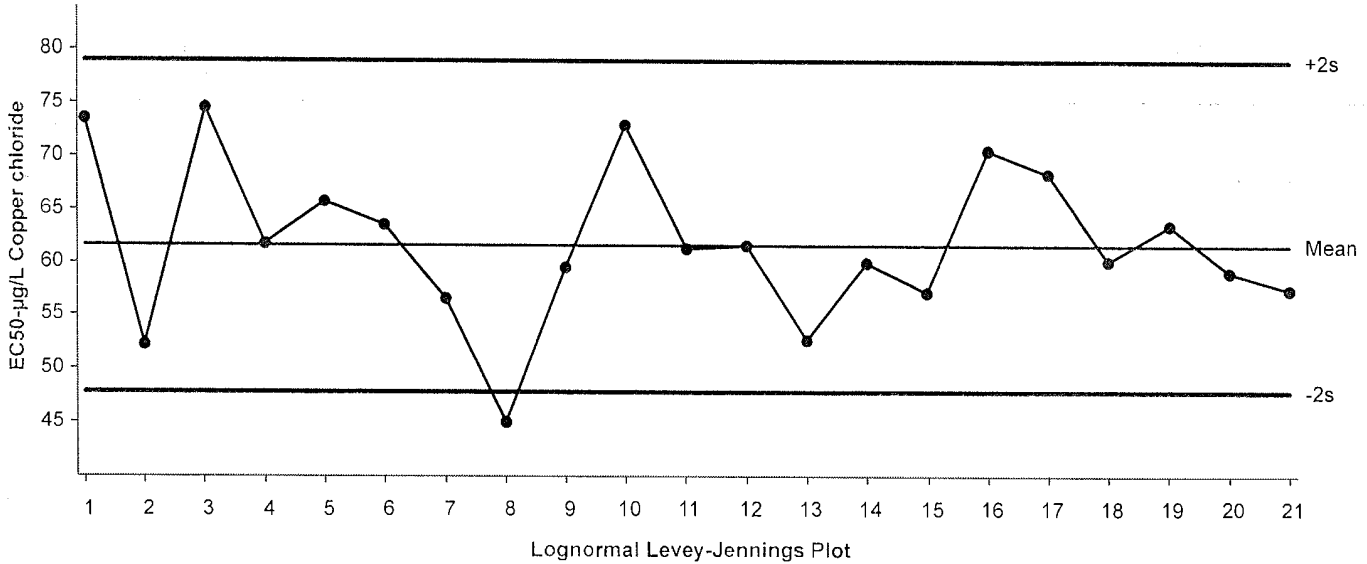
Mean: 72.02      Count: 20      -2s Action Limit: 49.6  
 Sigma: NA      CV: 18.90%      +2s Action Limit: 105

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	104.9	32.9	2.013		(+)	07-7265-5981	14-1873-8638
2		Nov	7	15:10	59.58	-12.44	-1.015			19-2888-5334	07-9547-8315
3			14	15:30	92.05	20.02	1.312			18-8754-0700	05-2558-7597
4			17	14:01	67.38	-4.642	-0.3564			17-0726-1937	14-0961-0371
5			28	14:49	81.82	9.794	0.6822			10-1970-7599	00-2724-7341
6		Dec	5	13:45	75	2.976	0.2166			19-1204-9208	03-6141-0747
7			12	13:30	71.3	-0.724	-0.05406			03-7560-9108	05-6885-8439
8			13	12:15	59.42	-12.6	-1.029			14-7892-5887	04-9254-9827
9			21	13:29	64	-8.024	-0.632			06-6036-2868	13-4891-1637
10			22	14:30	101.4	29.33	1.828			00-5720-1635	14-1952-0593
11	2024	Jan	3	14:00	64.43	-7.595	-0.5963			04-0866-8727	01-4746-8383
12			4	14:05	69.52	-2.506	-0.1894			15-6608-9784	08-1717-2208
13			9	13:20	54.55	-17.47	-1.487			14-8299-7228	00-5651-6529
14			23	14:00	63	-9.024	-0.7162			12-1922-4773	10-8689-4329
15		Feb	2	14:20	62.67	-9.357	-0.7446			05-5157-4005	09-6073-8693
16			6	13:40	80.77	8.745	0.6131			04-6220-8945	10-6161-5529
17			8	14:30	92.76	20.74	1.354			03-7992-6322	19-2866-0483
18			13	13:39	63.81	-8.21	-0.6476			03-2019-4612	14-1051-0807
19			20	14:35	73.81	1.782	0.1308			08-4635-5285	12-7660-0176
20			27	11:15	63.69	-8.33	-0.6576			19-5637-4552	05-7937-9277
21		Mar	5	15:00	66.07	-5.955	-0.4617			15-3336-6648	16-9471-0776

Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: Mean Dry Biomass-mg	Source: Reference Toxicant-REF	

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 61.5      Count: 20      -2s Action Limit: 47.9  
 Sigma: NA      CV: 12.60%      +2s Action Limit: 79

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	73.46	11.96	1.418			07-7265-5981	21-3432-7293
2		Nov	7	15:10	52.21	-9.285	-1.306			19-2888-5334	11-0119-4879
3			14	15:30	74.52	13.02	1.533			18-8754-0700	03-4458-8213
4			17	14:01	61.66	0.1633	0.02117			17-0726-1937	06-0317-0204
5			28	14:49	65.63	4.136	0.5195			10-1970-7599	09-5836-2004
6		Dec	5	13:45	63.46	1.96	0.2504			19-1204-9208	02-5721-3294
7			12	13:30	56.61	-4.886	-0.6606			03-7560-9108	19-0990-5343
8			13	12:15	45.01	-16.49	-2.491		(-)	14-7892-5887	19-1033-5713
9			21	13:29	59.44	-2.057	-0.2715			06-6036-2868	01-3251-7777
10			22	14:30	72.95	11.45	1.363			00-5720-1635	06-1309-8628
11	2024	Jan	3	14:00	61.34	-0.1607	-0.02088			04-0866-8727	03-7640-5638
12			4	14:05	61.64	0.1435	0.0186			15-6608-9784	18-2508-7781
13			9	13:20	52.68	-8.82	-1.235			14-8299-7228	08-4892-6835
14			23	14:00	59.92	-1.578	-0.2075			12-1922-4773	11-2137-3210
15		Feb	2	14:20	57.13	-4.365	-0.5876			05-5157-4005	07-7973-9309
16			6	13:40	70.57	9.074	1.098			04-6220-8945	00-3964-3519
17			8	14:30	68.31	6.812	0.8384			03-7992-6322	00-8689-1143
18			13	13:39	60.14	-1.356	-0.178			03-2019-4612	17-1613-5689
19			20	14:35	63.54	2.043	0.2609			08-4635-5285	06-8568-1699
20			27	11:15	59.08	-2.418	-0.3202			19-5637-4552	04-7521-9748
21		Mar	5	15:00	57.49	-4.006	-0.5376			15-3336-6648	12-9818-4247

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

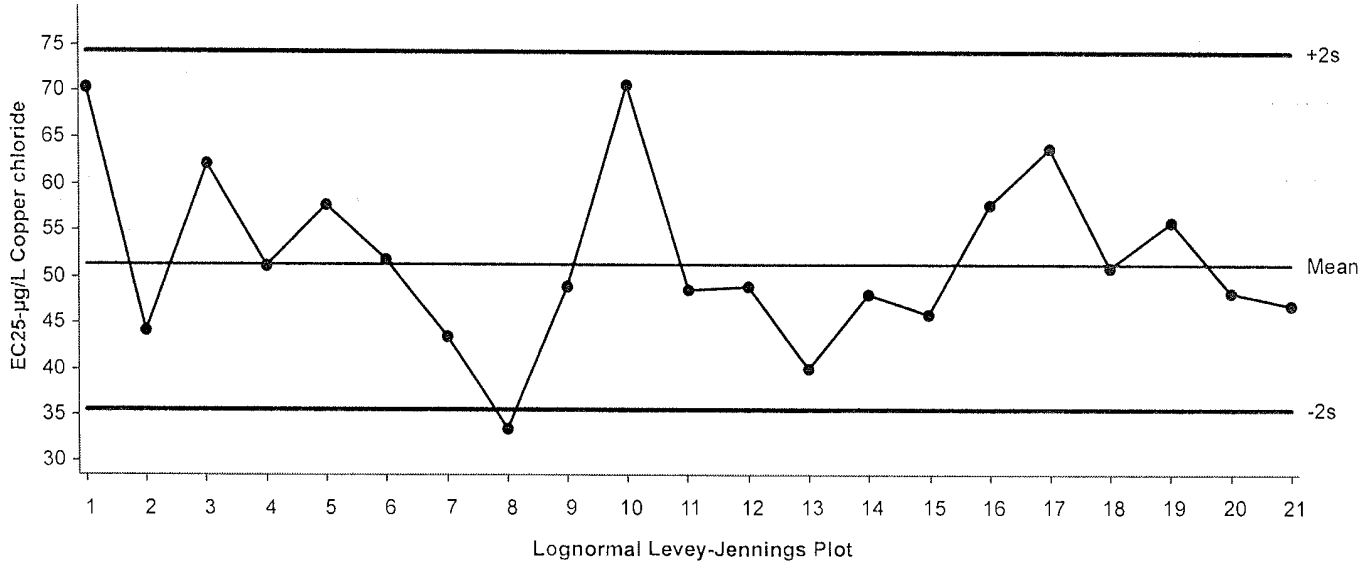
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint

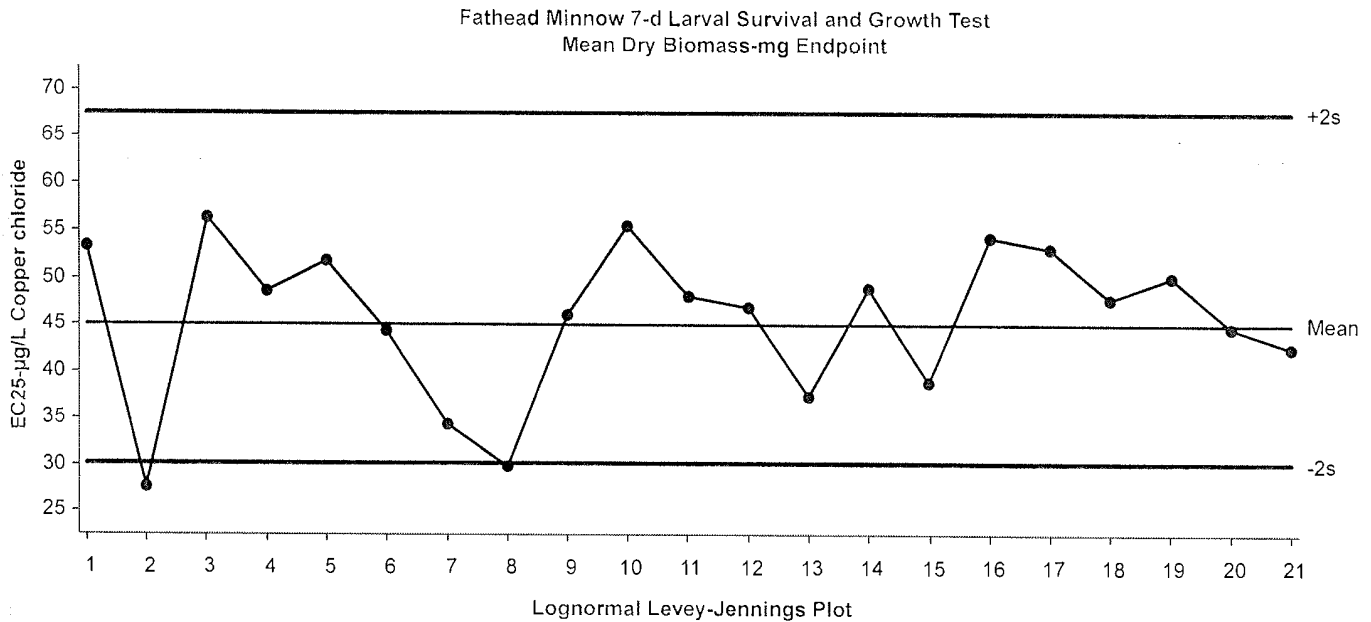


Mean: 51.32      Count: 20      -2s Action Limit: 35.5  
 Sigma: NA      CV: 18.60%      +2s Action Limit: 74.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	70.38	19.06	1.715			07-7265-5981	14-1873-8638
2		Nov	7	15:10	44.17	-7.149	-0.8145			19-2888-5334	07-9547-8315
3			14	15:30	62.23	10.91	1.047			18-8754-0700	05-2558-7597
4			17	14:01	51.06	-0.257	-0.02726			17-0726-1937	14-0961-0371
5			28	14:49	57.82	6.506	0.648			10-1970-7599	00-2724-7341
6		Dec	5	13:45	51.88	0.5591	0.05883			19-1204-9208	03-6141-0747
7			12	13:30	43.55	-7.766	-0.8908			03-7560-9108	05-6885-8439
8			13	12:15	33.53	-17.79	-2.31		(-)	14-7892-5887	04-9254-9827
9			21	13:29	49	-2.316	-0.2507			06-6036-2868	13-4891-1637
10			22	14:30	70.65	19.33	1.736			00-5720-1635	14-1952-0593
11	2024	Jan	3	14:00	48.57	-2.744	-0.2984			04-0866-8727	01-4746-8383
12			4	14:05	48.96	-2.353	-0.2548			15-6608-9784	08-1717-2208
13			9	13:20	39.95	-11.37	-1.36			14-8299-7228	00-5651-6529
14			23	14:00	48	-3.316	-0.3626			12-1922-4773	10-8689-4329
15		Feb	2	14:20	45.85	-5.467	-0.6116			05-5157-4005	09-6073-8693
16			6	13:40	57.82	6.506	0.648			04-6220-8945	10-6161-5529
17			8	14:30	63.9	12.58	1.191			03-7992-6322	19-2866-0483
18			13	13:39	50.91	-0.4089	-0.04343			03-2019-4612	14-1051-0807
19			20	14:35	55.9	4.587	0.4648			08-4635-5285	12-7660-0176
20			27	11:15	48.28	-3.038	-0.3313			19-5637-4552	05-7937-9277
21		Mar	5	15:00	46.93	-4.385	-0.4849			15-3336-6648	16-9471-0776

Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: Mean Dry Biomass-mg	Source: Reference Toxicant-REF	



Mean: 45.06      Count: 20      -2s Action Limit: 30  
 Sigma: NA      CV: 20.50%      +2s Action Limit: 67.6

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	53.26	8.199	0.8243			07-7265-5981	21-3432-7293
2		Nov	7	15:10	27.53	-17.53	-2.43		(-)	19-2888-5334	11-0119-4879
3			14	15:30	56.26	11.2	1.095			18-8754-0700	03-4458-8213
4			17	14:01	48.63	3.574	0.3763			17-0726-1937	06-0317-0204
5			28	14:49	51.82	6.757	0.6889			10-1970-7599	09-5836-2004
6		Dec	5	13:45	44.32	-0.736	-0.0812			19-1204-9208	02-5721-3294
7			12	13:30	34.29	-10.77	-1.346			03-7560-9108	19-0990-5343
8			13	12:15	29.79	-15.27	-2.04		(-)	14-7892-5887	19-1033-5713
9			21	13:29	46.06	0.9958	0.1078			06-6036-2868	01-3251-7777
10			22	14:30	55.47	10.41	1.025			00-5720-1635	06-1309-8628
11	2024	Jan	3	14:00	47.99	2.925	0.3101			04-0866-8727	03-7640-5638
12			4	14:05	46.88	1.825	0.1957			15-6608-9784	18-2508-7781
13			9	13:20	37.28	-7.785	-0.9352			14-8299-7228	08-4892-6835
14			23	14:00	48.96	3.9	0.4093			12-1922-4773	11-2137-3210
15		Feb	2	14:20	38.87	-6.191	-0.7287			05-5157-4005	07-7973-9309
16			6	13:40	54.21	9.148	0.9114			04-6220-8945	00-3964-3519
17			8	14:30	53.15	8.095	0.8146			03-7992-6322	00-8689-1143
18			13	13:39	47.77	2.712	0.2882			03-2019-4612	17-1613-5689
19			20	14:35	50.12	5.062	0.525			08-4635-5285	06-8568-1699
20			27	11:15	44.64	-0.4166	-0.0458			19-5637-4552	04-7521-9748
21		Mar	5	15:00	42.55	-2.513	-0.2829			15-3336-6648	12-9818-4247


173128

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley &amp; Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>	<p>Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018]</p> <p><b>Outfall 001 COMPOSITE</b></p>	<p>ANALYSIS REQUIRED</p>
<p>Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187</p>	<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>	<p>Total Recoverable Metals: (E2008), Al, Cd, Cu, Pb, Se, Zn TCDD (and all congeners) (E1619B) BOD5 (20 degrees C) (E405-1(SM5210B_BODCalc)) Surfactants (MBAS) (SM5540C/E425.1) Cl-, SO<sub>4</sub>, Nitrate-N, Nitrite-N, NO<sub>3</sub>+NO<sub>2</sub>-N, Perchlorate (E300) Turbidity, TDS (SM2540C/E180.1) TSS (1602 (SM2540D)) Ammonia-N (350.2) Routine Pesticides - alpha-BHC, 4,4-DDE, Heptachlor (E609) Routine SVOCs - 2,4,6 TCP, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, PCP, Benzidine, 3,3-Dichlorobenzidine, Indeno(1,2,3-cd) Pyrene (E625) LL Mercury (1631) Total Recoverable</p>
<p>Eurofins Calscience's services under this CoC shall be performed in accordance with the T&amp;Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley &amp; Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.</p>		
<p>Sampler: Adrien Mobeka</p>		

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	H	X													Comments				
Outfall 001	Outfall001_20240220_Comp	2/20/2024 1005	WM	500 mL Poly	1	HNO <sub>3</sub>	90	Yes		H													HOLD				
			WM	1 L Glass Amber	2	None	110					X															
			WM	1L Poly	1	None	115						X														
			WM	500 mL Poly	2	None	120							X													
			WM	500 mL Poly	1	None	130								X											48 hours Holding Time NO <sub>3</sub> & NO <sub>2</sub>	
			WM	500 mL Poly	1	None	150									X										48 hour holding time for turbidity	
			WM	500 mL Poly	1	H <sub>2</sub> SO <sub>4</sub>	160										X										
			WM	1 L Glass Amber	4	None	170													H							EXTRACT AND HOLD IF OF001/002
			WM	1 L Glass Amber	6	None	180		Yes												H						EXTRACT AND HOLD IF OF001/002
			WM	250mL Glass, double bagged	1	HCL	998														H						Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. HOLD IF OF001/002
Outfall 001	Outfall001_20240220_Comp_Extra	2/20/2024 1005	WM	1L Poly	1	None	185							X													
			WM	1 L Glass Amber	2	None	110					H														Hold	
			WM	500 mL Poly	2	None	120							H												Hold	
			WM	500 mL Poly	1	None	130								H											Hold	
WM	1 L Glass Amber	4	None	170														H						Hold			

**Legend: C=Conditional, R=Routine**

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 2/20/24 13:15 H&A Company: H&A	Received By: <i>MKT</i> Date/Time: 2/20/24 13:15 CH Company: H&A	 570-173128 Chain of Custody
Relinquished By: <i>MKT</i> Date/Time: 2/20/24 1730 Company: EC	Received By: <i>MKT</i> Date/Time: 2/20/24 1730 Company: EC	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	

Data Requirements: (Check)  
No Level IV: \_\_\_\_\_ All Level IV: \_\_\_X\_\_\_

28 / 2-8, 2.2/2.2 SC12  
1.7/1.7



CHAIN OF CUSTODY FORM

- 1
- 2
- 3
- 4
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Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108			Project: Boeing-SSFL NPDES 2023 Permit <b>Routine Outfall [001, 002, 011, 018]</b>  <b>Outfall 001          COMPOSITE</b>						ANALYSIS REQUIRED Total Dissolved Metals: (E200.6); Al, Cd, Cu, Pb, Se, Zn Cyanide (SM4500-CNE / E335.2) Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E905.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E906.0), K-40, CS-137 (E901.0 or E901.1) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA LL Mercury (1631) Total Dissolved Monomethyl hydrazine (SW8315/MDV-NC-0077) Weick Labs in Hacienda Heights, CA 1,4-Dioxane (E624 (SW8260M_SIM))									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 <b>ECl Project #57013187</b>			Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)						Comments  Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab, and then put on <b>HOLD IF OF001/002</b> Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second discharge events of the year. <b>Deliver to ABC Labs in Ventura, CA.</b>									
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.			Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)															
Sampler: Adrien Mobeka																		
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.6); Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CNE / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E905.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E906.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA	LL Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8315/MDV-NC-0077) Weick Labs in Hacienda Heights, CA	1,4-Dioxane (E624 (SW8260M_SIM))	Comments		
Outfall 001	Outfall001_20240220_Comp_F	2/20/2024 1005	WM	1L Poly	1	None	200	Yes	H									
			WM	250mL Glass, double bagged	1	None	999						H					
	Outfall001_20240220_Comp	2/20/2024 1005	WM	250 mL Poly	1	NaOH	220			X								
			WM	2.5 Gal Cube	1	None	225					X						
			WM	1 L Glass Amber	1	None	230											
			WM	1 Gal Cube	5	None	235						X					
			WM	1 L Glass Amber	1	None								X				
WM	40 mL VOA	3	HCl									X						
QAQC	FB_Outfall001-20240220	2/20/24 1005	WQ	1 L Glass Amber	1	None										X		

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Michelle Dallalah</i> Date/Time: <i>2/20/24 13:15</i> Company: <i>H&amp;A</i>	Received By: <i>M/K</i> Date/Time: <i>2/20/24 1315</i> Company: <i>EA</i>
Relinquished By: <i>[Signature]</i> Date/Time: <i>2/20/24 1730</i> Company: <i>EC</i>	Received By: <i>[Signature]</i> Date/Time: <i>2/20/24 1730</i> Company:

# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-173128-4

**Login Number: 173128**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 2/10/2024 10:37:53 AM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 002 - Comp

## JOB NUMBER

570-166858-4

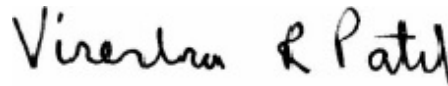


## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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2/10/2024 10:37:53 AM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-166858-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-166858-4

**Job ID: 570-166858-4**

**Eurofins Calscience**

## Job Narrative 570-166858-4

### Receipt

The samples were received on 1/4/2024 4:40 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.8° C, 2.0° C and 2.3° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Methods Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013), Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013), Chronic-Selenestrum: These methods were subcontracted to Aquatic Bioassay. The subcontract laboratory certifications are different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-166858-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-166858-4

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166858-1	Outfall002_20240104_Comp	Water	01/04/24 08:00	01/04/24 16:40

1

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January 25, 2024

Mr. Virendra Patel  
Eurofins Calscience  
2841 Dow Avenue, Suite #100  
Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013*. Results were as follows:

CLIENT: Eurofins Calscience  
SAMPLE I.D.: Outfall002\_20240104\_Comp\_F (Outfall 002)  
DATE RECEIVED: 4 Jan - 2024  
ABC LAB. NO.: CSE0124.013

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

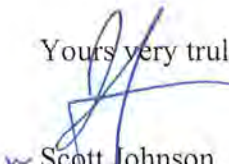
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 1.67 %

GROWTH = PASS    % EFFECT = 1.59 %

Yours very truly,

  
Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 24 Jan-24 16:41 (p 1 of 1)  
 Test Code/ID: CSE0124.013fml / 17-9125-6787

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-3576-3567	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 20-8902-8414	Code: CSE0124.013fml	Project: Boeing-SSFL NPDES
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Eurofins Calscience	

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
07-0501-4943	7d Survival Rate	TST-Welch's t Test	<1.0E-05	100% passed 7d survival rate	1
17-1289-7215	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
07-0501-4943	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
17-1289-7215	Mean Dry Biomass-mg	Control Resp	0.3505	0.25	<<	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	0.9833	0.9575	1.0090	0.9333	1.0000	0.0109	0.0309	3.14%	1.67%

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3505	0.3385	0.3625	0.338	0.38	0.00506	0.01431	4.08%	0.00%
100		8	0.3449	0.3377	0.3521	0.3367	0.3593	0.003039	0.008596	2.49%	1.59%

**7d Survival Rate Detail**

MD5: 348D8F30121667E06FD06C5007538EB2

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.9333	0.9333	1.0000	1.0000	1.0000	1.0000

**Mean Dry Biomass-mg Detail**

MD5: 9A6C6E10D93467D025D31545CCC3BE1A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.38	0.338	0.358	0.358	0.3447	0.338	0.3413	0.346
100		0.3393	0.338	0.3367	0.3393	0.3473	0.3433	0.356	0.3593

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	14/15	14/15	15/15	15/15	15/15	15/15



# CETIS Analytical Report

Report Date: 24 Jan-24 16:40 (p 1 of 4)  
 Test Code/ID: CSE0124.013fml / 17-9125-6787

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0501-4943	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 16:40	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 24 Jan-24 16:38	MD5 Hash: 348D8F30121667E06FD06C5007538EB2	Editor ID: 009-702-627-3
Batch ID: 21-3576-3567	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 20-8902-8414	Code: CSE0124.013fml	Project: Boeing-SSFL NPDES
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	7	15.19	0.7111	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.004336	0.004336	1	2.333	0.1489	Non-Significant Effect
Error	0.026016	0.0018583	14			
Total	0.030352		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	21	8.862	0.0004	Unequal Variances
	Mod Levene Equality of Variance Test	2.333	8.862	0.1489	Equal Variances
	Variance Ratio F Test				Indeterminate
Distribution	Anderson-Darling A2 Test	2.447	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Skewness Test	2.906	2.576	0.0037	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2471	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.677	0.8408	9.5E-05	Non-Normal Distribution

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	0.9833	0.9575	1.0000	1.0000	0.9333	1.0000	0.0109	3.14%	1.67%

**Angular (Corrected) Transformed Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4080	1.3570	1.4590	1.4410	1.3100	1.4410	0.0216	4.33%	2.28%

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.9333	0.9333	1.0000	1.0000	1.0000	1.0000

**CETIS Analytical Report**

Report Date: 24 Jan-24 16:40 (p 2 of 4)  
 Test Code/ID: CSE0124.013fml / 17-9125-6787

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0501-4943      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 24 Jan-24 16:40      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 24 Jan-24 16:38      MD5 Hash: 348D8F30121667E06FD06C5007538EB2      Editor ID: 009-702-627-3

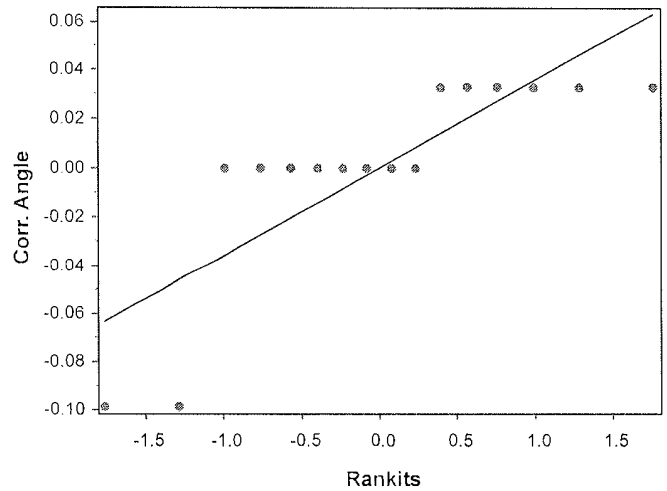
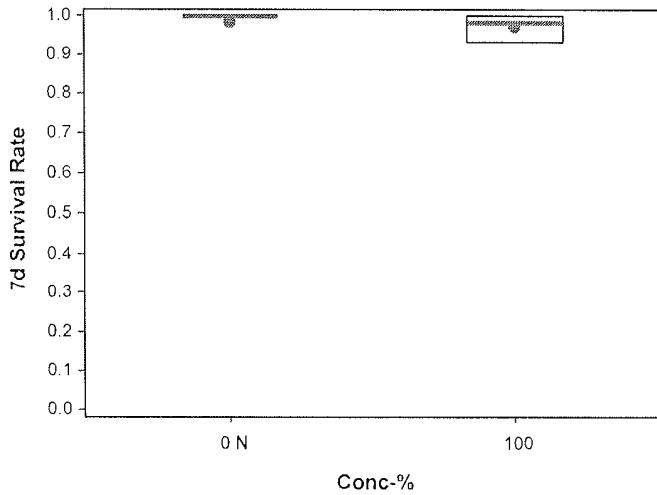
**Angular (Corrected) Transformed Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.3100	1.3100	1.4410	1.4410	1.4410	1.4410

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	14/15	14/15	15/15	15/15	15/15	15/15

**Graphics**



# CETIS Analytical Report

Report Date: 24 Jan-24 16:40 (p 3 of 4)  
 Test Code/ID: CSE0124.013fml / 17-9125-6787

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-1289-7215	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 16:40	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 24 Jan-24 16:38	MD5 Hash: 9A6C6E10D93467D025D31545CCC3BE1A	Editor ID: 009-702-627-3
Batch ID: 21-3576-3567	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 20-8902-8414	Code: CSE0124.013fml	Project: Boeing-SSFL NPDES
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

### TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	13	16.87	0.6938	CDF	<1.0E-05	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3505	0.25	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0001247	0.0001247	1	0.8949	0.3602	Non-Significant Effect
Error	0.0019508	0.0001393	14			
Total	0.0020755		15			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.686	8.862	0.2152	Equal Variances
	Mod Levene Equality of Variance Test	0.5835	8.862	0.4576	Equal Variances
	Variance Ratio F Test	2.771	8.885	0.2021	Equal Variances
Distribution	Anderson-Darling A2 Test	0.8125	3.878	0.0354	Normal Distribution
	D'Agostino Skewness Test	2.179	2.576	0.0293	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2159	0.2471	0.0446	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8797	0.8408	0.0383	Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3505	0.3385	0.3625	0.3453	0.338	0.38	0.00506	4.08%	0.00%
100		8	0.3449	0.3377	0.3521	0.3407	0.3367	0.3593	0.003039	2.49%	1.59%

### Mean Dry Biomass-mg Detail

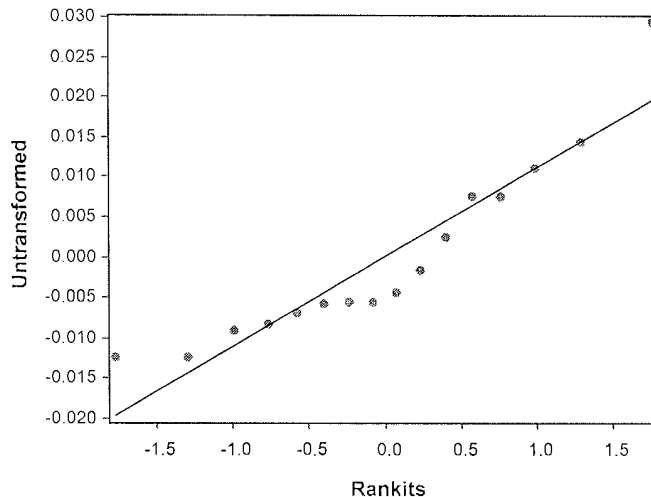
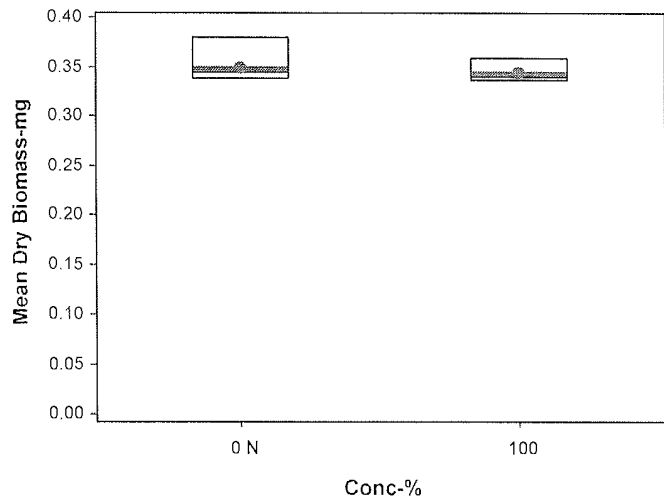
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.38	0.338	0.358	0.358	0.3447	0.338	0.3413	0.346
100		0.3393	0.338	0.3367	0.3393	0.3473	0.3433	0.356	0.3593

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-1289-7215      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 24 Jan-24 16:40      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 24 Jan-24 16:38      MD5 Hash: 9A6C6E10D93467D025D31545CCC3BE1A      Editor ID: 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 24 Jan-24 16:41 (p 1 of 1)  
 Test Code/ID: CSE0124.013fml / 17-9125-6787

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-3576-3567	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 20-8902-8414	Code: CSE0124.013fml	Project: Boeing-SSFL NPDES
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66	62.43	69.57	62	70	0.5345	4.276	6.48%	0
100		8	60	60	60	60	60	0	0	0.00%	0
Overall		16	63	60.73	65.27	60	70	1.065	4.258	6.76%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	381.1	376.8	385.4	373	387	0.6424	5.139	1.35%	0
100		8	654.1	648.4	659.8	649	670	0.8516	6.813	1.04%	0
Overall		16	517.6	442.4	592.8	373	670	35.27	141.1	27.26%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.988	7.658	8.317	7.1	8.4	0.0493	0.3944	4.94%	0
100		8	7.962	7.644	8.281	7.1	8.2	0.04769	0.3815	4.79%	0
Overall		16	7.975	7.775	8.175	7.1	8.4	0.09376	0.3751	4.70%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	83	83	83	83	83	0	0	0.00%	0
Overall		16	91.5	86.82	96.18	83	100	2.195	8.779	9.59%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.037	8.163	8	8.2	0.00945	0.0756	0.93%	0
100		8	8.075	8.001	8.149	8	8.2	0.01108	0.08865	1.10%	0
Overall		16	8.088	8.045	8.13	8	8.2	0.02016	0.08062	1.00%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)



January 25, 2024

Mr. Virendra Patel  
Eurofins Calscience  
2841 Dow Avenue, Suite #100  
Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013*. " Results were as follows:\*

CLIENT: Eurofins Calscience  
SAMPLE I.D.: Outfall002\_20240104\_Comp\_F (Outfall 002)  
DATE RECEIVED: 4 Jan - 2024  
ABC LAB. NO.: CSE0124.013

**CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

REPRODUCTION = PASS    % EFFECT = -4.66 %

Yours very truly,

Scott Johnson  
Laboratory Director

\*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia.

**CETIS Summary Report**

Report Date: 19 Jan-24 13:14 (p 1 of 1)  
 Test Code/ID: CSE0124.013cer / 20-5936-0504

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 13-2533-6176	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-9326-4451	Code: CSE0124.013cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Calscience Environmental Laboratories, Inc	

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
12-7467-6277	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
19-8136-9003	Reproduction	TST-Welch's t Test	<1.0E-05	100% passed reproduction	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
12-7467-6277	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
19-8136-9003	Reproduction	Control Resp	30.05	15	<<	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	30.05	28.83	31.27	25	37	0.5825	2.605	8.67%	0.00%
100		20	31.45	30.05	32.85	26	38	0.6668	2.982	9.48%	-4.66%

**7d Survival Rate Detail**

MD5: E2FCA10CAEB5BD33B061F6901431A2E1

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Reproduction Detail**

MD5: EBA37197E15524CA494B09F88A25C2F8

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	29	25	30	31	31	31	31	29	29	31
		35	37	28	29	29	29	28	31	27	31
100		31	33	29	29	32	26	38	29	35	32
		36	32	32	27	30	29	35	31	32	31

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

**CETIS Analytical Report**

Report Date: 19 Jan-24 13:13 (p 1 of 2)  
 Test Code/ID: CSE0124.013cer / 20-5936-0504

**Ceriodaphnia 7-d Survival and Reproduction Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-8136-9003	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 9:11	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 16 Jan-24 9:08	MD5 Hash: EBA37197E15524CA494B09F88A25C2F8	Editor ID:
Batch ID: 13-2533-6176	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-9326-4451	Code: CSE0124.013cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	32	11.18	0.853	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	30.05	15	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	19.6	19.6	1	2.5	0.1221	Non-Significant Effect
Error	297.9	7.83947	38			
Total	317.5		39			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.4638	7.353	0.5000	Equal Variances
	Mod Levene Equality of Variance Test	0.4527	7.353	0.5051	Equal Variances
	Variance Ratio F Test	1.31	3.432	0.5617	Equal Variances
Distribution	Anderson-Darling A2 Test	0.9182	3.878	0.0196	Normal Distribution
	D'Agostino Kurtosis Test	1.092	2.576	0.2750	Normal Distribution
	D'Agostino Skewness Test	1.521	2.576	0.1282	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	3.506	9.21	0.1733	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1905	0.1617	0.0008	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9476	0.9236	0.0626	Normal Distribution

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	30.05	28.83	31.27	29.14	25	37	0.5825	8.67%	0.00%
100		20	31.45	30.05	32.85	31.62	26	38	0.6668	9.48%	-4.66%

**Reproduction Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	29	25	30	31	31	31	31	29	29	31
		35	37	28	29	29	29	28	31	27	31
100		31	33	29	29	32	26	38	29	35	32
		36	32	32	27	30	29	35	31	32	31



# CETIS Analytical Report

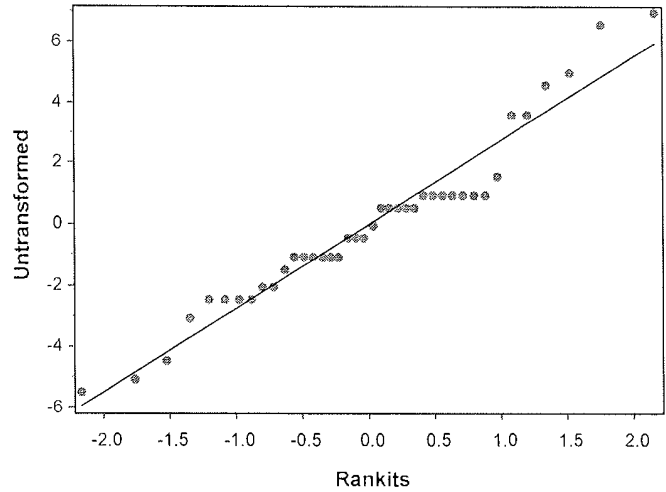
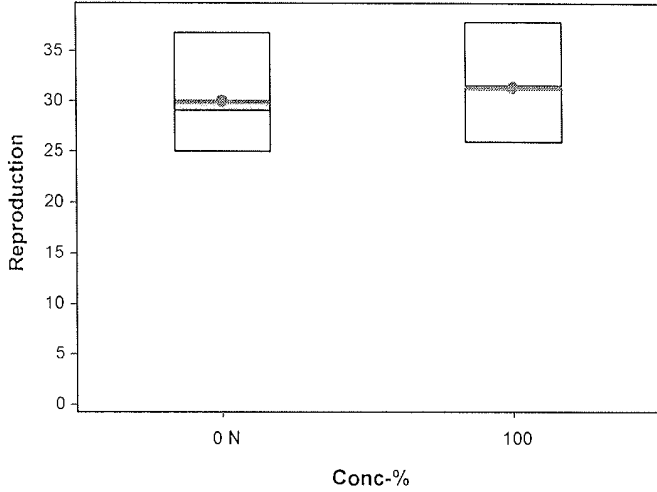
Report Date: 19 Jan-24 13:13 (p 2 of 2)  
Test Code/ID: CSE0124.013cer / 20-5936-0504

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-8136-9003	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 9:11	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 16 Jan-24 9:08	MD5 Hash: EBA37197E15524CA494B09F88A25C2F8	Editor ID:

## Graphics



CETIS Analytical Report

Report Date: 19 Jan-24 13:13 (p 1 of 2)
Test Code/ID: CSE0124.013cer / 20-5936-0504

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Table with 3 columns: Analysis ID, Endpoint, CETIS Version; Analyzed, Analysis, Status Level; Edit Date, MD5 Hash, Editor ID. Includes Batch ID, Test Type, Analyst, Start Date, Protocol, Diluent, Ending Date, Species, Brine, Test Length, Taxon, Source, Sample ID, Code, Project, Sample Date, Material, Source, Receipt Date, CAS (PC), Station, Sample Age, Client.

Table with 3 columns: Data Transform, Alt Hyp, Comparison Result. Row: Untransformed, C > T, 100% passed 7d survival rate endpoint.

Fisher Exact Test table with columns: Control vs Conc-%, Test Stat, P-Type, P-Value, Decision(alpha:5%). Row: Negative Control, 100, 1.0000, Exact, 1.0000, Non-Significant Effect.

Test Acceptability Criteria table with columns: Attribute, Test Stat, TAC Limits (Lower, Upper), Overlap, Decision. Row: Control Resp, 1, 0.8, <<, Yes, Passes Criteria.

7d Survival Rate Frequencies table with columns: Conc-%, Code, NR, R, NR + R, Prop NR, Prop R, %Effect. Rows for 0 and 100.

7d Survival Rate Summary table with columns: Conc-%, Code, Count, Mean, 95% LCL, 95% UCL, Median, Min, Max, Std Err, CV%, %Effect. Rows for 0 and 100.

7d Survival Rate Detail table with columns: Conc-%, Code, Rep 1-10. Rows for 0 and 100.

7d Survival Rate Binomials table with columns: Conc-%, Code, Rep 1-10. Rows for 0 and 100.

# CETIS Analytical Report

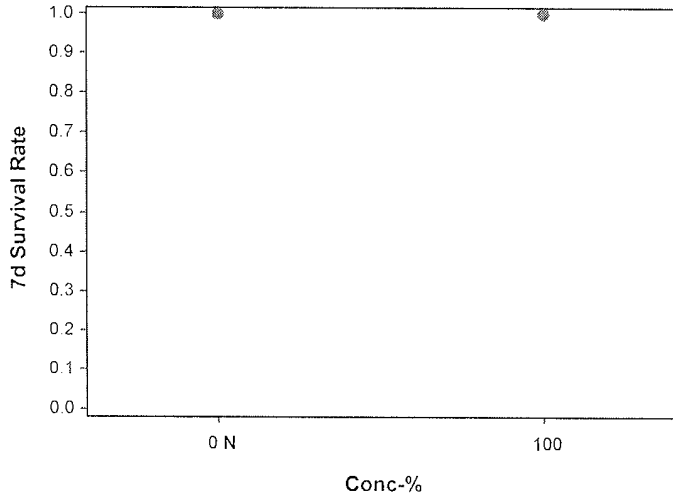
Report Date: 19 Jan-24 13:13 (p 2 of 2)  
Test Code/ID: CSE0124.013cer / 20-5936-0504

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-7467-6277	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 9:11	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 16 Jan-24 9:08	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID:

### Graphics



# CETIS Measurement Report

Report Date: 19 Jan-24 13:13 (p 1 of 1)  
 Test Code/ID: CSE0124.013cer / 20-5936-0504

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 13-2533-6176	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-24 13:50	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:32	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 00-9326-4451	Code: CSE0124.013cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 6h (3.8 °C)	Client: Calscience Environmental Laboratories, Inc	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66	62.43	69.57	62	70	0.5345	4.276	6.48%	0
100		8	60	60	60	60	60	0	0	0.00%	0
Overall		16	63	60.73	65.27	60	70	1.065	4.258	6.76%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	381.1	376.8	385.4	373	387	0.6424	5.139	1.35%	0
100		8	657.9	647.7	668.1	649	683	1.527	12.22	1.86%	0
Overall		16	519.5	443.2	595.8	373	683	35.8	143.2	27.56%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.988	7.658	8.317	7.1	8.4	0.0493	0.3944	4.94%	0
100		8	7.962	7.644	8.281	7.1	8.2	0.04769	0.3815	4.79%	0
Overall		16	7.975	7.775	8.175	7.1	8.4	0.09376	0.3751	4.70%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	83	83	83	83	83	0	0	0.00%	0
Overall		16	91.5	86.82	96.18	83	100	2.195	8.779	9.59%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.037	8.163	8	8.2	0.00945	0.0756	0.93%	0
100		8	8.075	8.001	8.149	8	8.2	0.01108	0.08865	1.10%	0
Overall		16	8.088	8.045	8.13	8	8.2	0.02016	0.08062	1.00%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



January 25, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013*. Results were as follows:

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall002\_20240104\_Comp\_F (Outfall 002)  
 DATE RECEIVED: 4 Jan - 2024  
 ABC LAB. NO.: CSE0124.013

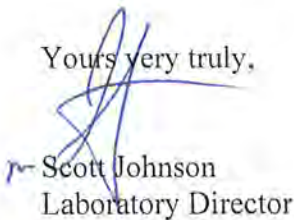
**CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

GROWTH = PASS    % EFFECT = - 17.66 %

Yours very truly,



Scott Johnson  
 Laboratory Director

**CETIS Summary Report**

Report Date: 19 Jan-24 13:16 (p 1 of 1)  
 Test Code/ID: CSE0124.013sel / 18-0091-6859

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Batch ID: 17-4100-5961	Test Type: Cell Growth	Analyst:			
Start Date: 04 Jan-24 13:01	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 08 Jan-24 12:30	Species: Selenastrum capricornutum	Brine: Not Applicable			
Test Length: 95h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d		
Sample ID: 19-4635-2468	Code: CSE0124.013sel	Project: Boeing-SSFL NPDES 2023 PERMIT			
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report			
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp			
Sample Age: 5h (3.8 °C)	Client: Eurofins Calscience				

Single Comparison Summary					
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
18-2239-2895	Cell Density	TST-Welch's t Test	<1.0E-05	100% passed cell density	1

Test Acceptability		TAC Limits					
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
18-2239-2895	Cell Density	Control CV	0.05742	<<	0.2	Yes	Passes Criteria
18-2239-2895	Cell Density	Control Resp	1.19E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.188E+6	1.130E+6	1.245E+6	1.074E+6	1.273E+6	2.411E+4	6.819E+4	5.74%	0.00%
100		8	1.397E+6	1.322E+6	1.473E+6	1.216E+6	1.495E+6	3.197E+4	9.044E+4	6.47%	-17.66%

Cell Density Detail										MD5: ODA599A2E8EA856E0C00FDDF5A95DA31	
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8		
0	N	1.240E+6	1.189E+6	1.255E+6	1.074E+6	1.138E+6	1.194E+6	1.273E+6	1.137E+6		
100		1.420E+6	1.216E+6	1.480E+6	1.465E+6	1.358E+6	1.378E+6	1.495E+6	1.366E+6		

**CETIS Analytical Report**

Report Date: 19 Jan-24 13:16 (p 1 of 2)  
 Test Code/ID: CSE0124.013sel / 18-0091-6859

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-2239-2895	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 9:17	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 16 Jan-24 9:14	MD5 Hash: ODA599A2E8EA856E0C00FDDF5A95DA3	Editor ID:
Batch ID: 17-4100-5961	Test Type: Cell Growth	Analyst:
Start Date: 04 Jan-24 13:01	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 08 Jan-24 12:30	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 95h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 19-4635-2468	Code: CSE0124.013sel	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 5h (3.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density endpoint

TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	11	13.79	0.6974	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.05742	<<	0.2	Yes	Passes Criteria
Control Resp	1.19E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.76E+11	1.76E+11	1	27.44	0.0001	Significant Effect
Error	8.98E+10	6.414E+09	14			
Total	2.658E+11		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.3821	8.862	0.5464	Equal Variances
	Mod Levene Equality of Variance Test	0.3961	8.862	0.5393	Equal Variances
	Variance Ratio F Test	1.759	8.885	0.4738	Equal Variances
Distribution	Anderson-Darling A2 Test	0.4147	3.878	0.3394	Normal Distribution
	D'Agostino Skewness Test	1.444	2.576	0.1486	Normal Distribution
	Kolmogorov-Smirnov D Test	0.132	0.2471	0.7019	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9323	0.8408	0.2651	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.188E+6	1.130E+6	1.245E+6	1.192E+6	1.074E+6	1.273E+6	2.411E+4	5.74%	0.00%
100		8	1.397E+6	1.322E+6	1.473E+6	1.399E+6	1.216E+6	1.495E+6	3.197E+4	6.47%	-17.66%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.240E+6	1.189E+6	1.255E+6	1.074E+6	1.138E+6	1.194E+6	1.273E+6	1.137E+6
100		1.420E+6	1.216E+6	1.480E+6	1.465E+6	1.358E+6	1.378E+6	1.495E+6	1.366E+6

# CETIS Analytical Report

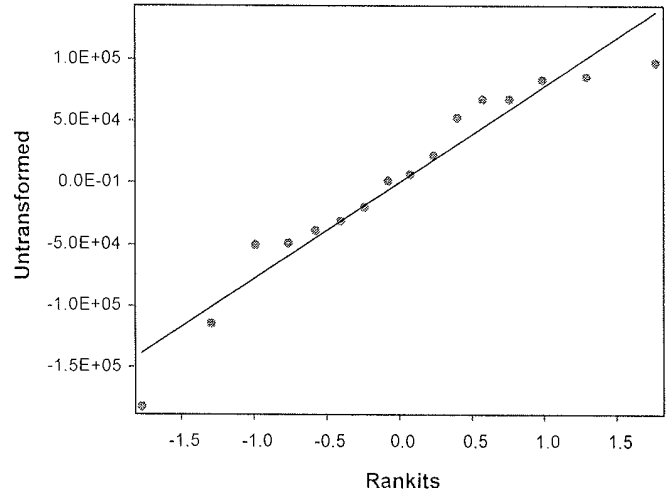
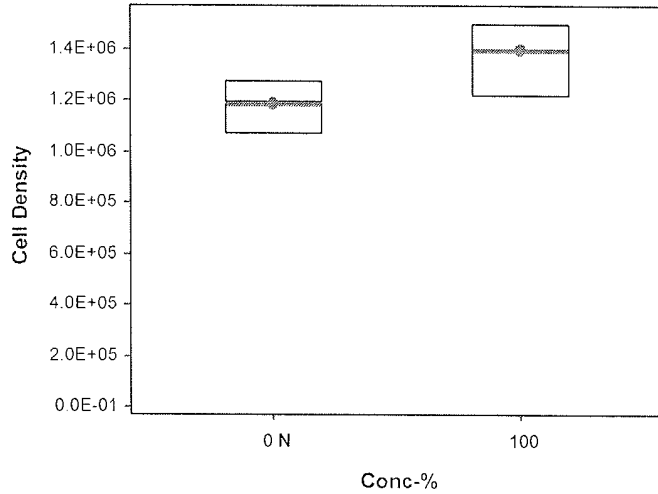
Report Date: 19 Jan-24 13:16 (p 2 of 2)  
Test Code/ID: CSE0124.013sel / 18-0091-6859

## Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-2239-2895	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 9:17	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 16 Jan-24 9:14	MD5 Hash: ODA599A2E8EA856E0C00FDDF5A95DA3	Editor ID:

### Graphics





**CETIS Measurement Report**

Report Date: 19 Jan-24 13:16 (p 1 of 1)  
 Test Code/ID: CSE0124.013sel / 18-0091-6859

**Selenastrum Growth Test**

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 17-4100-5961	Test Type: Cell Growth	Analyst:
Start Date: 04 Jan-24 13:01	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 08 Jan-24 12:30	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 95h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 19-4635-2468	Code: CSE0124.013sel	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 5h (3.8 °C)	Client: Eurofins Calscience	

**Alkalinity (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	63	---	---	63	63	---	---	---	0
100		1	135	---	---	135	135	---	---	---	0
Overall		2	99	-358.4	556.4	63	135	36	50.91	51.43%	0 (0%)

**Conductivity-µmhos**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	526.6	521.1	532.1	522	533	0.8786	4.393	0.83%	0
100		5	751.6	749	754.2	750	755	0.4147	2.074	0.28%	0
Overall		10	639.1	554.2	724	522	755	37.51	118.6	18.56%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	93	---	---	93	93	---	---	---	0
100		1	93	---	---	93	93	---	---	---	0
Overall		2	93	93	93	93	93	0	0	0.00%	0 (0%)

**pH-Units**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.9	7.812	7.988	7.8	8	0.01414	0.0707	0.89%	0
100		5	8.02	7.964	8.076	8	8.1	0.008945	0.04473	0.56%	0
Overall		10	7.96	7.9	8.02	7.8	8.1	0.02667	0.08433	1.06%	0 (0%)

**Temperature-°C**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.62	25.48	25.76	25.5	25.8	0.02193	0.1096	0.43%	0
100		5	25.58	25.42	25.74	25.5	25.8	0.02608	0.1304	0.51%	0
Overall		10	25.6	25.52	25.68	25.5	25.8	0.03651	0.1155	0.45%	0 (0%)

CHAIN OF CUSTODY FORM

Client Name/Address:		Project:		ANALYSIS REQUIRED										Comments										
Eurofins CalScience Project Manager: Virendra Patel		Boeing-SSFL NPDES		A/R A R A R A R R R R																				
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Annual Outfall [001, 002, 011, 018] Outfall 002 COMPOSITE		Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn Cr (VI), Total Dissolved (E218.6) Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium (H-3) (E906.0) Chronic Toxicity - Species Sensitivity (EPA-821-R-02-013) ABC Labs in Ventura, CA 1,4-Dioxane (E624 (SW8260M_SIM)) Total Organic Carbon (415.2 (SM 8310B)) Monomethyl hydrazine (SW8315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA LL Mercury (E1631E) - Total Dissolved Cyanide (SM4500-CNE / E335.2)										013 Filter and preserve w/in 24hrs of receipt at lab. Filter and preserve w/in 24hrs of receipt at lab. Filter and preserve w/in 24hrs of receipt at lab. X Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Run Species Sensitivity for the first rain event. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA X Temp. deg. C = 7.8 C Chlorine (mg/L) = Co. NH3 (mg/L) = 0.24										
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2016-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc. Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																						
Sampler: Adrien Mobeka																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																
Outfall 002	Outfall002_20240104_Comp_F	1/4/2024 0800	WM	1 L Poly	3	None		Yes	X											Filter and preserve w/in 24hrs of receipt at lab.				
			WM	250 mL Poly	3	None		Yes		X											Filter and preserve w/in 24hrs of receipt at lab.			
			WM	250mL Clear Glass, double bagged	1	None		No								X	Filter and preserve w/in 24hrs of receipt at lab.							
	Outfall002_20240104_Comp	1/4/2024 0800	WM	250 mL Poly	3	NaOH		Yes									X							
			WM	2.5 Gal Cube	1	None		No			X											Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.		
			WM	1 L Glass Amber	1	None		No																
			WM	1 Gal Cube	7	None		No				X											Run Species Sensitivity for the first rain event. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA	
			WM	40 mL VOA	9	HCl		Yes					X											
			WM	1 L Glass Amber	1	HCl		No																
			WM	1 L Glass Amber	1	None		No																
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																								
Relinquished By: <i>Mark Dominick</i> Date/Time: 1-4-2024/1300 Company: M:t			Received By: <i>Elizabeth Nakano</i> Date/Time: 1-4-24/1130 Company: M:t			Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____																		
Relinquished By: _____ Date/Time: _____ Company: _____			Received By: _____ Date/Time: _____ Company: _____			Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>																		
Relinquished By: _____ Date/Time: _____ Company: _____			Received By: _____ Date/Time: _____ Company: _____																					

\* Hand delivered to ABC Labs with MS copy of the CoC



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



## CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 4 January 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 19.00 ug/l  
EC25 = 48.96 ug/l  
EC50 = 69.52 ug/l

ENDPOINT: GROWTH  
NOEC = 38.00 ug/l  
IC25 = 46.88 ug/l  
IC50 = 61.64 ug/l

Yours very truly,

  
Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 24 Jan-24 14:47 (p 1 of 2)  
 Test Code/ID: FML010424 / 15-6608-9784

Fathead Minnow 7-d Larval Survival and Growth Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID: 08-8454-1952	Test Type: Growth-Survival (7d)	Analyst:					
Start Date: 04 Jan-24 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 11 Jan-24 15:00	Species: Pimephales promelas	Brine: Not Applicable					
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO		Age:			
Sample ID: 07-8783-1921	Code: FML010424	Project: REF TOX					
Sample Date: 04 Jan-24 14:05	Material: Copper chloride	Source: Reference Toxicant					
Receipt Date:	CAS (PC):	Station: REF TOX					
Sample Age: ---	Client: ABC Labs						

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	S
18-4808-2769	7d Survival Rate	Steel Many-One Rank Sum Test	✓	19	38	26.87	4.22%	1
09-3675-5288	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test		38	75	53.39	11.1%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	S
08-1717-2208	7d Survival Rate	Linear Interpolation (ICPIN)	✓	EC15	40.74	38.4	44.81	1
				EC20	44.85	42.05	49.24	
				EC25	48.96	45.71	53.62	
				EC40	61.3	56.49	69.13	
				EC50	69.52	63.01	82.16	
18-2508-7781	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)		IC15	40.98	24.67	48.36	1
			✓	IC20	43.93	31.25	50.8	
			✓	IC25	46.88	36.45	53.15	
			✓	IC40	55.74	48.5	60.24	
			✓	IC50	61.64	56.28	65.66	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
08-1717-2208	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
18-4808-2769	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-3675-5288	Mean Dry Biomass-mg	Control Resp	0.3502	0.25	<<	Yes	Passes Criteria	
18-2508-7781	Mean Dry Biomass-mg	Control Resp	0.3502	0.25	<<	Yes	Passes Criteria	
09-3675-5288	Mean Dry Biomass-mg	PMSD	0.111	0.12	0.3	Yes	Below Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	0.8833	0.8303	0.9364	0.8667	0.9333	0.0167	0.0333	3.77%	11.67%
75		4	0.4333	0.2964	0.5703	0.3333	0.5333	0.0430	0.0861	19.86%	56.67%
150		4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3502	0.3334	0.367	0.342	0.3647	0.00528	0.01056	3.02%	0.00%
10		4	0.3437	0.3351	0.3523	0.3387	0.3513	0.002701	0.005402	1.57%	1.86%
19		4	0.3382	0.3358	0.3405	0.3367	0.34	0.000739	0.001478	0.44%	3.43%
38		4	0.3153	0.2383	0.3924	0.27	0.368	0.02421	0.04842	15.36%	9.95%
75		4	0.09583	0.07161	0.1201	0.07867	0.112	0.007613	0.01523	15.89%	72.63%
150		4	0	0	0	0	0	0	0	---	100.00%

**CETIS Summary Report**

Report Date: 24 Jan-24 14:47 (p 2 of 2)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: B46056C03E68E58FB55787F4F2190494

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		0.9333	0.8667	0.8667	0.8667
75		0.4667	0.5333	0.4000	0.3333
150		0.0000	0.0000	0.0000	0.0000

**Mean Dry Biomass-mg Detail**

MD5: D6132984F1526BAF8B7D34FAAD210E7A

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3427	0.342	0.3647	0.3513
10		0.3513	0.3387	0.342	0.3427
19		0.3373	0.34	0.3387	0.3367
38		0.368	0.27	0.2787	0.3447
75		0.088	0.1047	0.112	0.07867
150		0	0	0	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		14/15	13/15	13/15	13/15
75		7/15	8/15	6/15	5/15
150		0/15	0/15	0/15	0/15



# CETIS Analytical Report

Report Date: 24 Jan-24 14:46 (p 1 of 3)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-4808-2769	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 14:45	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 24 Jan-24 14:43	MD5 Hash: B46056C03E68E58FB55787F4F2190494	Editor ID: 009-702-627-3
Batch ID: 08-8454-1952	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 15:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 07-8783-1921	Code: FML010424	Project: REF TOX
Sample Date: 04 Jan-24 14:05	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	19	38	26.87	---	0.04222	4.22%

### Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8000	Non-Significant Effect
		19	6	18	10	1	CDF	0.8000	Non-Significant Effect
		38*	6	10	10	0	CDF	0.0350	Significant Effect
		75*	6	10	10	0	CDF	0.0350	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.57472	0.393679	4	182	<1.0E-05	Significant Effect
Error	0.0324433	0.0021629	15			
Total	1.60716		19			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	8.453	4.893	0.0009	Unequal Variances
	Mod Levene Equality of Variance Test	3.749	4.893	0.0263	Equal Variances
Distribution	Anderson-Darling A2 Test	2.417	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.227	2.576	0.0259	Normal Distribution
	D'Agostino Skewness Test	0.8497	2.576	0.3955	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.683	9.21	0.0583	Normal Distribution
	Kolmogorov-Smirnov D Test	0.35	0.2235	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7951	0.866	0.0007	Non-Normal Distribution

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	0.8833	0.8303	0.9364	0.8667	0.8667	0.9333	0.0167	3.77%	11.67%
75		4	0.4333	0.2964	0.5703	0.4333	0.3333	0.5333	0.0430	19.86%	56.67%
150		4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

# CETIS Analytical Report

Report Date: 24 Jan-24 14:46 (p 2 of 3)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-4808-2769      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 24 Jan-24 14:45      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 24 Jan-24 14:43      MD5 Hash: B46056C03E68E58FB55787F4F2190494      Editor ID: 009-702-627-3

### Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.2250	1.1360	1.3150	1.1970	1.1970	1.3100	0.0282	4.60%	15.00%
75		4	0.7177	0.5786	0.8569	0.7184	0.6155	0.8188	0.0437	12.18%	50.20%
150		4	0.1295	0.1294	0.1295	0.1295	0.1295	0.1295	0.0000	0.00%	91.02%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		0.9333	0.8667	0.8667	0.8667
75		0.4667	0.5333	0.4000	0.3333
150		0.0000	0.0000	0.0000	0.0000

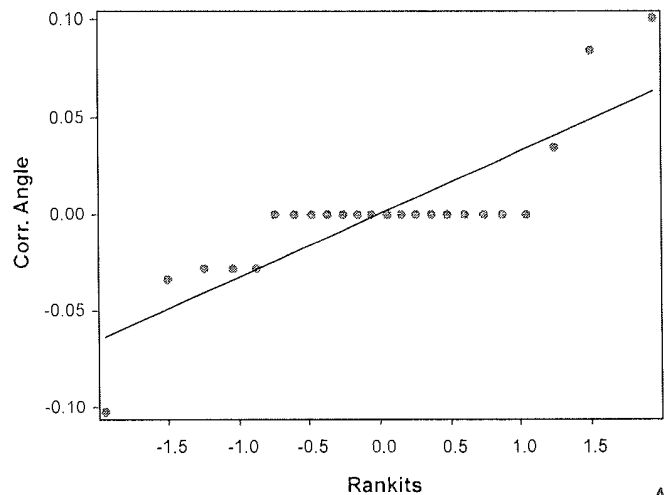
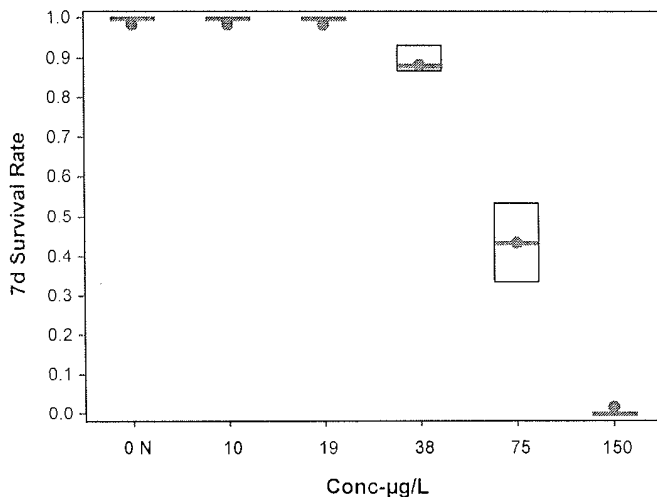
### Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.3100	1.1970	1.1970	1.1970
75		0.7520	0.8188	0.6847	0.6155
150		0.1295	0.1295	0.1295	0.1295

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		14/15	13/15	13/15	13/15
75		7/15	8/15	6/15	5/15
150		0/15	0/15	0/15	0/15

### Graphics



# CETIS Analytical Report

Report Date: 24 Jan-24 14:46 (p 3 of 3)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-3675-5288	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 14:45	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 24 Jan-24 14:43	MD5 Hash: D6132984F1526BAF8B7D34FAAD210E7A	Editor ID: 009-702-627-3
Batch ID: 08-8454-1952	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 15:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 07-8783-1921	Code: FML010424	Project: REF TOX
Sample Date: 04 Jan-24 14:05	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.03885	11.10%

### Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	14.5	10	3	CDF	0.3688	Non-Significant Effect
		19*	6	10	10	0	CDF	0.0350	Significant Effect
		38	6	16	10	0	CDF	0.5661	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0350	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3502	0.25	<<	Yes	Passes Criteria
PMSD	0.111	0.12	0.3	Yes	Below Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.188613	0.0471533	4	86.7	<1.0E-05	Significant Effect
Error	0.0081579	0.0005439	15			
Total	0.196771		19			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	24.93	13.28	5.2E-05	Unequal Variances
	Levene Equality of Variance Test	31.09	4.893	<1.0E-05	Unequal Variances
	Mod Levene Equality of Variance Test	25.44	4.893	<1.0E-05	Unequal Variances
Distribution	Anderson-Darling A2 Test	0.9135	3.878	0.0201	Normal Distribution
	D'Agostino Kurtosis Test	1.833	2.576	0.0668	Normal Distribution
	D'Agostino Skewness Test	0.4167	2.576	0.6769	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	3.532	9.21	0.1710	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1967	0.2235	0.0411	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9212	0.866	0.1043	Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3502	0.3334	0.367	0.347	0.342	0.3647	0.00528	3.02%	0.00%
10		4	0.3437	0.3351	0.3523	0.3423	0.3387	0.3513	0.002701	1.57%	1.86%
19		4	0.3382	0.3358	0.3405	0.338	0.3367	0.34	0.000739	0.44%	3.43%
38		4	0.3153	0.2383	0.3924	0.3117	0.27	0.368	0.02421	15.36%	9.95%
75		4	0.09583	0.07161	0.1201	0.09633	0.07867	0.112	0.007613	15.89%	72.63%
150		4	0	0	0	0	0	0	0	---	100.00%



Fathead Minnow 7-d Larval Survival and Growth Test

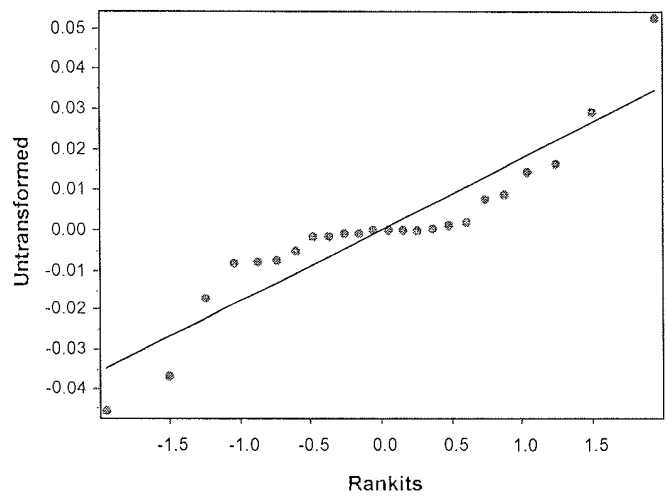
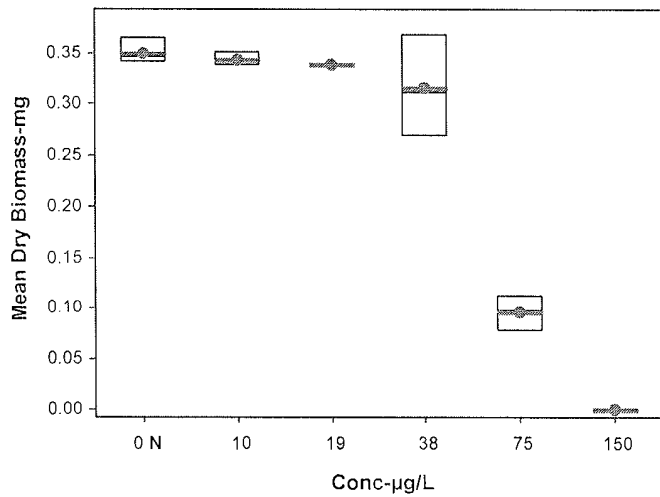
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-3675-5288      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 24 Jan-24 14:45      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 24 Jan-24 14:43      MD5 Hash: D6132984F1526BAF8B7D34FAAD210E7A      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3427	0.342	0.3647	0.3513
10		0.3513	0.3387	0.342	0.3427
19		0.3373	0.34	0.3387	0.3367
38		0.368	0.27	0.2787	0.3447
75		0.088	0.1047	0.112	0.07867
150		0	0	0	0

Graphics



**CETIS Analytical Report**

Report Date: 24 Jan-24 14:47 (p 1 of 4)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-1717-2208	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 14:46	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 24 Jan-24 14:43	MD5 Hash: B46056C03E68E58FB55787F4F2190494	Editor ID: 009-702-627-3
Batch ID: 08-8454-1952	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 15:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 07-8783-1921	Code: FML010424	Project: REF TOX
Sample Date: 04 Jan-24 14:05	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	40.74	38.4	44.81
EC20	44.85	42.05	49.24
EC25	48.96	45.71	53.62
EC40	61.3	56.49	69.13
EC50	69.52	63.01	82.16

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)						Isotonic Variate		
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	0.8833	0.8667	0.8667	0.9333	3.77%	11.67%	53/60	0.8833	11.67%
75		4	0.4333	0.4333	0.3333	0.5333	19.86%	56.67%	26/60	0.4333	56.67%
150		4	0.0000	0.0000	0.0000	0.0000	---	100.00%	0/60	0.0000	100.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		0.9333	0.8667	0.8667	0.8667
75		0.4667	0.5333	0.4000	0.3333
150		0.0000	0.0000	0.0000	0.0000

**7d Survival Rate Binomials**

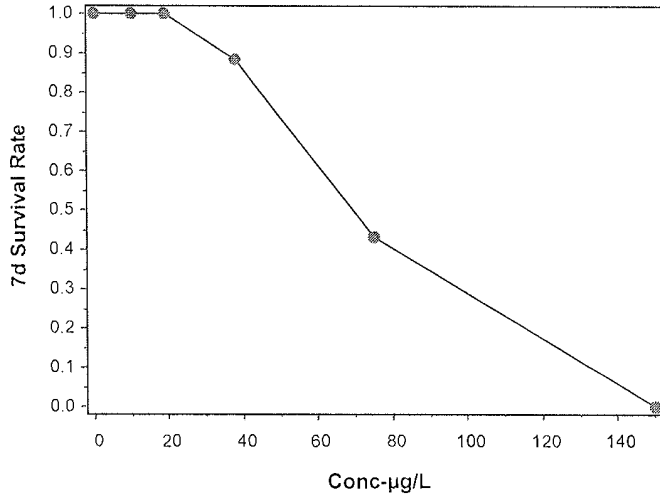
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		14/15	13/15	13/15	13/15
75		7/15	8/15	6/15	5/15
150		0/15	0/15	0/15	0/15

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-1717-2208	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 14:46	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 24 Jan-24 14:43	MD5 Hash: B46056C03E68E58FB55787F4F2190494	Editor ID: 009-702-627-3

Graphics



# CETIS Analytical Report

Report Date: 24 Jan-24 14:47 (p 3 of 4)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-2508-7781	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 14:46	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 24 Jan-24 14:43	MD5 Hash: D6132984F1526BAF8B7D34FAAD210E7A	Editor ID: 009-702-627-3
Batch ID: 08-8454-1952	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 15:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 07-8783-1921	Code: FML010424	Project: REF TOX
Sample Date: 04 Jan-24 14:05	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1917616	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3502	0.25	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	40.98	24.67	48.36
IC20	43.93	31.25	50.8
IC25	46.88	36.45	53.15
IC40	55.74	48.5	60.24
IC50	61.64	56.28	65.66

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3502	0.347	0.342	0.3647	3.02%	0.00%	0.3502	0.00%
10		4	0.3437	0.3423	0.3387	0.3513	1.57%	1.86%	0.3437	1.86%
19		4	0.3382	0.338	0.3367	0.34	0.44%	3.43%	0.3382	3.43%
38		4	0.3153	0.3117	0.27	0.368	15.36%	9.95%	0.3153	9.97%
75		4	0.09583	0.09633	0.07867	0.112	15.89%	72.63%	0.09583	72.64%
150		4	0	0	0	0	---	100.00%	0	100.00%

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3427	0.342	0.3647	0.3513
10		0.3513	0.3387	0.342	0.3427
19		0.3373	0.34	0.3387	0.3367
38		0.368	0.27	0.2787	0.3447
75		0.088	0.1047	0.112	0.07867
150		0	0	0	0

# CETIS Analytical Report

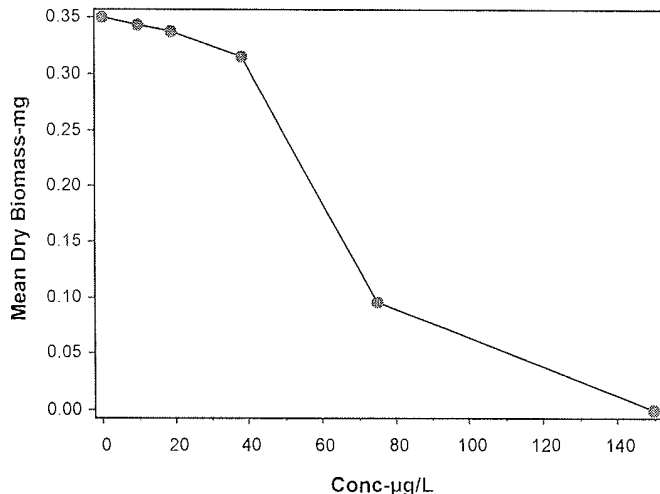
Report Date: 24 Jan-24 14:47 (p 4 of 4)  
Test Code/ID: FML010424 / 15-6608-9784

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-2508-7781	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 24 Jan-24 14:46	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 24 Jan-24 14:43	MD5 Hash: D6132984F1526BAF8B7D34FAAD210E7A	Editor ID: 009-702-627-3

## Graphics



# CETIS Measurement Report

Report Date: 24 Jan-24 14:47 (p 1 of 2)  
 Test Code/ID: FML010424 / 15-6608-9784

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 08-8454-1952	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 15:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 07-8783-1921	Code: FML010424	Project: REF TOX
Sample Date: 04 Jan-24 14:05	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66	62.43	69.57	62	70	0.5345	4.276	6.48%	0
150		5	65	65	65	65	65	0	0	0.00%	0
Overall		13	65.62	63.62	67.61	62	70	0.9166	3.305	5.04%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	381.5	376.9	386.1	373	388	0.6944	5.555	1.46%	0
10		8	364.5	359.3	369.7	358	375	0.7821	6.256	1.72%	0
19		8	368.2	365.8	370.7	364	373	0.3644	2.915	0.79%	0
38		8	370	365	375	364	380	0.747	5.976	1.62%	0
75		8	371.9	364	379.7	362	389	1.172	9.372	2.52%	0
150		5	374.4	368.4	380.4	370	380	0.9654	4.827	1.29%	0
Overall		45	371.6	369.2	374	358	389	1.199	8.041	2.16%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.988	7.658	8.317	7.1	8.4	0.0493	0.3944	4.94%	0
10		8	7.913	7.625	8.2	7.1	8.2	0.04301	0.3441	4.35%	0
19		8	7.9	7.617	8.183	7.1	8.2	0.04226	0.3381	4.28%	0
38		8	7.913	7.628	8.197	7.1	8.2	0.04249	0.3399	4.30%	0
75		8	7.925	7.64	8.21	7.1	8.2	0.04265	0.3412	4.31%	0
150		4	8.05	7.891	8.209	8	8.2	0.025	0.1	1.24%	0
Overall		44	7.939	7.841	8.037	7.1	8.4	0.04858	0.3222	4.06%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		5	100	100	100	100	100	0	0	0.00%	0
Overall		13	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.037	8.163	8	8.2	0.00945	0.0756	0.93%	0
10		8	8.088	8.034	8.141	8	8.2	0.008012	0.0641	0.79%	0
19		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
38		8	8.088	8.034	8.141	8	8.2	0.008012	0.0641	0.79%	0
75		8	8.075	8.036	8.114	8	8.1	0.005789	0.04631	0.57%	0
150		4	8.075	7.995	8.155	8	8.1	0.01251	0.05002	0.62%	0
Overall		44	8.084	8.066	8.103	8	8.2	0.009163	0.06078	0.75%	0 (0%)

# CETIS Measurement Report

Report Date: 24 Jan-24 14:47 (p 2 of 2)

Test Code/ID: FML010424 / 15-6608-9784

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		4	24	24	24	24	24	0	0	0.00%	0
Overall		44	24	24	24	24	24	0	0	0.00%	0 (0%)





**CHRONIC CERIODAPHNIA SURVIVAL AND REPRODUCTION BIOASSAY**

DATE: 5 January - 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 10.00 ug/l

EC25 = 17.14 ug/l

EC50 = 24.29 ug/l

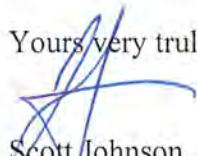
ENDPOINT: REPRODUCTION

NOEC = 10.00 ug/l

IC25 = 15.36 ug/l

IC50 = 20.73 ug/l

Yours very truly,

  
Mr. Scott Johnson  
Laboratory Director



**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:					
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable					
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO	Age: >24				
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX					
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant					
Receipt Date:	CAS (PC):	Station: REF TOX					
Sample Age: ---	Client: ABC Labs						

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	S
14-5328-3144	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	✓	10	30	17.32	---	1
11-1237-1648	Reproduction	Dunnett Multiple Comparison Test	✓	10	30	17.32	13.6%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	S
07-0692-8548	7d Survival Rate	Linear Interpolation (ICPIN)	✓	EC15	14.29	13.33	17.5	1
				EC20	15.71	14.44	20	
				EC25	17.14	15.56	22.5	
				EC40	21.43	18.89	30	
				EC50	24.29	21.11	33.33	
07-9708-4589	Reproduction	Linear Interpolation (ICPIN)	✓	IC15	13.22	12.3	13.48	1
				IC20	14.29	13.4	14.65	
				IC25	15.36	14.51	15.81	
				IC40	18.58	17.81	19.29	
				IC50	20.73	19.98	21.62	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
07-0692-8548	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-5328-3144	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
07-9708-4589	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria	
11-1237-1648	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria	
11-1237-1648	Reproduction	PMSD	0.1365	0.13	0.47	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
30		10	0.3000	-0.0456	0.6456	0.0000	1.0000	0.1528	0.4830	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	24.8	23.42	26.18	22	28	0.611	1.932	7.79%	0.00%
3		10	27	24.62	29.38	23	32	1.054	3.333	12.35%	-8.87%
5		10	26.6	23.82	29.38	21	32	1.231	3.893	14.64%	-7.26%
10		10	27.6	24.56	30.64	23	34	1.343	4.248	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	8	0.9978	3.155	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: AE52350A46AC30A172F710E040BB92B1

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**Reproduction Detail**

MD5: D30251365D8B1138125925092AE28FAC

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	10	30	17.32	---	3.385	13.65%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		3	18	-1.444	2.222	3.385	CDF	0.9939	Non-Significant Effect
		5	18	-1.182	2.222	3.385	CDF	0.9865	Non-Significant Effect
		10	18	-1.838	2.222	3.385	CDF	0.9984	Non-Significant Effect
		30*	18	15.1	2.222	3.385	CDF	<1.0E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	24.8	15	<<	Yes	Passes Criteria
PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4924.32	1231.08	4	106.1	<1.0E-05	Significant Effect
Error	522	11.6	45			
Total	5446.32		49			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	5.346	13.28	0.2536	Equal Variances
	Levene Equality of Variance Test	2.283	3.767	0.0750	Equal Variances
	Mod Levene Equality of Variance Test	1.757	3.767	0.1542	Equal Variances
Distribution	Anderson-Darling A2 Test	0.792	3.878	0.0398	Normal Distribution
	D'Agostino Kurtosis Test	2.111	2.576	0.0347	Normal Distribution
	D'Agostino Skewness Test	0.9295	2.576	0.3526	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.322	9.21	0.0699	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1494	0.1453	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9541	0.9367	0.0502	Normal Distribution

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	24.8	23.42	26.18	24.33	22	28	0.611	7.79%	0.00%
3		10	27	24.62	29.38	27.5	23	32	1.054	12.35%	-8.87%
5		10	26.6	23.82	29.38	27	21	32	1.231	14.64%	-7.26%
10		10	27.6	24.56	30.64	27	23	34	1.343	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	0	8	0.9978	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

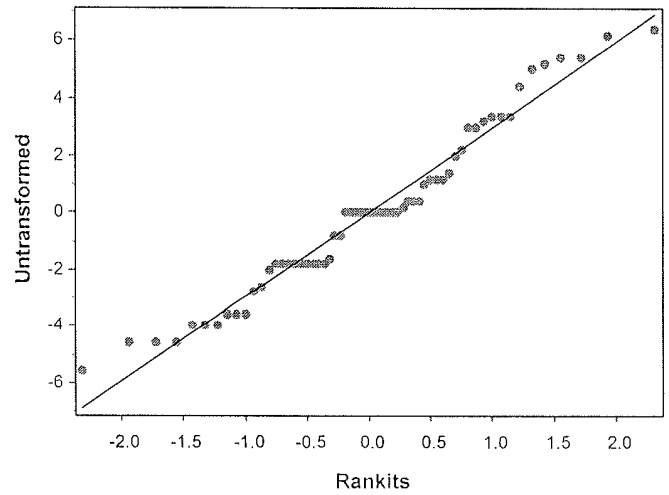
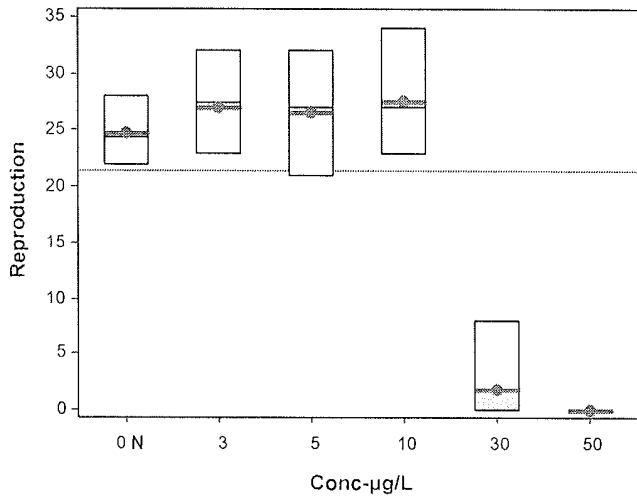
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: D30251365D8B1138125925092AE28FAC      Editor ID: 006-853-889-6

**Reproduction Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

**Graphics**



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	14.29	13.33	17.5
EC20	15.71	14.44	20
EC25	17.14	15.56	22.5
EC40	21.43	18.89	30
EC50	24.29	21.11	33.33

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
30		10	0.3000	0.0000	0.0000	1.0000	161.02%	70.00%	3/10	0.3000	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	---	100.00%	0/10	0.0000	100.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

# CETIS Analytical Report

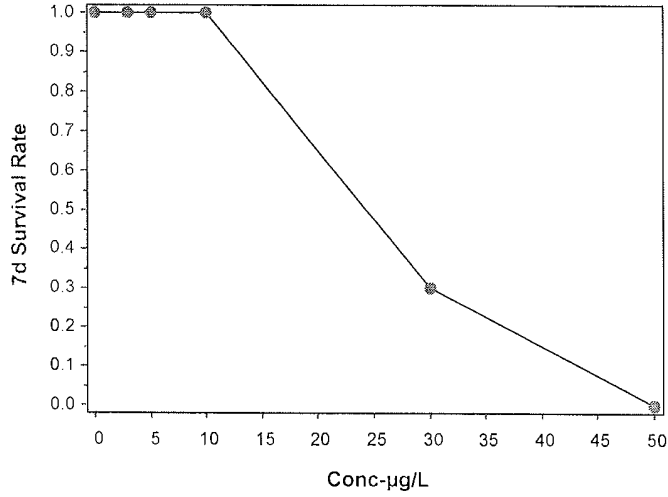
Report Date: 26 Jan-24 13:02 (p 2 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6

### Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 3 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO <span style="float: right;">Age: &gt;24</span>

Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	992278	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.8	15	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	13.22	12.3	13.48
IC20	14.29	13.4	14.65
IC25	15.36	14.51	15.81
IC40	18.58	17.81	19.29
IC50	20.73	19.98	21.62

**Reproduction Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	10	24.8	24.33	22	28	7.79%	0.00%	26.5	0.00%
3		10	27	27.5	23	32	12.35%	-8.87%	26.5	0.00%
5		10	26.6	27	21	32	14.64%	-7.26%	26.5	0.00%
10		10	27.6	27	23	34	15.39%	-11.29%	26.5	0.00%
30		10	1.8	0	0	8	175.29%	92.74%	1.8	93.21%
50		10	0	0	0	0	---	100.00%	0	100.00%

**Reproduction Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

# CETIS Analytical Report

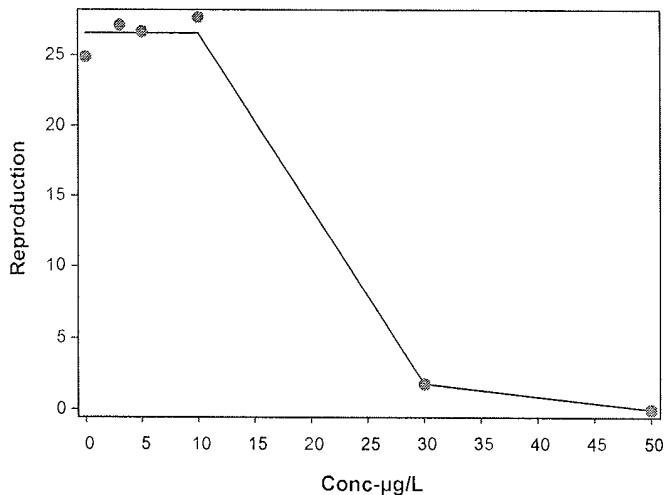
Report Date: 26 Jan-24 13:02 (p 4 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

### Graphics





**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: STP 2xK Contingency Tables	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units
Untransformed	C > T	10	30	17.32	---

**Fisher Exact/Bonferroni-Holm Test**

Control	vs	Conc-µg/L	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		3	1.0000	Exact	1.0000	Non-Significant Effect
		5	1.0000	Exact	1.0000	Non-Significant Effect
		10	1.0000	Exact	1.0000	Non-Significant Effect
		30*	0.0015	Exact	0.0062	Significant Effect
		50*	0.0000	Exact	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**7d Survival Rate Frequencies**

Conc-µg/L	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	10	0	10	1.0000	0.0000	0.00%
3		10	0	10	1.0000	0.0000	0.00%
5		10	0	10	1.0000	0.0000	0.00%
10		10	0	10	1.0000	0.0000	0.00%
30		3	7	10	0.3000	0.7000	70.00%
50		0	10	10	0.0000	1.0000	100.00%

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
30		10	0.3000	0.0000	0.6456	0.0000	0.0000	1.0000	0.1528	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

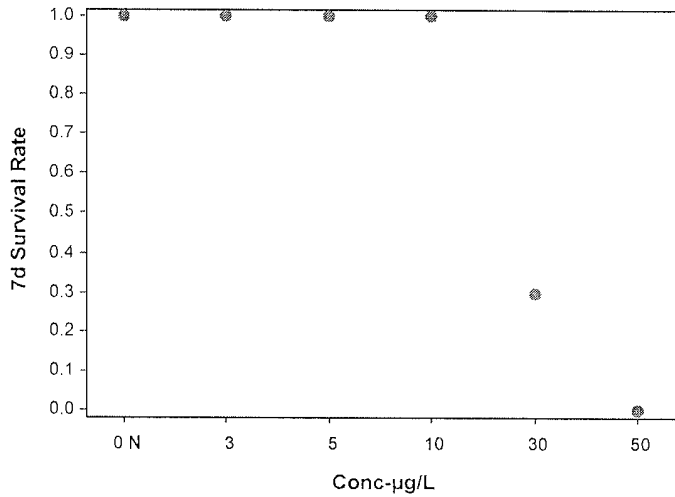
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: AE52350A46AC30A172F710E040BB92B1      Editor ID: 006-853-889-6

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**Graphics**



# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	67	63.54	70.46	62	70	0.5175	4.14	6.18%	0
50		6	60	60	60	60	60	0	0	0.00%	0
Overall		14	64	61.28	66.72	60	70	1.258	4.707	7.35%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	376.8	384.2	373	387	0.551	4.408	1.16%	0
3		8	371	369.2	372.8	369	375	0.2673	2.138	0.58%	0
5		8	368.4	361.9	374.9	352	376	0.9727	7.782	2.11%	0
10		8	372.1	367.8	376.5	364	379	0.6493	5.194	1.40%	0
30		8	373.9	367	380.8	356	380	1.032	8.254	2.21%	0
50		6	377.8	372.5	383.2	370	383	0.8526	5.115	1.35%	0
Overall		46	373.8	371.7	375.8	352	387	1.023	6.938	1.86%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.025	7.817	8.233	7.6	8.4	0.03116	0.2493	3.11%	0
3		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
5		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
10		8	7.938	7.738	8.137	7.4	8.2	0.02983	0.2387	3.01%	0
30		8	7.95	7.745	8.155	7.4	8.2	0.03062	0.2449	3.08%	0
50		5	8.02	7.916	8.124	7.9	8.1	0.01673	0.08367	1.04%	0
Overall		45	7.969	7.904	8.034	7.4	8.4	0.03223	0.2162	2.71%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
50		6	93	93	93	93	93	0	0	0.00%	0
Overall		14	97	94.92	99.08	93	100	0.9608	3.595	3.71%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
3		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
5		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
10		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
30		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
50		5	8.06	7.992	8.128	8	8.1	0.01096	0.05479	0.68%	0
Overall		45	8.073	8.054	8.093	8	8.2	0.009744	0.06537	0.81%	0 (0%)

# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)

Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test

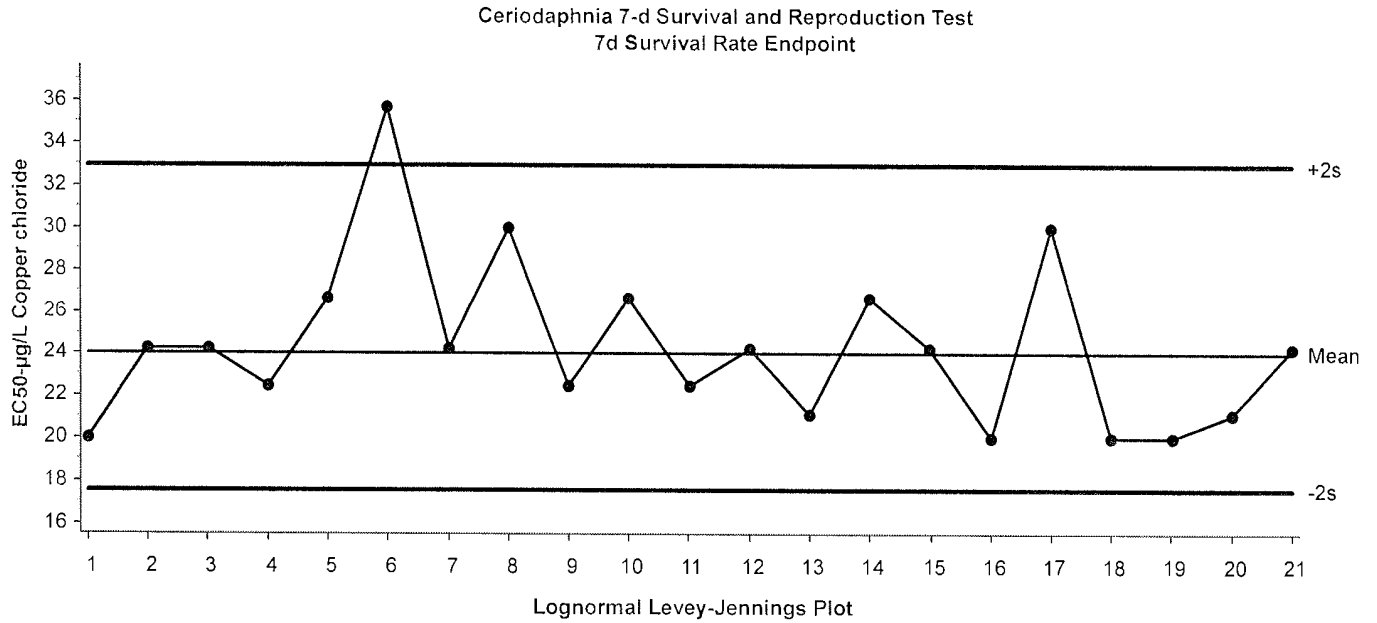
Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
3		8	24	24	24	24	24	0	0	0.00%	0
5		8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
30		8	24	24	24	24	24	0	0	0.00%	0
50		5	24	24	24	24	24	0	0	0.00%	0
Overall		45	24	24	24	24	24	0	0	0.00%	0 (0%)



Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc.  
 Test Type: Reproduction-Survival (7d) Organism: Ceriodaphnia dubia Material: Copper chloride  
 Protocol: EPA/821/R-02-013 (2002) Endpoint: 7d Survival Rate Source: Reference Toxicant-REF



Mean: 24.05      Count: 20      -2s Action Limit: 17.6  
 Sigma: NA      CV: 15.80%      +2s Action Limit: 32.9

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	20	-4.047	-1.171			15-9267-6325	13-8039-3389
2		Apr	5	13:40	24.29	0.239	0.06286			00-4985-0500	19-4921-0131
3		May	2	14:30	24.29	0.239	0.06286			11-3222-0627	00-2601-8684
4		Jun	6	14:00	22.5	-1.547	-0.4227			08-5473-2211	11-7704-8711
5			7	14:12	26.67	2.62	0.6574			02-3608-9426	17-9182-9169
6			15	15:40	35.71	11.67	2.515		(+)	10-4793-1547	20-4446-4479
7			27	14:40	24.29	0.239	0.06286			16-7344-0663	11-8484-0936
8			29	12:02	30	5.953	1.406			07-2471-0095	15-4161-4480
9		Jul	11	13:52	22.5	-1.547	-0.4227			12-8943-1800	03-0634-2447
10		Aug	8	14:23	26.67	2.62	0.6574			01-9164-3770	13-2486-3042
11			29	14:28	22.5	-1.547	-0.4227			06-3274-6762	20-0784-0120
12		Sep	5	13:20	24.29	0.239	0.06286			14-4921-5003	00-1422-5185
13		Oct	5	13:45	21.11	-2.936	-0.8277			20-2874-3873	04-2467-5752
14			24	13:59	26.67	2.62	0.6574			09-6061-9503	10-9205-4597
15		Nov	7	14:59	24.29	0.239	0.06286			16-2379-1831	01-6526-0546
16			9	16:30	20	-4.047	-1.171			11-1637-2324	18-2560-8953
17			17	12:00	30	5.953	1.406			06-0962-9936	07-2500-6920
18		Dec	5	15:04	20	-4.047	-1.171			06-9736-2705	01-6044-5215
19			13	14:03	20	-4.047	-1.171			01-9164-8741	10-2776-8004
20			22	14:00	21.11	-2.936	-0.8277			12-5671-2450	03-9575-0504
21	2024	Jan	5	12:00	24.29	0.239	0.06286			03-8898-9993	07-0692-8548

Ceriodaphnia 7-d Survival and Reproduction Test

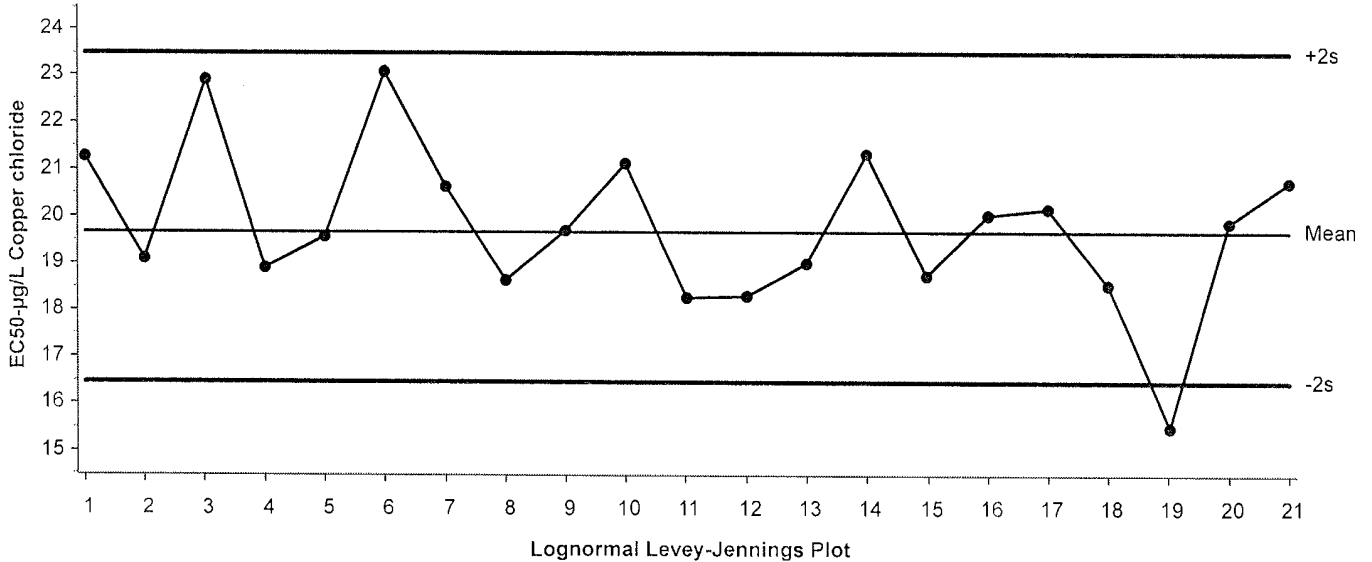
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
Endpoint: Reproduction

Material: Copper chloride  
Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
Reproduction Endpoint



Mean: 19.67      Count: 20      -2s Action Limit: 16.5  
Sigma: NA      CV: 8.90%      +2s Action Limit: 23.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	21.26	1.593	0.8771			15-9267-6325	08-1059-6139
2		Apr	5	13:40	19.09	-0.5735	-0.3333			00-4985-0500	20-3935-2169
3		May	2	14:30	22.9	3.235	1.715			11-3222-0627	01-3728-6873
4		Jun	6	14:00	18.9	-0.7652	-0.447			08-5473-2211	04-5604-9640
5			7	14:12	19.58	-0.0887	-0.05091			02-3608-9426	14-9315-1462
6			15	15:40	23.07	3.399	1.795			10-4793-1547	11-8238-5156
7			27	14:40	20.64	0.9694	0.5419			16-7344-0663	17-6169-0419
8			29	12:02	18.63	-1.042	-0.613			07-2471-0095	11-6621-4104
9		Jul	11	13:52	19.71	0.03976	0.02275			12-8943-1800	06-3315-7505
10		Aug	8	14:23	21.14	1.473	0.8136			01-9164-3770	20-6159-4836
11			29	14:28	18.27	-1.395	-0.8289			06-3274-6762	03-6041-2149
12		Sep	5	13:20	18.28	-1.387	-0.824			14-4921-5003	12-3765-4725
13		Oct	5	13:45	18.99	-0.6762	-0.3941			20-2874-3873	13-5584-5541
14			24	13:59	21.35	1.677	0.9219			09-6061-9503	18-0766-3120
15		Nov	7	14:59	18.72	-0.9434	-0.5537			16-2379-1831	19-1623-7086
16			9	16:30	20.03	0.3645	0.2069			11-1637-2324	10-9594-7716
17			17	12:00	20.15	0.4851	0.2745			06-0962-9936	06-2076-7044
18		Dec	5	15:04	18.53	-1.137	-0.6705			06-9736-2705	06-2601-7564
19			13	14:03	15.51	-4.159	-2.676		(-)	01-9164-8741	04-3685-1503
20			22	14:00	19.87	0.2047	0.1166			12-5671-2450	18-1358-8860
21	2024	Jan	5	12:00	20.73	1.061	0.5916			03-8898-9993	07-9708-4589



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

- 1
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### CHRONIC SELENASTRUM GROWTH BIOASSAY

DATE: 11 January 2024

STANDARD TOXICANT: Cadmium Chloride

NOEC = <20.00 ug/l

IC25 = 90.79 ug/l

IC50 = 125.20 ug/l

Yours very truly,

Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 22 Jan-24 15:36 (p 1 of 1)  
 Test Code/ID: SEL011124 / 12-9043-2177

**Selenastrum Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-1237-1252	Test Type: Cell Growth	Analyst:
Start Date: 11 Jan-24 13:06	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Jan-24 14:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 1h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 12-7948-5205	Code: SEL011124	Project: REF TOX
Sample Date: 11 Jan-24 13:06	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
02-3562-3397	Cell Density	Dunnett Multiple Comparison Test	<20	20	---	6.94%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
17-7744-5581	Cell Density	Linear Interpolation (ICPIN)	IC15	47.54	20.6	104	1
			IC20	83.92	43.52	92.09	
			IC25	90.79	80.94	98.65	
			IC40	111.4	104.1	117.5	
			IC50	125.2	118.7	131.3	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
02-3562-3397	Cell Density	Control CV	0.04236	<<	0.2	Yes	Passes Criteria
17-7744-5581	Cell Density	Control CV	0.04236	<<	0.2	Yes	Passes Criteria
02-3562-3397	Cell Density	Control Resp	1.31E+6	1.00E+6	<<	Yes	Passes Criteria
17-7744-5581	Cell Density	Control Resp	1.31E+6	1.00E+6	<<	Yes	Passes Criteria

**Cell Density Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.312E+6	1.224E+6	1.400E+6	1.254E+6	1.374E+6	2.778E+4	5.557E+4	4.24%	0.00%
20		4	1.216E+6	1.165E+6	1.266E+6	1.187E+6	1.255E+6	1.584E+4	3.168E+4	2.61%	7.36%
40		4	1.122E+6	9.962E+5	1.247E+6	1.063E+6	1.238E+6	3.944E+4	7.889E+4	7.03%	14.50%
80		4	1.087E+6	9.899E+5	1.184E+6	1.027E+6	1.159E+6	3.051E+4	6.101E+4	5.61%	17.15%
140		4	5.142E+5	4.441E+5	5.844E+5	4.750E+5	5.710E+5	2.206E+4	4.412E+4	8.58%	60.80%
180		4	3.262E+5	2.719E+5	3.806E+5	2.860E+5	3.580E+5	1.709E+4	3.418E+4	10.48%	75.13%

**Cell Density Detail**

MD5: FBA02BDAE73E7442BB25885098DF7AE3

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.254E+6	1.278E+6	1.374E+6	1.342E+6
20		1.255E+6	1.187E+6	1.227E+6	1.193E+6
40		1.063E+6	1.238E+6	1.098E+6	1.088E+6
80		1.027E+6	1.047E+6	1.115E+6	1.159E+6
140		5.270E+5	4.840E+5	4.750E+5	5.710E+5
180		3.580E+5	3.100E+5	2.860E+5	3.510E+5



# CETIS Analytical Report

Report Date: 22 Jan-24 15:36 (p 1 of 2)  
 Test Code/ID: SEL011124 / 12-9043-2177

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-3562-3397 **Endpoint:** Cell Density **CETIS Version:** CETISv2.1.4  
 Analyzed: 22 Jan-24 11:59 **Analysis:** Parametric-Control vs Treatments **Status Level:** 1  
 Edit Date: 22 Jan-24 11:59 **MD5 Hash:** FBA02BDAE73E7442BB25885098DF7AE3 **Editor ID:** 002-375-739-9

Batch ID: 20-1237-1252 **Test Type:** Cell Growth **Analyst:**  
 Start Date: 11 Jan-24 13:06 **Protocol:** EPA/821/R-02-013 (2002) **Diluent:** Laboratory Water  
 Ending Date: 15 Jan-24 14:10 **Species:** Selenastrum capricornutum **Brine:** Not Applicable  
 Test Length: 4d 1h **Taxon:** Chlorophyta **Source:** Aquatic Biosystems, CO **Age:** 7d

Sample ID: 12-7948-5205 **Code:** SEL011124 **Project:** REF TOX  
 Sample Date: 11 Jan-24 13:06 **Material:** Cadmium chloride **Source:** Reference Toxicant  
 Receipt Date: **CAS (PC):** **Station:** REF TOX  
 Sample Age: --- **Client:** Internal Lab

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	<20	20	---	---	91000	6.94%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		20*	6	2.552	2.407	91000	CDF	0.0378	Significant Effect
		40*	6	5.032	2.407	91000	CDF	0.0002	Significant Effect
		80*	6	5.951	2.407	91000	CDF	5.5E-05	Significant Effect
		140*	6	21.1	2.407	91000	CDF	2.7E-05	Significant Effect
		180*	6	26.07	2.407	91000	CDF	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.04236	<<	0.2	Yes	Passes Criteria
Control Resp	1.31E+6	1.00E+6	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.305E+12	6.61E+11	5	231.2	<1.0E-05	Significant Effect
Error	5.146E+10	2.859E+09	18			
Total	3.356E+12		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	3.205	15.09	0.6684	Equal Variances
	Levene Equality of Variance Test	1.365	4.248	0.2834	Equal Variances
	Mod Levene Equality of Variance Test	0.4347	4.248	0.8185	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7636	3.878	0.0468	Normal Distribution
	D'Agostino Kurtosis Test	0.008508	2.576	0.9932	Normal Distribution
	D'Agostino Skewness Test	1.51	2.576	0.1311	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	2.28	9.21	0.3199	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1829	0.2056	0.0370	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9238	0.884	0.0711	Normal Distribution

**Cell Density Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.312E+6	1.224E+6	1.400E+6	1.310E+6	1.254E+6	1.374E+6	2.778E+4	4.24%	0.00%
20		4	1.216E+6	1.165E+6	1.266E+6	1.210E+6	1.187E+6	1.255E+6	1.584E+4	2.61%	7.36%
40		4	1.122E+6	9.962E+5	1.247E+6	1.093E+6	1.063E+6	1.238E+6	3.944E+4	7.03%	14.50%
80		4	1.087E+6	9.899E+5	1.184E+6	1.081E+6	1.027E+6	1.159E+6	3.051E+4	5.61%	17.15%
140		4	5.142E+5	4.441E+5	5.844E+5	5.055E+5	4.750E+5	5.710E+5	2.206E+4	8.58%	60.80%
180		4	3.262E+5	2.719E+5	3.806E+5	3.305E+5	2.860E+5	3.580E+5	1.709E+4	10.48%	75.13%



# CETIS Analytical Report

Report Date: 22 Jan-24 15:36 (p 1 of 2)  
 Test Code/ID: SEL011124 / 12-9043-2177

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 17-7744-5581	Endpoint: Cell Density	CETIS Version: CETISv2.1.4	Analyzed: 22 Jan-24 11:59	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 22 Jan-24 11:59	MD5 Hash: FBA02BDAE73E7442BB25885098DF7AE3	Editor ID: 002-375-739-9	Batch ID: 20-1237-1252	Test Type: Cell Growth	Analyst:
Start Date: 11 Jan-24 13:06	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	Ending Date: 15 Jan-24 14:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 1h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d	Sample ID: 12-7948-5205	Code: SEL011124
Sample Date: 11 Jan-24 13:06	Material: Cadmium chloride	Project: REF TOX	Receipt Date:	CAS (PC):	Source: Reference Toxicant
Sample Age: ---	Client: Internal Lab	Station: REF TOX			

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.04236	<<	0.2	Yes	Passes Criteria
Control Resp	1.31E+6	1.00E+6	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
IC15	47.54	20.6	104
IC20	83.92	43.52	92.09
IC25	90.79	80.94	98.65
IC40	111.4	104.1	117.5
IC50	125.2	118.7	131.3

Cell Density Summary			Calculated Variate						Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	1.312E+6	1.310E+6	1.254E+6	1.374E+6	4.24%	0.00%	1.312E+6	0.00%
20		4	1.216E+6	1.210E+6	1.187E+6	1.255E+6	2.61%	7.36%	1.216E+6	7.32%
40		4	1.122E+6	1.093E+6	1.063E+6	1.238E+6	7.03%	14.50%	1.122E+6	14.48%
80		4	1.087E+6	1.081E+6	1.027E+6	1.159E+6	5.61%	17.15%	1.087E+6	17.15%
140		4	5.142E+5	5.055E+5	4.750E+5	5.710E+5	8.58%	60.80%	5.142E+5	60.81%
180		4	3.262E+5	3.305E+5	2.860E+5	3.580E+5	10.48%	75.13%	3.262E+5	75.14%

Cell Density Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.254E+6	1.278E+6	1.374E+6	1.342E+6
20		1.255E+6	1.187E+6	1.227E+6	1.193E+6
40		1.063E+6	1.238E+6	1.098E+6	1.088E+6
80		1.027E+6	1.047E+6	1.115E+6	1.159E+6
140		5.270E+5	4.840E+5	4.750E+5	5.710E+5
180		3.580E+5	3.100E+5	2.860E+5	3.510E+5

# CETIS Analytical Report

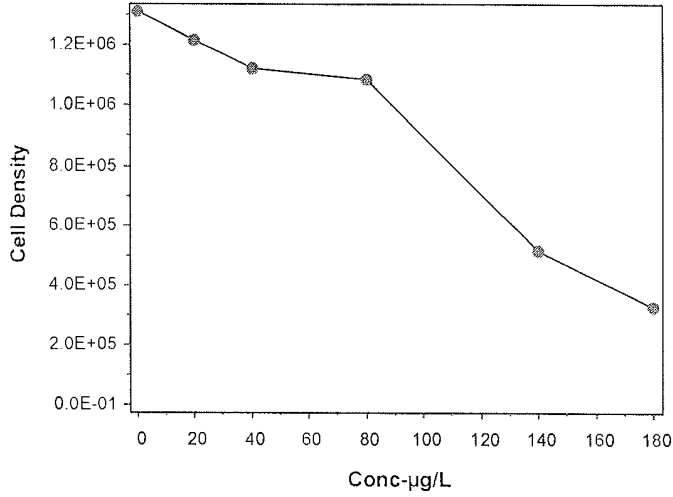
Report Date: 22 Jan-24 15:36 (p 2 of 2)  
Test Code/ID: SEL011124 / 12-9043-2177

## Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-7744-5581	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 22 Jan-24 11:59	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 22 Jan-24 11:59	MD5 Hash: FBA02BDAE73E7442BB25885098DF7AE3	Editor ID: 002-375-739-9

### Graphics



**CETIS Measurement Report**

Report Date: 22 Jan-24 15:36 (p 1 of 2)  
 Test Code/ID: SEL011124 / 12-9043-2177

**Selenastrum Growth Test**

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-1237-1252	Test Type: Cell Growth	Analyst:
Start Date: 11 Jan-24 13:06	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Jan-24 14:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 1h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 12-7948-5205	Code: SEL011124	Project: REF TOX
Sample Date: 11 Jan-24 13:06	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

**Alkalinity (CaCO3)-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	66	---	---	66	66	---	---	---	0
20		1	82	---	---	82	82	---	---	---	0
40		1	75	---	---	75	75	---	---	---	0
80		1	76	---	---	76	76	---	---	---	0
140		1	71	---	---	71	71	---	---	---	0
180		1	63	---	---	63	63	---	---	---	0
Overall		6	72.17	64.85	79.48	63	82	2.845	6.969	9.66%	0 (0%)

**Conductivity-µmhos**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	543	539.8	546.2	539	545	0.5099	2.55	0.47%	0
20		5	536.2	527.7	544.7	527	543	1.367	6.834	1.27%	0
40		5	516.8	512.9	520.7	514	521	0.6229	3.114	0.60%	0
80		5	486.2	484.6	487.8	485	488	0.2608	1.304	0.27%	0
140		5	454.4	450.6	458.2	450	458	0.6099	3.05	0.67%	0
180		5	435	431.8	438.2	432	438	0.5099	2.55	0.59%	0
Overall		30	495.3	479.9	510.7	432	545	7.53	41.24	8.33%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
20		1	113	---	---	113	113	---	---	---	0
40		1	100	---	---	100	100	---	---	---	0
80		1	122	---	---	122	122	---	---	---	0
140		1	125	---	---	125	125	---	---	---	0
180		1	110	---	---	110	110	---	---	---	0
Overall		6	114.7	105.1	124.2	100	125	3.703	9.07	7.91%	0 (0%)

**pH-Units**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	8	8	8	8	8	0	0	0.00%	0
20		5	8.04	7.898	8.182	7.9	8.2	0.0228	0.114	1.42%	0
40		5	8.08	7.918	8.242	7.9	8.2	0.02608	0.1304	1.61%	0
80		5	8.14	8.029	8.251	8	8.2	0.01789	0.08945	1.10%	0
140		5	8.14	8.029	8.251	8	8.2	0.01789	0.08945	1.10%	0
180		5	8.14	8.029	8.251	8	8.2	0.01789	0.08945	1.10%	0
Overall		30	8.09	8.052	8.128	7.9	8.2	0.01878	0.1029	1.27%	0 (0%)

**Temperature-°C**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.12	25.02	25.22	25	25.2	0.01673	0.08364	0.33%	0
20		5	25.12	25.02	25.22	25	25.2	0.01673	0.08364	0.33%	0
40		5	25.12	25.02	25.22	25	25.2	0.01673	0.08364	0.33%	0
80		5	25.12	25.02	25.22	25	25.2	0.01673	0.08364	0.33%	0
140		5	25.12	25.02	25.22	25	25.2	0.01673	0.08364	0.33%	0
180		5	25.12	25.02	25.22	25	25.2	0.01673	0.08364	0.33%	0
Overall		30	25.12	25.09	25.15	25	25.2	0.0139	0.07611	0.30%	0 (0%)

Convergent Rounding (4 sf)

CETIS™ v2.1.4.6 x64 (006-853-889-6)

Analyst: DM QA: [Signature]



CETIS Measurement Report

Report Date: 22 Jan-24 15:36 (p 2 of 2)  
Test Code/ID: SEL011124 / 12-9043-2177

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

CETIS QC Plot

Report Date: 22 Jan-24 15:36 ( 1 of 1)

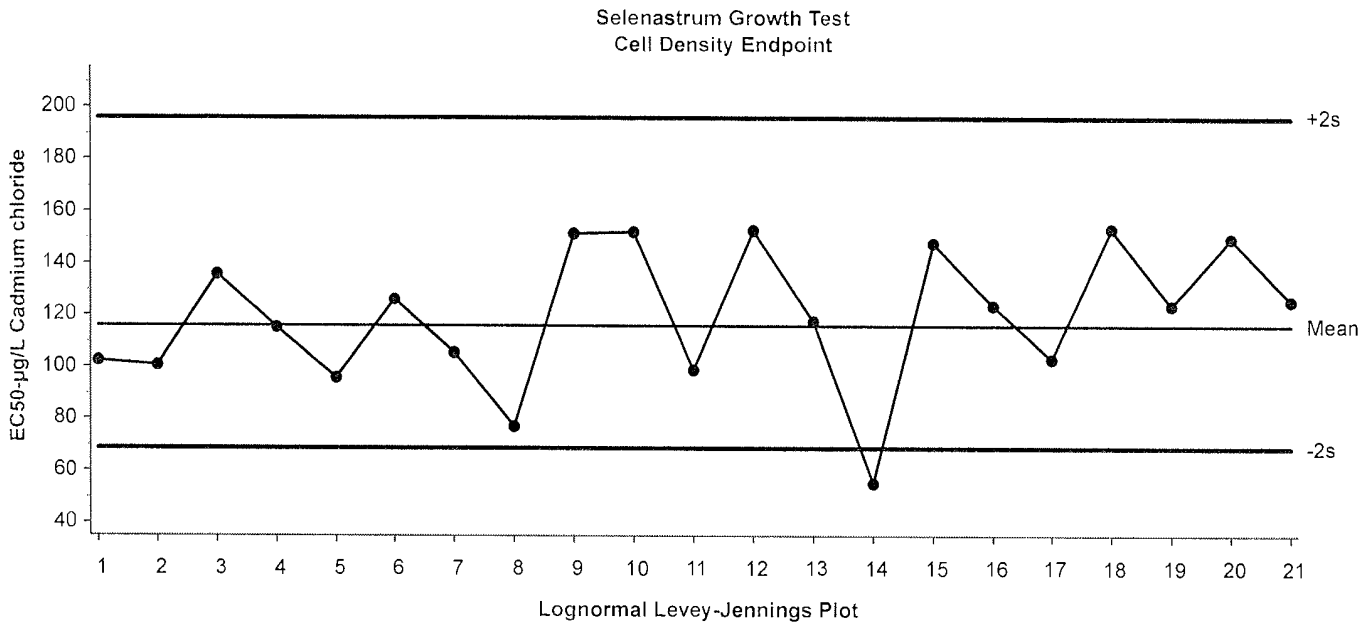
Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

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

Organism: Selenastrum capricornutum  
 Endpoint: Cell Density

Material: Cadmium chloride  
 Source: Reference Toxicant-REF



Mean: 115.9      Count: 20      -2s Action Limit: 68.7  
 Sigma: NA      CV: 26.60%      +2s Action Limit: 196

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Jan	12	13:24	102.3	-13.65	-0.4789			04-7405-9726	05-1997-3179
2			18	8:05	100.7	-15.25	-0.5395			15-8641-7867	00-5848-8143
3			25	12:57	135.6	19.66	0.599			15-5088-3099	17-9685-4044
4		Feb	10	12:00	114.8	-1.096	-0.03631			11-5841-8051	17-0782-7839
5		Mar	23	12:00	95.9	-20.03	-0.7254			05-1302-6342	11-3290-5546
6		Apr	5	12:52	125.9	10	0.3164			18-0758-6142	19-2800-0197
7			6	15:42	105.6	-10.31	-0.3562			03-0998-2943	02-8133-5365
8		May	4	12:00	77.13	-38.8	-1.558			01-0737-1929	18-3733-1362
9		Jun	7	12:21	151.6	35.62	1.025			16-8574-4893	21-0572-6399
10			8	11:21	152	36.1	1.037			12-1195-7370	09-7182-0791
11			15	12:36	99.06	-16.87	-0.6014			08-3971-7306	10-0960-6666
12		Jul	13	13:34	152.6	36.68	1.051			10-9290-4337	02-8734-3001
13		Aug	10	12:32	117.4	1.434	0.04701			06-8780-0775	13-4709-7977
14		Sep	1	13:02	55.24	-60.69	-2.835		(-)	09-3857-7521	04-7208-7581
15			14	13:07	147.9	32.01	0.9323			00-8853-5252	10-3764-2589
16		Oct	5	14:03	123.8	7.878	0.2514			16-9416-8096	01-0472-7509
17			26	13:04	102.9	-13.02	-0.4554			14-7990-2784	04-5719-6152
18		Nov	2	14:34	153.5	37.57	1.073			04-4160-5303	18-2029-7634
19			9	14:36	123.5	7.571	0.2419			18-1968-9109	03-4845-3669
20		Dec	7	13:02	149.8	33.83	0.9792			14-4776-3774	20-7264-0544
21	2024	Jan	11	13:06	125.2	9.219	0.2926			12-9043-2177	17-7744-5581





ICOC No:  
570-336289

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
13	Amber Glass, 1 liter - unpreserved	None

**Subcontract Method Instructions**

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list	Level 2 package only, MDL, EQUIS 5C
1	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV package, MDL, EQUIS 5C



# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler: .		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-336289.1					
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1					
Company: Weck Laboratories, Inc.		Accreditations Required (See note): State - California; State Program - California		Job #: 570-166858-5		<b>Analysis Requested</b>  Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)  Other:							
Address: 14859 East Clark Avenue,		Due Date Requested: 1/18/2024		TAT Requested (days):						Field Filtered Sample (Yes or No)		Total Number of containers	
City: City of Industry		PO #:		Perform MS/MSD (Yes or No)						SUB (Weck-Hydrazine)/ Weck-Hydrazine			
State, Zip: CA 917451396		WO #:		SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list									
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite		Project #: 57013187											
Site:		SSOW#:											
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>					
								<b>Preservation Code:</b>					
Outfall002_20240104_Comp (570-166858-1)		1/4/24		08:00 Pacific		Water		X					
Outfall002_20240104_Comp (570-166858-1MS)		1/4/24		08:00 Pacific		MS		Water					
Outfall002_20240104_Comp (570-166858-1MSD)		1/4/24		08:00 Pacific		MSD		Water					
Note: since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.													
<b>Possible Hazard Identification</b>					<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>								
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2		Special Instructions/QC Requirements:								
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:						
Relinquished by: [Signature]		Date/Time: 1/4/24 1404		Company: EC		Received by: [Signature]		Date/Time: 1/4/24					
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:					
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks: 4.6" 70297								



ICOC No:  
570-336289

**Containers**

<u>Count</u> 13	<u>Container Type</u> Amber Glass, 1 liter - unpreserved	<u>Preservative</u> None
--------------------	---	-----------------------------

**Subcontract Method Instructions**

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list	Level 2 package only, MDL, EQUIS 5C
1	SUBCONTRACT	SUB (Weck-Hydrazine)/ Weck-Hydrazine	Level IV package, MDL, EQUIS 5C



166858

1002  
262  
Page 3 of 3

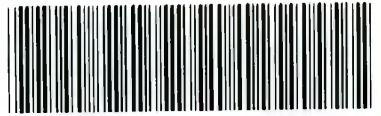
CHAIN OF CUSTODY FORM

A/R R R R A/R R R A A R A R A

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018] Outfall 002 COMPOSITE		ANALYSIS REQUIRED													
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #67013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Recoverable Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	TCOD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM6210B_BODCalc))	LL Mercury (E1631E) - Total Recoverable	Fluoride (F-) Chloride (Cl-) Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E300); Perchlorate (E314.0)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Priority Pollutants-Pesticides+PCBs (E608) Weck Labs in Hacienda Heights, CA	Priority Pollutants-SVOCs (E625)	Ammonia-N (E350.2)	PCBs (1668C)	Detergents (MBAS) (SM5540C/E425.1)	Cr (VI), Total Recoverable (E218.6)	Comments
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2018-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)															
Sampler: Adrien Mobeka																	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	TCOD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM6210B_BODCalc))	LL Mercury (E1631E) - Total Recoverable	Fluoride (F-) Chloride (Cl-) Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E300); Perchlorate (E314.0)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Priority Pollutants-Pesticides+PCBs (E608) Weck Labs in Hacienda Heights, CA	Priority Pollutants-SVOCs (E625)	Ammonia-N (E350.2)	PCBs (1668C)	Detergents (MBAS) (SM5540C/E425.1)	Cr (VI), Total Recoverable (E218.6)	Comments				
Outfall 002	Outfall002_20240104_Comp	1/4/2024 0800	WM	500 mL Poly	3	HNO3		Yes	X																	
			WM	1 L Glass Amber	2	None		No			X															
			WM	1 L Poly	1	None		No				X														
			WM	250mL Clear Glass, double bagged	1	HCL		No					X													
			WM	500 mL Poly	3	None		Yes							X										48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None		No								X									48 hour holding time for turbidity	
			WM	1 L Poly	1	None		No									X									
			WM	1 L Glass Amber	12	None		Yes										X								
			WM	1 L Glass Amber	6	None		Yes											X							
			WM	500 mL Poly	3	H2SO4		Yes												X						
			WM	1 L Glass Amber	12	None		Yes													X					
			WM	1 L Poly	3	None		Yes															X			
			WM	250 mL Poly	3	None		Yes																X		

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>Michelle Dallalah</i>	Date/Time 1-9-2024	Company 1225 H&A	Received By <i>[Signature]</i>	Date/Time 1/4/24	Company 1225 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By <i>[Signature]</i>	Date/Time 1/4/24	Company 1640 EC	Received By <i>[Signature]</i>	Date/Time 1/4/24	Company 1640	 570-166858 Chain of Custody
Relinquished By	Date/Time	Company	Received By	Date/Time	Company	

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018] Outfall 002 COMPOSITE						ANALYSIS REQUIRED										Comments
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)						Total Dissolved Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	Cr (VI), Total Dissolved (E218.6)	Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium (H-3) (E906.0)	Chronic Toxicity - Species Sensitivity (EPA-821-R-02-013) ABC Labs in Ventura, CA	1,4-Dioxane (E624 (SM8260M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SM8315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA	LL Mercury (E1631E) -- Total Dissolved	Cyanide (SM4500-CN-E / E335.2)		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																
Sampler: Adrien Mobeka																		
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD										
Outfall 002	Outfall002_20240104_Comp_F	1/4/2024 0800	WM	1 L Poly	3	None		Yes	X							Filter and preserve w/in 24hrs of receipt at lab.		
			WM	250 mL Poly	3	None		Yes		X						Filter and preserve w/in 24hrs of receipt at lab.		
			WM	250mL Clear Glass, double bagged	1	None		No							X		Filter and preserve w/in 24hrs of receipt at lab.	
	Outfall002_20240104_Comp	1/4/2024 0800	WM	250 mL Poly	3	NaOH		Yes							X			
			WM	2.5 Gal Cube	1	None		No			X						Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	
			WM	1 L Glass Amber	1	None		No										
			WM	1 Gal Cube	7	None		No					X				Run Species Sensitivity for the first rain event. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA	
			WM	40 mL VOA	9	HCl		Yes						X				
			WM	1 L Glass Amber	1	HCl		No							X			
			WM	1 L Glass Amber	1	None		No								X		

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By <i>Michelle Dellalah</i>	Date/Time: 1-4-2024/1225	Company: H&A	Received By <i>[Signature]</i>	Date/Time: 1/4/24 1225	EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By <i>[Signature]</i>	Date/Time: 1/4/24	Company: EC	Received By <i>[Signature]</i>	Date/Time: 1/4/24	1640	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By	Date/Time:	Company:	Received By	Date/Time:		Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X _____

1.6/1.8 2.5/2.3 1.8/2.0 SC14

### Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-336918.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1			
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note): State - California; State Program - California				Job #: 570-166858-6			
Address: 2425 New Holland Pike,		Due Date Requested: 1/18/2024		<b>Analysis Requested</b>						<b>Preservation Codes:</b> A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - As/NaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O8 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
City: Lancaster		TAT Requested (days):									
State, Zip: PA, 17601		PO #:									
Phone: 717-656-2300(Tel)		WO #:									
Email:		Project #: 57013187									
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite		SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers			
Site:											
<b>Sample Identification - Client ID (Lab ID)</b>			<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Special Instructions/Note:</b>	
Outfall002_20240104_Comp (570-166858-1)			1/4/24	08:00 Pacific		Water		X			
Outfall002_20240104_Comp (570-166858-1MS)			1/4/24	08:00 Pacific	MS	Water		X			
Outfall002_20240104_Comp (570-166858-1MSD)			1/4/24	08:00 Pacific	MSD	Water		X			
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>											
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:		
Relinquished by:		Date/Time: 1/5/24 1408		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:							
Δ Yes Δ No											

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler: Patel, Virendra			Lab PM: Patel, Virendra			Carrier Tracking No(s):			COC No: 570-336923.1						
Client Contact: Shipping/Receiving		Phone:			E-Mail: Virendra.Patel@et.eurofinsus.com			State of Origin: California			Page: Page 1 of 1						
Company: Eurofins Environment Testing Northwest, Address: 5755 8th Street E, City: Tacoma State, Zip: WA, 98424 Phone: Email:					Accreditations Required (See note): State - California; State Program - California					Job #: 570-166858-3		<b>Preservation Codes:</b> A - HCL                    M - Hexane B - NaOH                N - None C - Zn Acetate        O - AsNaO2 D - Nitric Acid        P - Na2O4S E - NaHSO4            Q - Na2SO3 F - MeOH              R - Na2S2O3 G - Amchlor            S - H2SO4 H - Ascorbic Acid     T - TSP Dodecahydrate I - Ice                    U - Acetone J - DI Water            V - MCAA K - EDTA                W - pH 4-5 L - EDA                    Y - Trizma Z - other (specify)					
Due Date Requested: 1/24/2024		TAT Requested (days):			<b>Analysis Requested</b>									Total Number of containers			
PO #:		WO #:															
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite		Project #: 57013187			SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		1631E/ Mercury, Total			1631E/Filtration_ME Mercury, Dissolved			
<b>Sample Identification - Client ID (Lab ID)</b>		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		1631E/ Mercury, Total		1631E/Filtration_ME Mercury, Dissolved		Total Number of containers		<b>Special Instructions/Note:</b>	
						Preservation Code:											
Outfall002_20240104_Comp (570-166858-1)		1/4/24	08:00 Pacific		Water			X						1			
Outfall002_20240104_Comp_F (570-166858-2)		1/4/24	08:00 Pacific		Water					X				1			
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																	
<b>Possible Hazard Identification</b>								<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>									
Unconfirmed								<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For    Months									
Deliverable Requested: I, II, III, IV, Other (specify)								Primary Deliverable Rank: 2		Special Instructions/QC Requirements:							
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:								
Relinquished by: <i>VP Patel</i>			Date/Time: 1/5/24 1413			Company:			Received by:			Date/Time:			Company:		
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:		
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:					Cooler Temperature(s) °C and Other Remarks:										



**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>			Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:						
Client Contact: Shipping/Receiving			Phone:	Patel, Virendra		570-336934.1						
Company: Eurofins Environment Testing Northern Ca			E-Mail:	Virendra.Patel@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1						
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605			Due Date Requested: 1/24/2024	Accreditations Required (See note): State - California; State Program - California			Job #: 570-166858-2					
Phone: 916-373-5600(Tel) 916-372-1059(Fax)			TAT Requested (days):	<b>Analysis Requested</b>			Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDTA Y - Trizma Z - other (specify)					
Email:			PO #:	Total Number of containers				Other:				
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite			WO #:	Field Filtered Sample (Yes or No)			Special Instructions/Note:					
Site:			Project #: 57013187	Perform MS/MSD (Yes or No)								
			SSOW#:	1613B/1613B_Box_Sep_P (MOD) Standard List w/								
				Totals								
Sample Identification - Client ID (Lab ID)			Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Box_Sep_P (MOD) Standard List w/	Totals	Total Number of containers	Special Instructions/Note:
Outfall002_20240104_Comp (570-166858-1)			1/4/24	08:00 Pacific		Water		X			2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.												
<b>Possible Hazard Identification</b> Unconfirmed						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2				Special Instructions/QC Requirements:				
Empty Kit Relinquished by:			Date:		Time:			Method of Shipment:				
Relinquished by: <i>M Patel</i>			Date/Time: 1/5/24 1435		Company:			Received by:		Date/Time:		Company:
Relinquished by:			Date/Time:		Company:			Received by:		Date/Time:		Company:
Relinquished by:			Date/Time:		Company:			Received by:		Date/Time:		Company:
Custody Seals Intact: Δ Yes Δ No			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:						





# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-166858-4

**Login Number: 166858**

**List Source: Eurofins Calscience**

**List Number: 1**

**Creator: Patel, Virendra**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 2/18/2024 12:14:13 PM

**JOB DESCRIPTION**

Boeing NPDES SSFL - Outfall 002 - Comp

**JOB NUMBER**

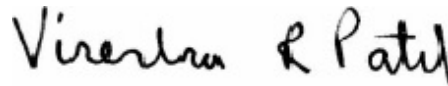
570-168882-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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2/18/2024 12:14:13 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-168882-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-168882-4

**Job ID: 570-168882-4**

**Eurofins Calscience**

## Job Narrative 570-168882-4

### Receipt

The samples were received on 1/22/2024 5:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.6° C and 2.0° C.

### Receipt Exceptions

The reference method requires samples to be preserved to a pH of less than 2. The following sample was received with insufficient preservation at a pH of 7: Outfall002\_20240121\_Comp (570-168882-1). The sample was preserved to the appropriate pH in the laboratory.

Container Affected:  
570-168882-AC-1

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-168882-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 002 - Comp

Job ID: 570-168882-4

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-168882-1	Outfall002_20240121_Comp	Water	01/21/24 09:15	01/22/24 17:20

1

2

3

4

5

6

7

8

9





**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.

February 7, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall002\_20240121\_Comp\_F  
 DATE RECEIVED: 22 Jan - 2024  
 ABC LAB. NO.: CSE0124.122

**CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY**

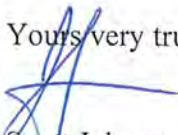
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

REPRODUCTION = PASS    % EFFECT = -0.55 %

Yours very truly,



Scott Johnson  
 Laboratory Director

\*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia.



**CETIS Summary Report**

Report Date: 02 Feb-24 17:05 (p 1 of 1)  
 Test Code/ID: CSE0124.122cer '02-6656-3481

<b>Ceriodaphnia 7-d Survival and Reproduction Test</b>				<b>Aquatic Bioassay &amp; Consulting Labs, Inc.</b>			
Batch ID: 04-0432-2556	Test Type: Reproduction-Survival (7d)	Analyst:					
Start Date: 23 Jan-24 11:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 30 Jan-24 11:46	Species: Ceriodaphnia dubia	Brine: Not Applicable					
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CC		Age: <24			
Sample ID: 09-8390-7821	Code: CSE0124.122cer	Project: Boeing-SSFL NPDES 2023 PERMIT					
Sample Date: 21 Jan-24 09:15	Material: Sample Water	Source: Bioassay Report					
Receipt Date: 22 Jan-24 14:40	CAS (PC):	Station: Outfall 002					
Sample Age: 50h (0.8 °C)	Client: Eurofins Calscience						

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
05-1621-7840	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
18-6498-7873	Reproduction	TST-Welch's t Test	<1.0E-05	100% passed reproduction	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
05-1621-7840	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
18-6498-7873	Reproduction	Control Resp	27.5	15	<<	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	27.5	26.19	28.81	22	31	0.6262	2.8	10.18%	0.00%
100		20	27.65	26.31	28.99	23	32	0.6419	2.87	10.38%	-0.55%

**7d Survival Rate Detail**

MD5: E2FCA10CAEB5BD33B061F5901431A2E1

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Reproduction Detail**

MD5: E5189CD6331DA146EF664FFBED0F1429

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	28	27	29	25	25	28	31	22	23	24
		30	29	25	30	25	30	30	30	31	28
100		32	27	26	31	30	24	25	30	23	30
		30	28	27	26	28	24	23	28	32	29

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

**CETIS Analytical Report**

Report Date: 02 Feb-24 17:05 (p 1 of 2)  
 Test Code/ID: CSE0124.122cer / 02-6656-3481

**Ceriodaphnia 7-d Survival and Reproduction Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-6498-7873	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 01 Feb-24 11:59	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Feb-24 11:55	MD5 Hash: E5189CD6331DA146EF664FFBED0F1429	Editor ID:
Batch ID: 04-0432-2556	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 23 Jan-24 11:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 30 Jan-24 11:46	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 09-8390-7821	Code: CSE0124.122cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 21 Jan-24 09:15	Material: Sample Water	Source: Bioassay Report
Receipt Date: 22 Jan-24 14:40	CAS (PC):	Station: Outfall 002
Sample Age: 50h (0.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	34	8.833	0.8523	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	27.5	15	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.225	0.225	1	0.02798	0.8680	Non-Significant Effect
Error	305.55	8.04079	38			
Total	305.775		39			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.001116	7.353	0.9735	Equal Variances
	Mod Levene Equality of Variance Test	0.009819	7.353	0.9216	Equal Variances
	Variance Ratio F Test	1.051	3.432	0.9153	Equal Variances
Distribution	Anderson-Darling A2 Test	0.924	3.878	0.0189	Normal Distribution
	D'Agostino Kurtosis Test	2.336	2.576	0.0195	Normal Distribution
	D'Agostino Skewness Test	0.8972	2.576	0.3696	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	6.262	9.21	0.0437	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1494	0.1617	0.0248	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9406	0.9236	0.0362	Normal Distribution

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	27.5	26.19	28.81	28	22	31	0.6262	10.18%	0.00%
100		20	27.65	26.31	28.99	28	23	32	0.6419	10.38%	-0.55%

**Reproduction Detail**

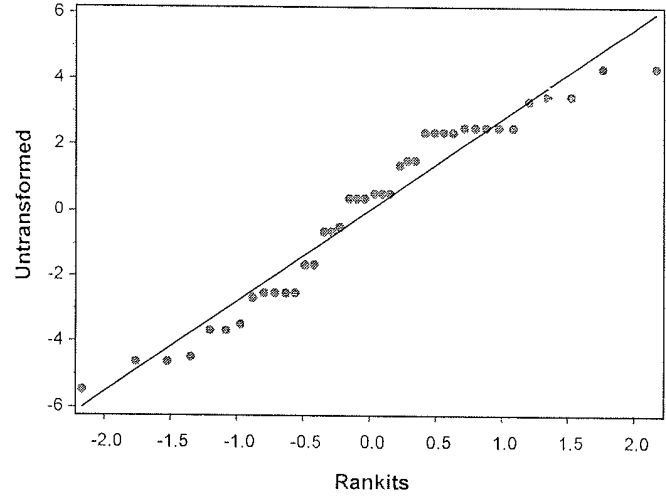
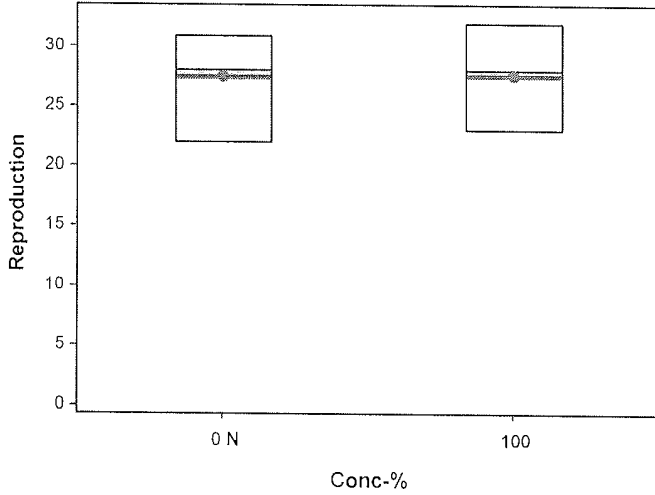
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	28	27	29	25	25	28	31	22	23	24
		30	29	25	30	25	30	30	30	31	28
100		32	27	26	31	30	24	25	30	23	30
		30	28	27	26	28	24	23	28	32	29

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-6498-7873      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Feb-24 11:59      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Feb-24 11:55      MD5 Hash: E5189CD6331DA146EF664FFBED0F1429      Editor ID:

Graphics



**CETIS Analytical Report**

Report Date: 02 Feb-24 17:05 (p 1 of 2)  
 Test Code/ID: CSE0124.122cer / 02-6656-3481

**Ceriodaphnia 7-d Survival and Reproduction Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1621-7840	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Feb-24 11:59	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 01 Feb-24 11:55	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID:
Batch ID: 04-0432-2556	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 23 Jan-24 11:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 30 Jan-24 11:46	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 09-8390-7821	Code: CSE0124.122cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 21 Jan-24 09:15	Material: Sample Water	Source: Bioassay Report
Receipt Date: 22 Jan-24 14:40	CAS (PC):	Station: Outfall 002
Sample Age: 50h (0.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	Comparison Result
Untransformed	C > T	100% passed 7d survival rate endpoint

**Fisher Exact Test**

Control	vs	Conc-%	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		100	1.0000	Exact	1.0000	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**7d Survival Rate Frequencies**

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	20	0	20	1.0000	0.0000	0.00%
100		20	0	20	1.0000	0.0000	0.00%

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Analytical Report

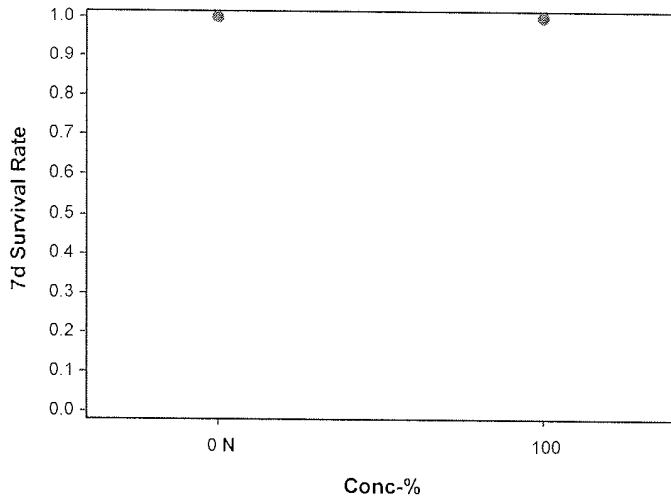
Report Date: 02 Feb-24 17:05 (p 2 of 2)  
Test Code/ID: CSE0124.122cer / 02-6656-3481

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1621-7840	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Feb-24 11:59	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 01 Feb-24 11:55	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID:

## Graphics



# CETIS Measurement Report

Report Date: 02 Feb-24 17:05 (p 1 of 1)

Test Code/ID: CSE0124.122cer / 02-6656-3481

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 04-0432-2556	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 23 Jan-24 11:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 30 Jan-24 11:46	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 09-8390-7821	Code: CSE0124.122cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 21 Jan-24 09:15	Material: Sample Water	Source: Bioassay Report
Receipt Date: 22 Jan-24 14:40	CAS (PC):	Station: Outfall 002
Sample Age: 50h (0.8 °C)	Client: Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	225	225	225	225	225	0	0	0.00%	0
Overall		16	143.5	98.65	188.4	62	225	21.04	84.17	58.66%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	377.8	383.2	377	387	0.4064	3.251	0.85%	0
100		8	1131	1128	1134	1126	1137	0.4033	3.227	0.29%	0
Overall		16	755.7	549.2	962.2	377	1137	96.88	387.5	51.28%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.012	7.659	8.366	7	8.3	0.0528	0.4224	5.27%	0
100		8	7.863	7.553	8.172	7	8.2	0.04626	0.3701	4.71%	0
Overall		16	7.938	7.729	8.146	7	8.3	0.09784	0.3914	4.93%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	97	97	97	97	97	0	0	0.00%	0
100		8	362	362	362	362	362	0	0	0.00%	0
Overall		16	229.5	156.6	302.4	97	362	34.21	136.8	59.63%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.163	8.037	8.288	7.9	8.3	0.01882	0.1506	1.84%	0
100		8	7.788	7.693	7.882	7.6	7.9	0.01407	0.1126	1.45%	0
Overall		16	7.975	7.851	8.099	7.6	8.3	0.05809	0.2324	2.91%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.06	23.96	24.16	24	24.3	0.01485	0.1188	0.49%	0
Overall		16	24.03	23.98	24.08	24	24.3	0.02183	0.08732	0.36%	0 (0%)

CHAIN OF CUSTODY FORM

ADDED CF = +0.3°C  
 Temp. deg. C = 0.8°C  
 Choline (mg/L) = 20.5  
 (mg/L) = 20.1  
 Comments

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018] Outfall 002 COMPOSITE		ANALYSIS REQUIRED Total Dissolved Metals: (E200.6): Al, Cd, Cu, Pb, Se, Zn Cyanide (SM4500-CN-E / E335.2) Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0) Chronic Toxicity - Carcinogens (EPA-821-R-02-013) ABC Labs in Ventura, CA L.L. Mercury (1631) Total Dissolved Monomethyl hydrazine (SW8315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA 1,4-Dioxane (E824 (SM8260M, SIM))									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.									
Sampler:													

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.6): Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0)	Chronic Toxicity - Carcinogens (EPA-821-R-02-013)	ABC Labs in Ventura, CA	L.L. Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8315M/DV-WC-0077)	Weck Labs in Hacienda Heights, CA	1,4-Dioxane (E824 (SM8260M, SIM))	Comments	
Outfall 002	Outfall002_20240121_Comp_F	1/21/2024 0915	WM	1L Poly	1	None	200	Yes	H									Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.	
			WM	250mL Glass, double bagged	1	None	999							H					Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
Outfall 002	Outfall002_20240121_Comp	1/21/2024 0915	WM	250 mL Poly	1	NaOH	220			X									
			WM	2.5 Gal Cube	1	None	225					X							Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230												Only test if first or second discharge events of the year. Deliver to ABC Labs in Ventura, CA.
			WM	1 Gal Cube	5	None	235						X						
			WM	1 L Glass Amber	1	None										X			
			WM	40 mL VOA	3	HCl										X			

\* 4 units delivered to ABC with this copy of the CoC

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>[Signature]</i>	Date/Time: 1-22-2024/1440	Company: HIA	Received By: <i>[Signature]</i>	Date/Time: 1-22-24 (1440)	
Relinquished By:	Date/Time:	Company:	Received By:	Date/Time:	IR
Relinquished By:	Date/Time:	Company:	Received By:	Date/Time:	





**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



## CHRONIC CERIODAPHNIA SURVIVAL AND REPRODUCTION BIOASSAY

DATE: 5 January - 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 10.00 ug/l

EC25 = 17.14 ug/l

EC50 = 24.29 ug/l

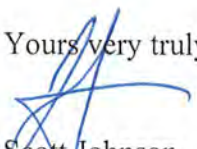
ENDPOINT: REPRODUCTION

NOEC = 10.00 ug/l

IC25 = 15.36 ug/l

IC50 = 20.73 ug/l

Yours very truly,

  
Mr. Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)

Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-5328-3144	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	✓ 10	30	17.32	---	1
11-1237-1648	Reproduction	Dunnett Multiple Comparison Test	✓ 10	30	17.32	13.6%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
07-0692-8548	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	14.29	13.33	17.5	1
			EC20	15.71	14.44	20	
			EC25	17.14	15.56	22.5	
			EC40	21.43	18.89	30	
			EC50	24.29	21.11	33.33	
07-9708-4589	Reproduction	Linear Interpolation (ICPIN)	✓ IC15	13.22	12.3	13.43	1
			✓ IC20	14.29	13.4	14.65	
			✓ IC25	15.36	14.51	15.81	
			✓ IC40	18.58	17.81	19.29	
			✓ IC50	20.73	19.98	21.62	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
07-0692-8548	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-5328-3144	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
07-9708-4589	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria	
11-1237-1648	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria	
11-1237-1648	Reproduction	PMSD	0.1365	0.13	0.47	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
30		10	0.3000	-0.0456	0.6456	0.0000	1.0000	0.1528	0.4830	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	24.8	23.42	26.18	22	28	0.611	1.932	7.79%	0.00%
3		10	27	24.62	29.38	23	32	1.054	3.333	12.35%	-8.87%
5		10	26.6	23.82	29.38	21	32	1.231	3.893	14.64%	-7.26%
10		10	27.6	24.56	30.64	23	34	1.343	4.248	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	8	0.9978	3.155	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: AE52350A46AC30A172F710E040BB92B1

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**Reproduction Detail**

MD5: D30251365D8B1138125925092AE28FAC

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	10	30	17.32	---	3.385	13.65%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		3	18	-1.444	2.222	3.385	CDF	0.9939	Non-Significant Effect
		5	18	-1.182	2.222	3.385	CDF	0.9865	Non-Significant Effect
		10	18	-1.838	2.222	3.385	CDF	0.9984	Non-Significant Effect
		30*	18	15.1	2.222	3.385	CDF	<1.0E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	24.8	15	<<	Yes	Passes Criteria
PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4924.32	1231.08	4	106.1	<1.0E-05	Significant Effect
Error	522	11.6	45			
Total	5446.32		49			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	5.346	13.28	0.2536	Equal Variances
	Levene Equality of Variance Test	2.283	3.767	0.0750	Equal Variances
	Mod Levene Equality of Variance Test	1.757	3.767	0.1542	Equal Variances
Distribution	Anderson-Darling A2 Test	0.792	3.878	0.0398	Normal Distribution
	D'Agostino Kurtosis Test	2.111	2.576	0.0347	Normal Distribution
	D'Agostino Skewness Test	0.9295	2.576	0.3526	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.322	9.21	0.0699	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1494	0.1453	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9541	0.9367	0.0502	Normal Distribution

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	24.8	23.42	26.18	24.33	22	28	0.611	7.79%	0.00%
3		10	27	24.62	29.38	27.5	23	32	1.054	12.35%	-8.87%
5		10	26.6	23.82	29.38	27	21	32	1.231	14.64%	-7.26%
10		10	27.6	24.56	30.64	27	23	34	1.343	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	0	8	0.9978	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

# CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

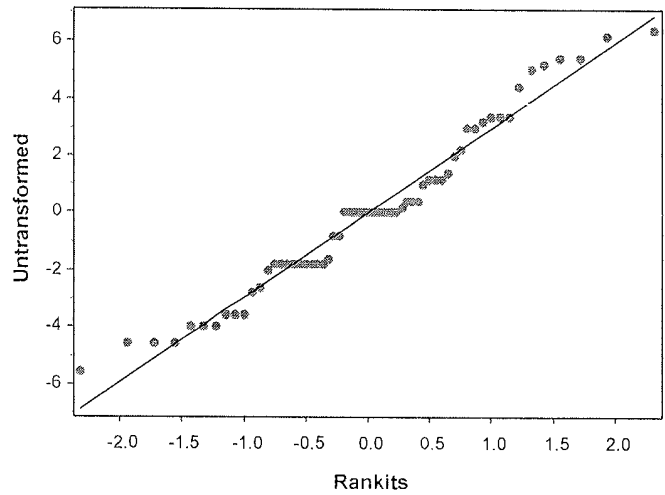
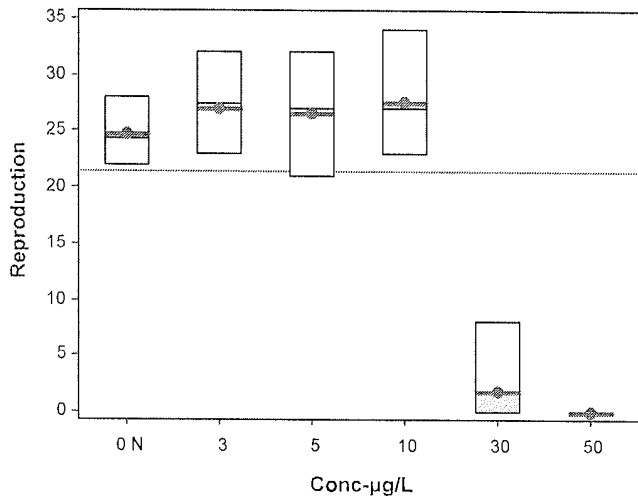
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: D30251365D8B1138125925092AE28FAC      Editor ID: 006-853-889-6

### Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

### Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	14.29	13.33	17.5
EC20	15.71	14.44	20
EC25	17.14	15.56	22.5
EC40	21.43	18.89	30
EC50	24.29	21.11	33.33

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
30		10	0.3000	0.0000	0.0000	1.0000	161.02%	70.00%	3/10	0.3000	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	---	100.00%	0/10	0.0000	100.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

Ceriodaphnia 7-d Survival and Reproduction Test

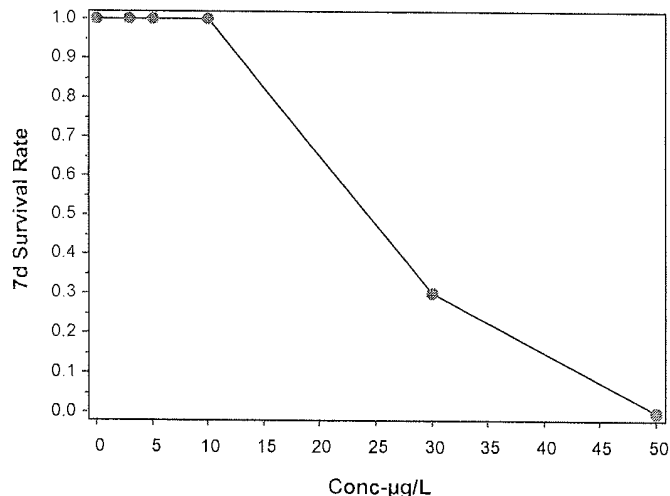
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548  
Analyzed: 25 Jan-24 12:39  
Edit Date: 25 Jan-24 12:37

Endpoint: 7d Survival Rate  
Analysis: Linear Interpolation (ICPIN)  
MD5 Hash: AE52350A46AC30A172F710E040BB92B1

CETIS Version: CETISv2.1.4  
Status Level: 1  
Editor ID: 006-853-889-6

Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 3 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	992278	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.8	15	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	13.22	12.3	13.48
IC20	14.29	13.4	14.65
IC25	15.36	14.51	15.81
IC40	18.58	17.81	19.29
IC50	20.73	19.98	21.62

**Reproduction Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	10	24.8	24.33	22	28	7.79%	0.00%	26.5	0.00%
3		10	27	27.5	23	32	12.35%	-8.87%	26.5	0.00%
5		10	26.6	27	21	32	14.64%	-7.26%	26.5	0.00%
10		10	27.6	27	23	34	15.39%	-11.29%	26.5	0.00%
30		10	1.8	0	0	8	175.29%	92.74%	1.8	93.21%
50		10	0	0	0	0	---	100.00%	0	100.00%

**Reproduction Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0



# CETIS Analytical Report

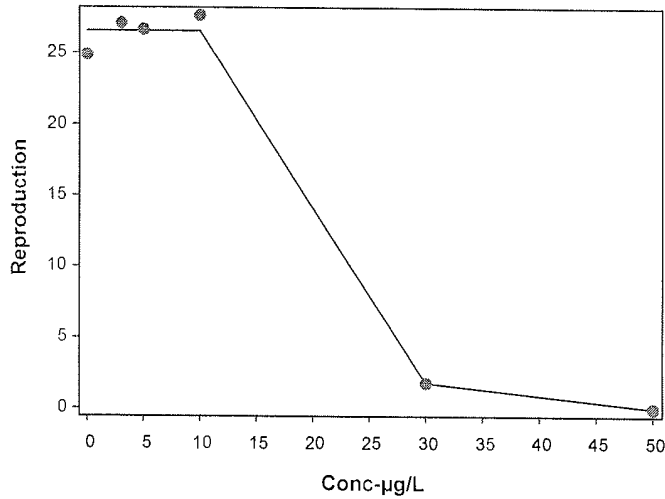
Report Date: 26 Jan-24 13:02 (p 4 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

### Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: STP 2xK Contingency Tables	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units
Untransformed	C > T	10	30	17.32	---

**Fisher Exact/Bonferroni-Holm Test**

Control	vs	Conc-µg/L	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		3	1.0000	Exact	1.0000	Non-Significant Effect
		5	1.0000	Exact	1.0000	Non-Significant Effect
		10	1.0000	Exact	1.0000	Non-Significant Effect
		30*	0.0015	Exact	0.0062	Significant Effect
		50*	0.0000	Exact	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**7d Survival Rate Frequencies**

Conc-µg/L	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	10	0	10	1.0000	0.0000	0.00%
3		10	0	10	1.0000	0.0000	0.00%
5		10	0	10	1.0000	0.0000	0.00%
10		10	0	10	1.0000	0.0000	0.00%
30		3	7	10	0.3000	0.7000	70.00%
50		0	10	10	0.0000	1.0000	100.00%

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
30		10	0.3000	0.0000	0.6456	0.0000	0.0000	1.0000	0.1528	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

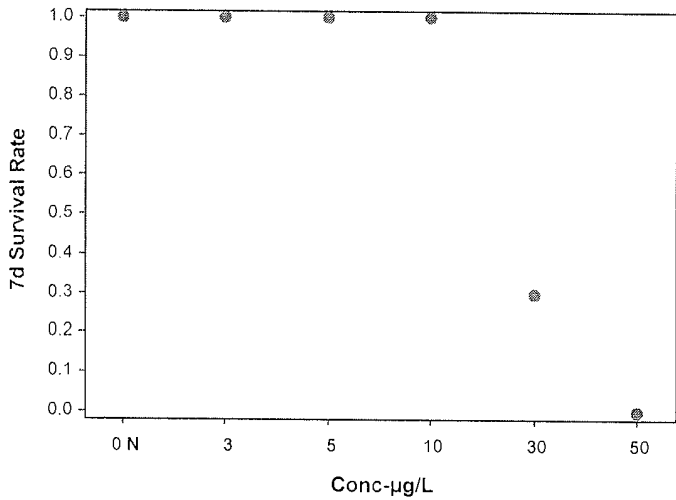
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: AE52350A46AC30A172F710E040BB92B1      Editor ID: 006-853-889-6

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**Graphics**



# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	67	63.54	70.46	62	70	0.5175	4.14	6.18%	0
50		6	60	60	60	60	60	0	0	0.00%	0
Overall		14	64	61.28	66.72	60	70	1.258	4.707	7.35%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	376.8	384.2	373	387	0.551	4.408	1.16%	0
3		8	371	369.2	372.8	369	375	0.2673	2.138	0.58%	0
5		8	368.4	361.9	374.9	352	376	0.9727	7.782	2.11%	0
10		8	372.1	367.8	376.5	364	379	0.6493	5.194	1.40%	0
30		8	373.9	367	380.8	356	380	1.032	8.254	2.21%	0
50		6	377.8	372.5	383.2	370	383	0.8526	5.115	1.35%	0
Overall		46	373.8	371.7	375.8	352	387	1.023	6.938	1.86%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.025	7.817	8.233	7.6	8.4	0.03116	0.2493	3.11%	0
3		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
5		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
10		8	7.938	7.738	8.137	7.4	8.2	0.02983	0.2387	3.01%	0
30		8	7.95	7.745	8.155	7.4	8.2	0.03062	0.2449	3.08%	0
50		5	8.02	7.916	8.124	7.9	8.1	0.01673	0.08367	1.04%	0
Overall		45	7.969	7.904	8.034	7.4	8.4	0.03223	0.2162	2.71%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
50		6	93	93	93	93	93	0	0	0.00%	0
Overall		14	97	94.92	99.08	93	100	0.9608	3.595	3.71%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
3		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
5		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
10		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
30		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
50		5	8.06	7.992	8.128	8	8.1	0.01096	0.05479	0.68%	0
Overall		45	8.073	8.054	8.093	8	8.2	0.009744	0.06537	0.81%	0 (0%)

**CETIS Measurement Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
3		8	24	24	24	24	24	0	0	0.00%	0
5		8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
30		8	24	24	24	24	24	0	0	0.00%	0
50		5	24	24	24	24	24	0	0	0.00%	0
Overall		45	24	24	24	24	24	0	0	0.00%	0 (0%)



Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)

Organism: Ceriodaphnia dubia

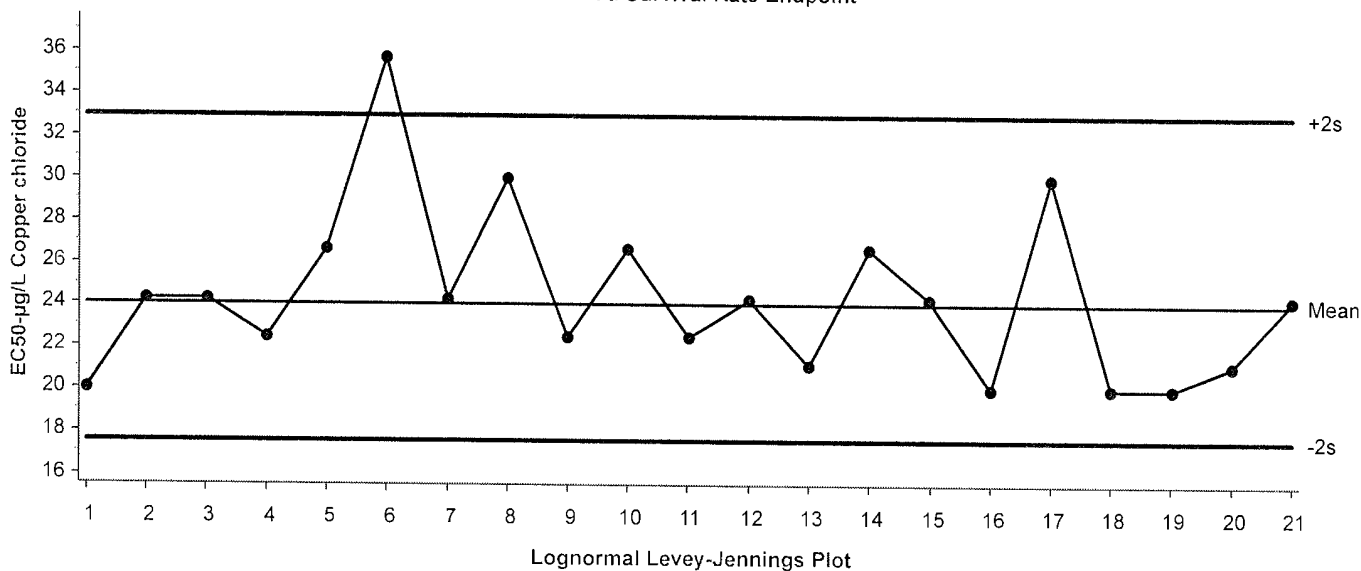
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
7d Survival Rate Endpoint



Mean: 24.05      Count: 20      -2s Action Limit: 17.6  
 Sigma: NA      CV: 15.80%      +2s Action Limit: 32.9

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	20	-4.047	-1.171			15-9267-6325	13-8039-3389
2		Apr	5	13:40	24.29	0.239	0.06286			00-4985-0500	19-4921-0131
3		May	2	14:30	24.29	0.239	0.06286			11-3222-0627	00-2601-8684
4		Jun	6	14:00	22.5	-1.547	-0.4227			08-5473-2211	11-7704-8711
5			7	14:12	26.67	2.62	0.6574			02-3608-9426	17-9182-9169
6			15	15:40	35.71	11.67	2.515	(+)		10-4793-1547	20-4446-4479
7			27	14:40	24.29	0.239	0.06286			16-7344-0663	11-8484-0936
8			29	12:02	30	5.953	1.406			07-2471-0095	15-4161-4480
9		Jul	11	13:52	22.5	-1.547	-0.4227			12-8943-1800	03-0634-2447
10		Aug	8	14:23	26.67	2.62	0.6574			01-9164-3770	13-2486-3042
11			29	14:28	22.5	-1.547	-0.4227			06-3274-6762	20-0784-0120
12		Sep	5	13:20	24.29	0.239	0.06286			14-4921-5003	00-1422-5185
13		Oct	5	13:45	21.11	-2.936	-0.8277			20-2874-3873	04-2467-5752
14			24	13:59	26.67	2.62	0.6574			09-6061-9503	10-9205-4597
15		Nov	7	14:59	24.29	0.239	0.06286			16-2379-1831	01-6526-0546
16			9	16:30	20	-4.047	-1.171			11-1637-2324	18-2560-8953
17			17	12:00	30	5.953	1.406			06-0962-9936	07-2500-6920
18		Dec	5	15:04	20	-4.047	-1.171			06-9736-2705	01-6044-5215
19			13	14:03	20	-4.047	-1.171			01-9164-8741	10-2776-8004
20			22	14:00	21.11	-2.936	-0.8277			12-5671-2450	03-9575-0504
21	2024	Jan	5	12:00	24.29	0.239	0.06286			03-8898-9993	07-0692-8548

Ceriodaphnia 7-d Survival and Reproduction Test

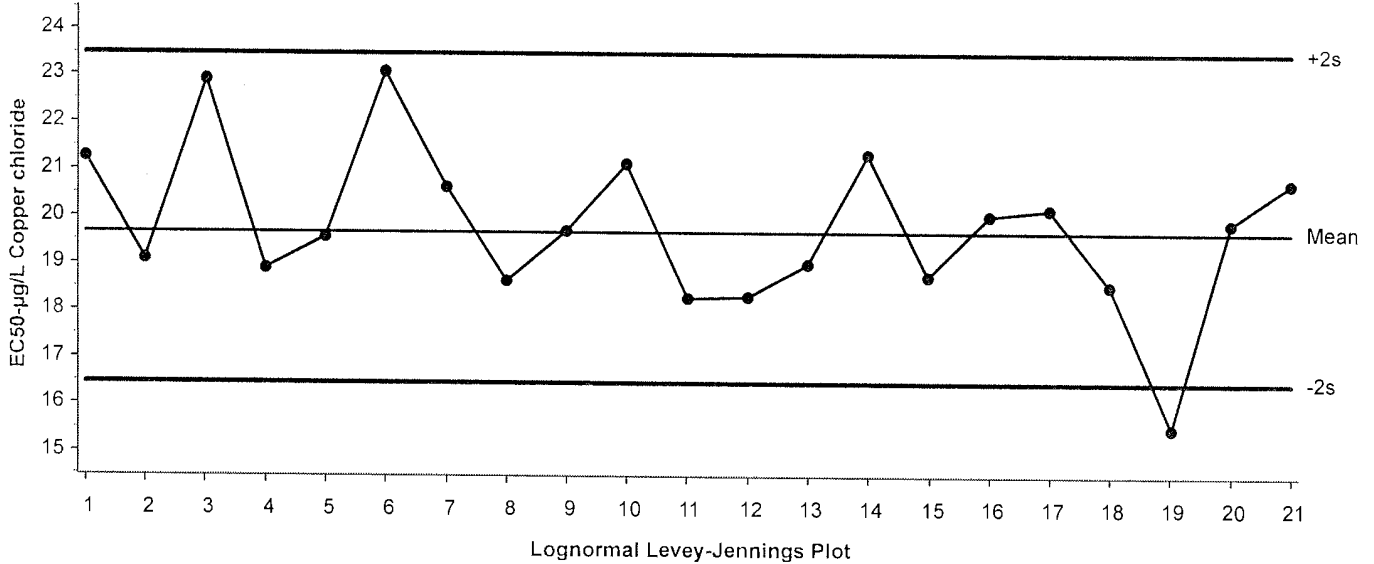
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
Endpoint: Reproduction

Material: Copper chloride  
Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
Reproduction Endpoint



Mean: 19.67      Count: 20      -2s Action Limit: 16.5  
Sigma: NA      CV: 8.90%      +2s Action Limit: 23.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	21.26	1.593	0.8771			15-9267-6325	08-1059-6139
2		Apr	5	13:40	19.09	-0.5735	-0.3333			00-4985-0500	20-3935-2169
3		May	2	14:30	22.9	3.235	1.715			11-3222-0627	01-3728-6873
4		Jun	6	14:00	18.9	-0.7652	-0.447			08-5473-2211	04-5604-9640
5			7	14:12	19.58	-0.0887	-0.05091			02-3608-9426	14-9315-1462
6			15	15:40	23.07	3.399	1.795			10-4793-1547	11-8238-5156
7			27	14:40	20.64	0.9694	0.5419			16-7344-0663	17-6169-0419
8			29	12:02	18.63	-1.042	-0.613			07-2471-0095	11-6621-4104
9		Jul	11	13:52	19.71	0.03976	0.02275			12-8943-1800	06-3315-7505
10		Aug	8	14:23	21.14	1.473	0.8136			01-9164-3770	20-6159-4836
11			29	14:28	18.27	-1.395	-0.8289			06-3274-6762	03-6041-2149
12		Sep	5	13:20	18.28	-1.387	-0.824			14-4921-5003	12-3765-4725
13		Oct	5	13:45	18.99	-0.6762	-0.3941			20-2874-3873	13-5584-5541
14			24	13:59	21.35	1.677	0.9219			09-6061-9503	18-0766-3120
15		Nov	7	14:59	18.72	-0.9434	-0.5537			16-2379-1831	19-1623-7086
16			9	16:30	20.03	0.3645	0.2069			11-1637-2324	10-9594-7716
17			17	12:00	20.15	0.4851	0.2745			06-0962-9936	06-2076-7044
18		Dec	5	15:04	18.53	-1.137	-0.6705			06-9736-2705	06-2601-7564
19			13	14:03	15.51	-4.159	-2.676		(-)	01-9164-8741	04-3685-1503
20			22	14:00	19.87	0.2047	0.1166			12-5671-2450	18-1358-8860
21	2024	Jan	5	12:00	20.73	1.061	0.5916			03-8898-9993	07-9708-4589

168882

F&FS 1

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108										Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018] Outfall 002 COMPOSITE										ANALYSIS REQUIRED									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #67013187										Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)										Comments									
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.										Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																			
Sampler:																													
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Al, Cd, Cu, Pb, Se, Zn	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCalc)	Detergents (MBAS) (SM5540C/E425.1)	Ch. SO <sub>4</sub> , Nitrate-N, Nitrite-N, NO <sub>3</sub> +NO <sub>2</sub> -N (E300)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Ammonia-N (350.2)	Routine Pesticides - only alpha-BHC, Heptachlor, 4,4-DDE (E608)	Weick Labs in Hacienda Heights, CA	Routine SVOCs - only 2,4,6-TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl) phthalate, 3,3-Dichlorobenzidene, NDMA, PCP, Benzidine, Indeno(1,2,3-cd) Pyrene (E625)	LL Mercury (1631) Total Recoverable									
Outfall 002	Outfall002_20240121_Comp	1/21/2024 0915	WM	500 mL Poly	1	HNO <sub>3</sub>	90	Yes	H														Hold						
			WM	1 L Glass Amber	2	None	110				X																		
			WM	1L Poly	1	None	115					X																	
			WM	500 mL Poly	2	None	120						X																
			WM	500 mL Poly	1	None	130							X											48 hours Holding Time NO <sub>3</sub> & NO <sub>2</sub>				
			WM	500 mL Poly	1	None	150								X										48 hour holding time for turbidity				
			WM	500 mL Poly	1	H <sub>2</sub> SO <sub>4</sub>	160											X											
			WM	1 L Glass Amber	4	None	170													X									
			WM	1 L Glass Amber	2	None	180																	H		Extract and Hold			
			WM	250mL Glass, double bagged	1	HCL	998																H			HOLD. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
2	Outfall002_20240121_Comp_Extra	1/21/2024 0915	WM	1L Poly	1	None	185								X														
			WM	1 L Glass Amber	2	None	110					H													Hold				
			WM	500 mL Poly	2	None	120						H												Hold				
			WM	500 mL Poly	1	None	130							H											Hold				
			WM	1 L Glass Amber	4	None	170													H						Hold			
			WM	1 L Glass Amber	2	None	180															H				Hold			

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Michelle Dallaloh</i> Date/Time: <i>1/22/2024</i> Company: <i>H&amp;A</i>	Received By: <i>William Rivera</i> Date/Time: <i>1/22/24 1400</i>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>William Rivera</i> Date/Time: <i>1/22/24 1720</i> Company: <i>EC</i>	Received By: <i>W. Rivera</i> Date/Time: <i>1/22/24 1720</i>	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____



570-168882 Chain of Custody

1.6/1.6, 2.0/2.0 SC12



CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018] Outfall 002 COMPOSITE								ANALYSIS REQUIRED																
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)								Total Dissolved Metals: (E200.8); Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901), Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01- R); Tritium [H-3] (E906.0)	Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013) ABC Labs in Ventura, CA	LL Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8315MDV-WC-0077) Weck Labs in Hacienda Heights, CA	1,4-Dioxane (E624 (SW8260M_SIM))	Comments									
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022- 24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.																										
Sampler:																										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																		
3      Outfall 002	Outfall002_20240121_Comp_F	1/21/2024 0915	WM	1L Poly	1	None	200	Yes															Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.			
			WM	250mL Glass, double bagged	1	None	999																		Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.  Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
	Outfall002_20240121_Comp	1/21/2024 0915	WM	250 mL Poly	1	NaOH	220				X															
			WM	2.5 Gal Cube	1	None	225						X												Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	
			WM	1 L Glass Amber	1	None	230																			Only test if first or second discharge events of the year. Deliver to ABC Labs in Ventura, CA.
			WM	1 Gal Cube	5	None	235								X											
			WM	1 L Glass Amber	1	None									X											
			WM	40 mL VOA	3	HCl											X									
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																										
Relinquished By: <i>Michelle Dollaloh</i> 1/22/2024 1400 H&A 1400											Received By: <i>William Rivera</i> 1/22/24 1400															
Relinquished By: <i>William Rivera</i> 1/22/24 1720 1720											Received By: <i>M. Peña</i> 1/22/24 1720															

# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-168882-4

**Login Number: 168882**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/16/2024 1:20:05 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 004 - Comp

## JOB NUMBER

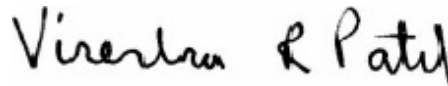
570-171233-5

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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3/16/2024 1:20:05 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 004 - Comp

Job ID: 570-171233-5

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 004 - Comp

Job ID: 570-171233-5

**Job ID: 570-171233-5**

**Eurofins Calscience**

## Job Narrative 570-171233-5

### Receipt

The samples were received on 2/6/2024 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 2.2° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 004 - Comp

Job ID: 570-171233-5

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001





# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 004 - Comp

Job ID: 570-171233-5

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-171233-1	Outfall004_20240206_Comp	Water	02/06/24 08:35	02/06/24 16:30

1

2

3

4

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9



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 1, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 004\_20240206\_Comp  
 DATE RECEIVED: 6 Feb - 2024  
 ABC LAB. NO.: CSE0224.050

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**


IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS      % EFFECT = 1.67 %

GROWTH = PASS      % EFFECT = 1.51 %

Yours very truly,



Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 12:17 (p 1 of 1)  
 Test Code/ID: CSE0224.050fml / 01-1524-3343

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 07-7807-5418	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 14:37	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:22	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24

Sample ID: 07-3277-5804	Code: CSE0224.050fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 08:35	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 004
Sample Age: 54h (4.3 °C)	Client: Calscience Environmental Laboratories, Inc	

## Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
13-4470-6428	7d Survival Rate	TST-Welch's t Test	<1.0E-05	100% passed 7d survival rate	1
09-4814-6897	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
13-4470-6428	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
09-4814-6897	Mean Dry Biomass-mg	Control Resp	0.359	0.25	<<	Yes	Passes Criteria

## 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	0.9833	0.9575	1.0090	0.9333	1.0000	0.0109	0.0309	3.14%	1.67%

## Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.359	0.3505	0.3675	0.342	0.372	0.003583	0.01014	2.82%	0.00%
100		8	0.3536	0.3435	0.3637	0.3427	0.3747	0.004263	0.01206	3.41%	1.51%

## 7d Survival Rate Detail

MD5: C073F62A8A571E0E2D9896FC246C5C43

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	0.9333	1.0000	1.0000	1.0000	1.0000	1.0000	0.9333

## Mean Dry Biomass-mg Detail

MD5: 6C677D6BCC1286413F74B004F93ABA43

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3613	0.3607	0.372	0.372	0.342	0.3507	0.358	0.3553
100		0.3747	0.3473	0.35	0.3493	0.3487	0.3707	0.3427	0.3453

## 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	14/15	15/15	15/15	15/15	15/15	15/15	14/15

# CETIS Analytical Report

Report Date: 01 Mar-24 12:17 (p 1 of 4)  
 Test Code/ID: CSE0224.050fml / 01-1524-3343

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-4470-6428      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:15      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:14      MD5 Hash: C073F62A8A571E0E2D9896FC246C5C43      Editor ID: 009-702-627-3

Batch ID: 07-7807-5418      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 08 Feb-24 14:37      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 15 Feb-24 14:22      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age: <24

Sample ID: 07-3277-5804      Code: CSE0224.050fml      Project: Boeing-SSFL NPDES 2023 PERMIT  
 Sample Date: 06 Feb-24 08:35      Material: Sample Water      Source: Bioassay Report  
 Receipt Date: 06 Feb-24 13:46      CAS (PC):      Station: Outfall 004  
 Sample Age: 54h (4.3 °C)      Client: Calscience Environmental Laboratories, Inc

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	7	15.19	0.7111	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.004336	0.004336	1	2.333	0.1489	Non-Significant Effect
Error	0.026016	0.0018583	14			
Total	0.030352		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	21	8.862	0.0004	Unequal Variances
	Mod Levene Equality of Variance Test	2.333	8.862	0.1489	Equal Variances
	Variance Ratio F Test				Indeterminate
Distribution	Anderson-Darling A2 Test	2.447	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Skewness Test	2.906	2.576	0.0037	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2471	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.677	0.8408	9.5E-05	Non-Normal Distribution

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	0.9833	0.9575	1.0000	1.0000	0.9333	1.0000	0.0109	3.14%	1.67%

**Angular (Corrected) Transformed Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4080	1.3570	1.4590	1.4410	1.3100	1.4410	0.0216	4.33%	2.28%

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	0.9333	1.0000	1.0000	1.0000	1.0000	1.0000	0.9333

# CETIS Analytical Report

Report Date: 01 Mar-24 12:17 (p 2 of 4)  
 Test Code/ID: CSE0224.050fml / 01-1524-3343

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-4470-6428      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:15      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:14      MD5 Hash: C073F62A8A571E0E2D9896FC246C5C43      Editor ID: 009-702-627-3

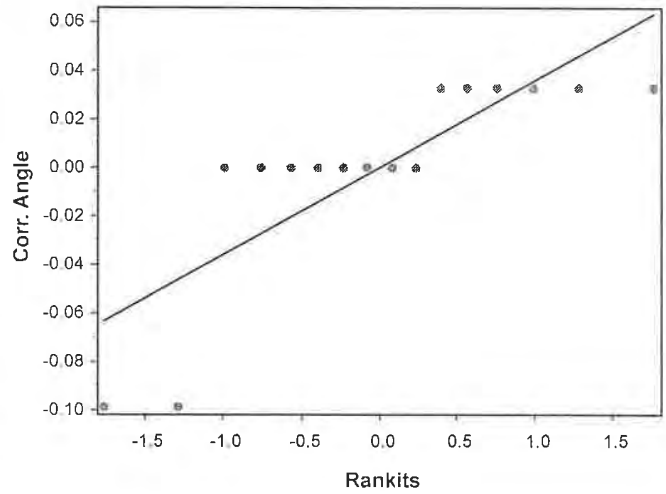
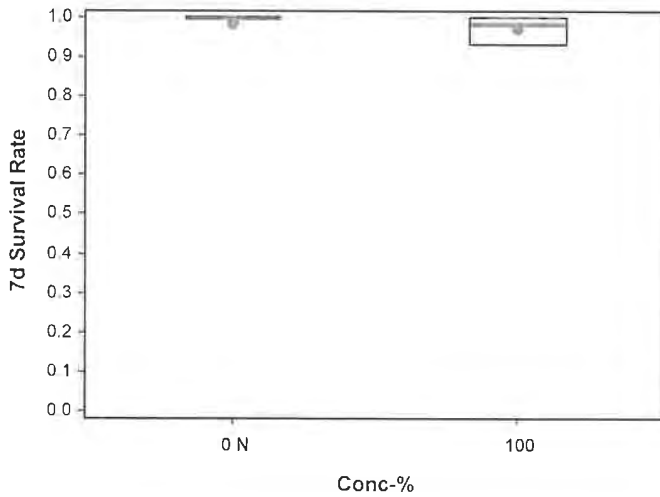
### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.3100	1.4410	1.4410	1.4410	1.4410	1.4410	1.3100

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	14/15	15/15	15/15	15/15	15/15	15/15	14/15

### Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 12:17 (p 3 of 4)  
 Test Code/ID: CSE0224.050fml / 01-1524-3343

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-4814-6897      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:15      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:14      MD5 Hash: 6C677D6BCC1286413F74B004F93ABA43      Editor ID: 009-702-627-3

Batch ID: 07-7807-5418      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 08 Feb-24 14:37      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 15 Feb-24 14:22      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age: <24

Sample ID: 07-3277-5804      Code: CSE0224.050fml      Project: Boeing-SSFL NPDES 2023 PERMIT  
 Sample Date: 06 Feb-24 08:35      Material: Sample Water      Source: Bioassay Report  
 Receipt Date: 06 Feb-24 13:46      CAS (PC):      Station: Outfall 004  
 Sample Age: 54h (4.3 °C)      Client: Calscience Environmental Laboratories, Inc

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	11	16.73	0.6974	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.359	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0001174	0.0001174	1	0.946	0.3472	Non-Significant Effect
Error	0.0017368	0.0001241	14			
Total	0.0018542		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.418	8.862	0.5284	Equal Variances
	Mod Levene Equality of Variance Test	0.000391	8.862	0.9845	Equal Variances
	Variance Ratio F Test	1.415	8.885	0.6583	Equal Variances
Distribution	Anderson-Darling A2 Test	0.6983	3.878	0.0682	Normal Distribution
	D'Agostino Skewness Test	1.215	2.576	0.2244	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1929	0.2471	0.1141	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9242	0.8408	0.1967	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.359	0.3505	0.3675	0.3593	0.342	0.372	0.003583	2.82%	0.00%
100		8	0.3536	0.3435	0.3637	0.349	0.3427	0.3747	0.004263	3.41%	1.51%

**Mean Dry Biomass-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3613	0.3607	0.372	0.372	0.342	0.3507	0.358	0.3553
100		0.3747	0.3473	0.35	0.3493	0.3487	0.3707	0.3427	0.3453

# CETIS Analytical Report

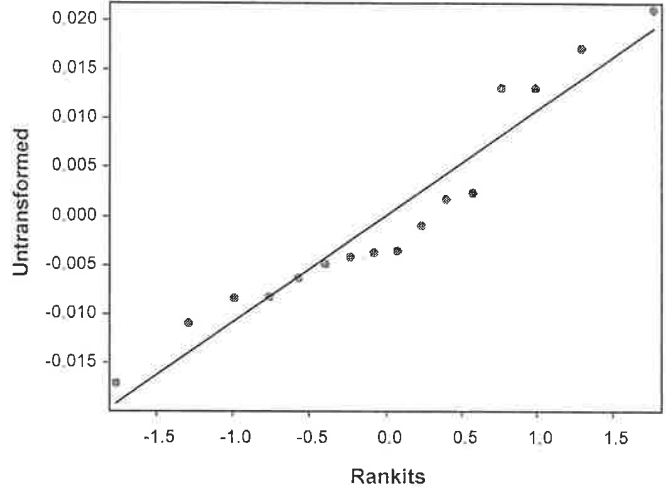
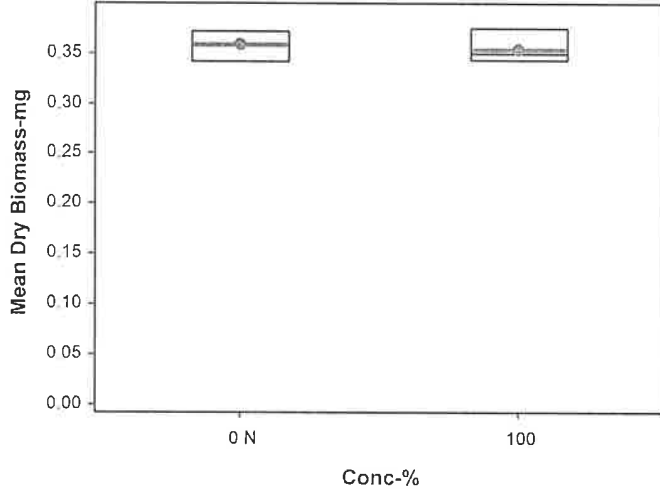
Report Date: 01 Mar-24 12:17 (p 4 of 4)  
Test Code/ID: CSE0224.050fml / 01-1524-3343

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-4814-6897	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:15	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:14	MD5 Hash: 6C677D6BCC1286413F74B004F93ABA43	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 01 Mar-24 12:17 (p 1 of 1)  
 Test Code/ID: CSE0224.050fml / 01-1524-3343

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 07-7807-5418      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 08 Feb-24 14:37      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 15 Feb-24 14:22      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age: <24

Sample ID: 07-3277-5804      Code: CSE0224.050fml      Project: Boeing-SSFL NPDES 2023 PERMIT  
 Sample Date: 06 Feb-24 08:35      Material: Sample Water      Source: Bioassay Report  
 Receipt Date: 06 Feb-24 13:46      CAS (PC):      Station: Outfall 004  
 Sample Age: 54h (4.3 °C)      Client: Calscience Environmental Laboratories, Inc

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	16	16	16	16	16	0	0	0.00%	0
Overall		16	39	26.34	51.66	16	62	5.939	23.75	60.91%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	382.2	378.4	386.1	376	388	0.5738	4.59	1.20%	0
100		8	65.88	64.74	67.01	64	68	0.1695	1.356	2.06%	0
Overall		16	224.1	137	311.1	64	388	40.85	163.4	72.93%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.888	7.671	8.104	7.3	8.2	0.03235	0.2588	3.28%	0
100		8	7.825	7.565	8.085	7.1	8.1	0.03882	0.3105	3.97%	0
Overall		16	7.856	7.708	8.004	7.1	8.2	0.0695	0.278	3.54%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	23	23	23	23	23	0	0	0.00%	0
Overall		16	61.5	40.31	82.69	23	100	9.941	39.76	64.65%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	8.038	8.212	7.9	8.2	0.01294	0.1035	1.27%	0
100		8	7.725	7.618	7.832	7.6	7.9	0.01602	0.1282	1.66%	0
Overall		16	7.925	7.8	8.05	7.6	8.2	0.05881	0.2352	2.97%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.03	23.99	24.06	24	24.1	0.005778	0.04623	0.19%	0
Overall		16	24.01	23.99	24.03	24	24.1	0.008539	0.03416	0.14%	0 (0%)



CHAIN OF CUSTODY FORM

Approximate = Sample (Event)  
 Model CF = 40.3%  
 Temp. deg. C = 4.3  
 on Approx CF =

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit <b>Annual Sampling &amp;          1st &amp; 2nd Event of the First Year          OUTFALL 004          COMPOSITE</b>				ANALYSIS REQUIRED R/A R R/A R A R/A R R R R A R R																								
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 <b>ECI Project #57013187</b>				Project Manager: Katherine Miller 520 289.8606, 520.904.6944 (cell)				<table border="1" style="width:100%; font-size: 8px;"> <tr> <td style="width:15%;">Total Recoverable Metals (E9007); B. Hardness as CaCO3 (E9008); A. As, Ba, Be, Cd, Cr, Fe, Mn, Ni, V, Zn, Ag, Co, Cu, Pb, Sb, Se, Tl</td> <td style="width:15%;">TCDD (and all congeners) (E1613E)</td> <td style="width:15%;">Orthophosphate [PO4] Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E9001), Perchlorate (E314.0)</td> <td style="width:15%;">TDS (SM2540C/E160.1)</td> <td style="width:15%;">SRAM list - Formaldehyde (9319A)</td> <td style="width:15%;">Total Dissolved Metals (E9007); B. Hardness as CaCO3 (E9008); A. As, Ba, Be, Cd, Cr, Fe, Mn, Ni, V, Zn, Ag, Co, Cu, Pb, Sb, Se, Tl</td> <td style="width:15%;">Gross Alpha, Gross Beta (E900 D); Total Combined Radium 226 &amp; 228 (E903, E904); K-40, Cesium-137 (E901), Strontium-90 (E903); Uranium (FHSL-300 U-02 or A-01-R); Tritium (H-3) (E906 U)</td> <td style="width:15%;">Chronic Toxicity - Fishhead minnow (EPA-621-F-02-015) ABC Labs in Ventura, CA</td> <td style="width:15%;">Ammonia-N (350.2)</td> <td style="width:15%;">Cyanide (SM4500-CN-E / E385.2)</td> <td style="width:15%;">Priority Pollutants-Perchlorate-PCBs (E908) Week Labs in Hacienda Heights, CA</td> <td style="width:15%;">LL Mercury (1631) Total Recoverable</td> <td style="width:15%;">LL Mercury (1631) Total Dissolvable</td> </tr> </table>												Total Recoverable Metals (E9007); B. Hardness as CaCO3 (E9008); A. As, Ba, Be, Cd, Cr, Fe, Mn, Ni, V, Zn, Ag, Co, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613E)	Orthophosphate [PO4] Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E9001), Perchlorate (E314.0)	TDS (SM2540C/E160.1)	SRAM list - Formaldehyde (9319A)	Total Dissolved Metals (E9007); B. Hardness as CaCO3 (E9008); A. As, Ba, Be, Cd, Cr, Fe, Mn, Ni, V, Zn, Ag, Co, Cu, Pb, Sb, Se, Tl	Gross Alpha, Gross Beta (E900 D); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901), Strontium-90 (E903); Uranium (FHSL-300 U-02 or A-01-R); Tritium (H-3) (E906 U)	Chronic Toxicity - Fishhead minnow (EPA-621-F-02-015) ABC Labs in Ventura, CA	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Priority Pollutants-Perchlorate-PCBs (E908) Week Labs in Hacienda Heights, CA	LL Mercury (1631) Total Recoverable	LL Mercury (1631) Total Dissolvable
Total Recoverable Metals (E9007); B. Hardness as CaCO3 (E9008); A. As, Ba, Be, Cd, Cr, Fe, Mn, Ni, V, Zn, Ag, Co, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E1613E)	Orthophosphate [PO4] Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E9001), Perchlorate (E314.0)	TDS (SM2540C/E160.1)	SRAM list - Formaldehyde (9319A)	Total Dissolved Metals (E9007); B. Hardness as CaCO3 (E9008); A. As, Ba, Be, Cd, Cr, Fe, Mn, Ni, V, Zn, Ag, Co, Cu, Pb, Sb, Se, Tl	Gross Alpha, Gross Beta (E900 D); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901), Strontium-90 (E903); Uranium (FHSL-300 U-02 or A-01-R); Tritium (H-3) (E906 U)	Chronic Toxicity - Fishhead minnow (EPA-621-F-02-015) ABC Labs in Ventura, CA	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E385.2)	Priority Pollutants-Perchlorate-PCBs (E908) Week Labs in Hacienda Heights, CA	LL Mercury (1631) Total Recoverable	LL Mercury (1631) Total Dissolvable																				
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				<table border="1" style="width:100%; font-size: 8px;"> <tr> <td style="width:15%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> <td style="width:15%; text-align: center;"><input type="checkbox"/></td> </tr> </table>												<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																				

Chlorine (mg/L) = 2.0  
 Chlorine (mg/L) = 2.0  
 Comments

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	ANALYSIS REQUIRED												Comments												
Outfall 004	Outfall004_20240208_Comp	2/8/2024 10:35	WM	500 mL Poly	1	HNO3	85	Yes	X																								
			WM	1 L Glass Amber	2	None	110																										
			WM	500 mL Poly	1	None	125																									48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	155						X																				
			WM	500 mL Poly	1	H2SO4	160																										
			WM	100 mL Glass Amber	1	H2SO4	160						X																				
			WM	250 mL Poly	1	NaOH	220															X											
			WM	2.5 Gal Cube	1	None	225																										
			WM	1 L Glass Amber	1	None	230																										Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
			WM	1 Gal Cube	5	None	235															X											Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
Outfall 004	Outfall004_20240206_Comp_F	2/6/2024 10:35	WM	1L Poly	1	None	185	Yes																						Filter and preserve w/in 24hrs of receipt at lab			
			WM	250mL Glass, double bagged	1	None	998																								Filter and preserve w/in 24hrs of receipt at lab. Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures.		

Hand-delivered to ABC with this copy of the COC

<b>Legend: R = Routine, A = Annual</b>		
Relinquished By: <i>Mark Dominick</i> Date/Time: 2-6-24/1345 Company: H.A	Received By: <i>Victoria Lopez</i> Date/Time: 2-6-24 1340 Company: ABC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: _____	Received By: _____	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____	Received By: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>



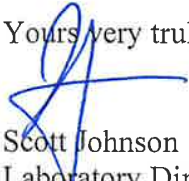
**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 6 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 38.00 ug/l  
EC25 = 57.82 ug/l  
EC50 = 80.77 ug/l

ENDPOINT: GROWTH  
NOEC = 38.00 ug/l  
IC25 = 54.21 ug/l  
IC50 = 70.57 ug/l

Yours very truly,  
  
✓ Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-3188-9121	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	9.34%	1
12-8541-5621	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test	✓ 38	75	53.39	14.1%	1

### Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
10-6161-5529	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	49.89	46.53	55.08	1
			EC20	53.86	49.38	60.78	
			EC25	57.82	52.22	66.47	
			EC40	69.71	60.76	85.23	
			EC50	80.77	64.57	102.5	
00-3964-3519	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	47.66	43.59	52.13	1
			✓ IC20	50.94	46.01	56.81	
			✓ IC25	54.21	48.39	61.7	
			✓ IC40	64.03	55.49	76.19	
			✓ IC50	70.57	60.02	93.7	

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
10-6161-5529	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-3188-9121	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
00-3964-3519	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	PMSD	0.1406	0.12	0.3	Yes	Passes Criteria	

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.4000	0.6667	0.0609	0.1217	22.82%	46.67%
150		4	0.1000	-0.1525	0.3525	0.0000	0.3333	0.0794	0.1587	158.70%	90.00%

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.342	0.364	0.004842	0.009684	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3413	0.366	0.005384	0.01077	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3413	0.3547	0.002944	0.005888	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.3407	0.3607	0.004131	0.008262	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.07933	0.216	0.02887	0.05773	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0	0.07867	0.01856	0.03713	146.55%	92.77%

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 28ECB5E5C36E53EA44D50952ED449010

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: F76AD684C03403B4619D68D6F5A6FE41

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 1 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO <span style="float: right;">Age: ---</span>

Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.09338	9.34%

### Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.79478	0.958956	5	84.71	<1.0E-05	Significant Effect
Error	0.203761	0.01132	18			
Total	4.99854		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	7.038	4.248	0.0008	Unequal Variances
	Mod Levene Equality of Variance Test	3.38	4.248	0.0251	Equal Variances
Distribution	Anderson-Darling A2 Test	3.628	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.308	2.576	0.0009	Non-Normal Distribution
	D'Agostino Skewness Test	3.098	2.576	0.0019	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	20.54	9.21	3.5E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7022	0.884	1.1E-05	Non-Normal Distribution

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.5333	0.4000	0.6667	0.0609	22.82%	46.67%
150		4	0.1000	0.0000	0.3525	0.0222	0.0000	0.3333	0.0794	158.70%	90.00%

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 2 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010      Editor ID: 009-702-627-3

### Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.8195	0.6234	1.0160	0.8191	0.6847	0.9553	0.0616	15.04%	43.14%
150		4	0.2839	-0.0815	0.6493	0.1734	0.1295	0.6155	0.1148	80.88%	80.30%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

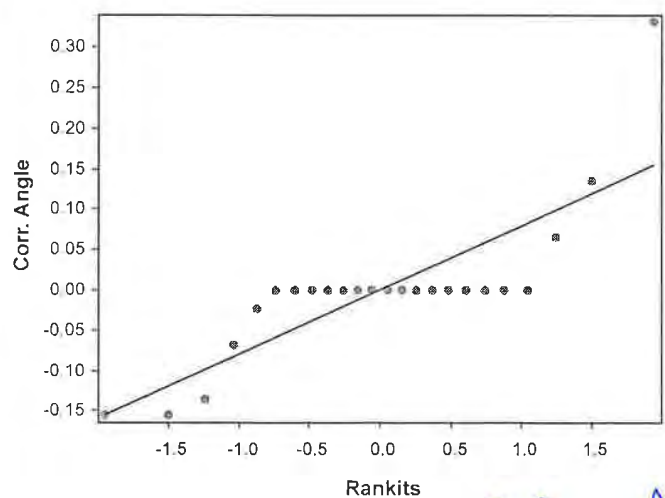
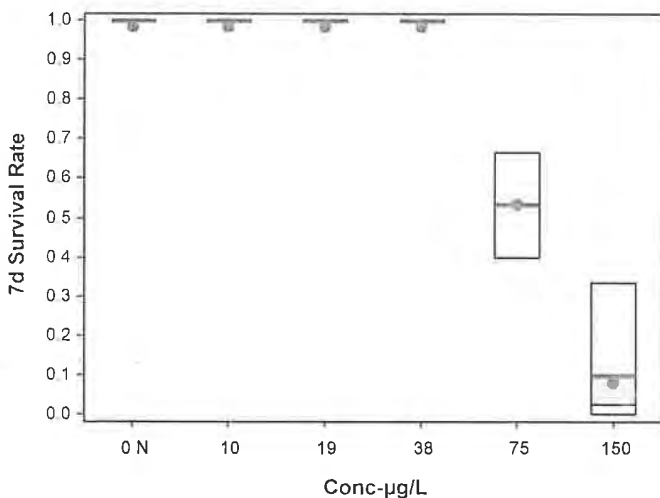
### Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.8861	0.7520	0.6847
150		0.6155	0.2612	0.1295	0.1295

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

### Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 3 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.04925	14.06%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	0	CDF	0.8333	Non-Significant Effect
		19	6	18	10	0	CDF	0.8333	Non-Significant Effect
		38	6	17.5	10	1	CDF	0.7867	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
PMSD	0.1406	0.12	0.3	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.396777	0.0793554	5	94.77	<1.0E-05	Significant Effect
Error	0.0150717	0.0008373	18			
Total	0.411849		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	21.19	15.09	0.0007	Unequal Variances
	Levene Equality of Variance Test	4.158	4.248	0.0110	Equal Variances
	Mod Levene Equality of Variance Test	3.182	4.248	0.0312	Equal Variances
Distribution	Anderson-Darling A2 Test	1.52	3.878	0.0001	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.511	2.576	0.0120	Normal Distribution
	D'Agostino Skewness Test	0.1499	2.576	0.8808	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	6.326	9.21	0.0423	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1935	0.2056	0.0206	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8702	0.884	0.0053	Non-Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.3477	0.342	0.364	0.004842	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3473	0.3413	0.366	0.005384	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3507	0.3413	0.3547	0.002944	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.349	0.3407	0.3607	0.004131	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.1553	0.07933	0.216	0.02887	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0.007556	0	0.07867	0.01856	146.55%	92.77%

Fathead Minnow 7-d Larval Survival and Growth Test

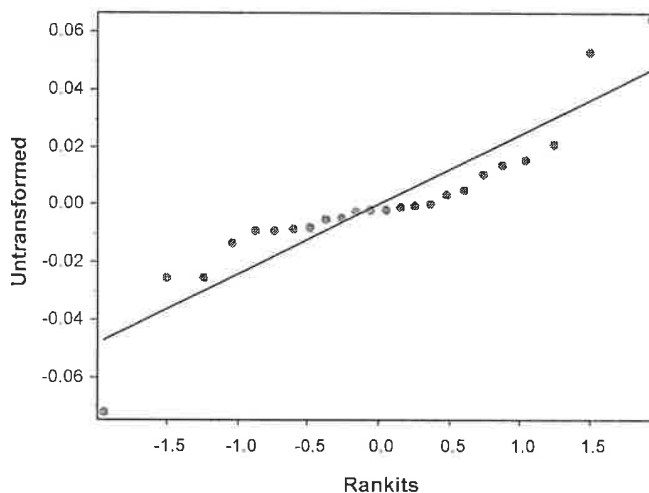
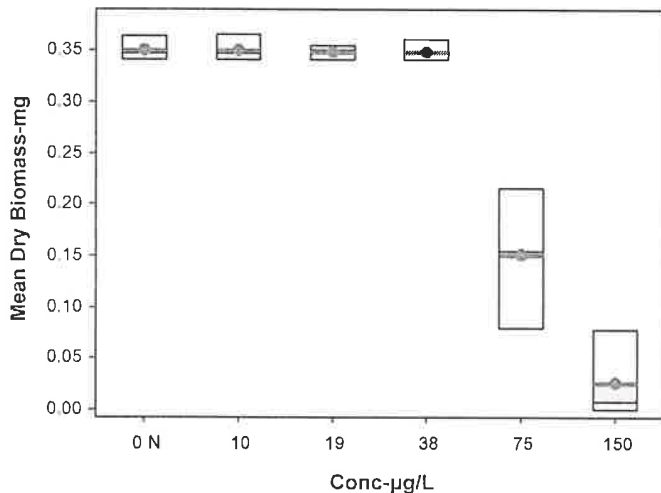
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

Graphics





**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 1 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:

Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	49.89	46.53	55.08
EC20	53.86	49.38	60.78
EC25	57.82	52.22	66.47
EC40	69.71	60.76	85.23
EC50	80.77	64.57	102.5

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.5333	0.5333	0.4000	0.6667	22.82%	46.67%	32/60	0.5333	46.67%
150		4	0.1000	0.0222	0.0000	0.3333	158.70%	90.00%	6/60	0.1000	90.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

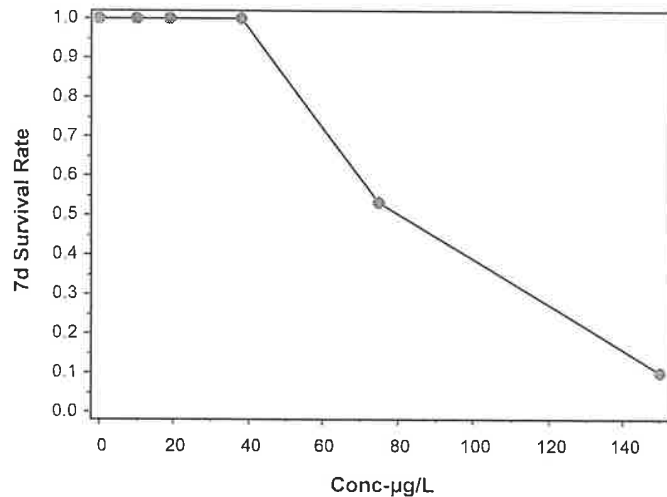
Report Date: 01 Mar-24 13:17 (p 2 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

### Graphics



# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 3 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	419376	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	47.66	43.59	52.13
IC20	50.94	46.01	56.81
IC25	54.21	48.39	61.7
IC40	64.03	55.49	76.19
IC50	70.57	60.02	93.7

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3503	0.3477	0.342	0.364	2.76%	0.00%	0.3504	0.00%
10		4	0.3505	0.3473	0.3413	0.366	3.07%	-0.05%	0.3504	0.00%
19		4	0.3493	0.3507	0.3413	0.3547	1.69%	0.29%	0.3496	0.23%
38		4	0.3498	0.349	0.3407	0.3607	2.36%	0.14%	0.3496	0.23%
75		4	0.1515	0.1553	0.07933	0.216	38.11%	56.76%	0.1515	56.76%
150		4	0.02533	0.007556	0	0.07867	146.55%	92.77%	0.02533	92.77%

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

# CETIS Analytical Report

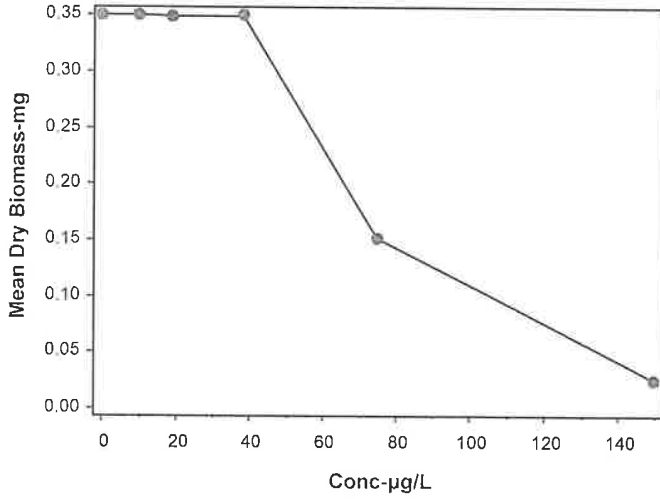
Report Date: 01 Mar-24 13:17 (p 4 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 06 Feb-24 13:40      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 13 Feb-24 14:12      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d 1h      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 06-0345-7989      Code: FML020624      Project: REF TOX  
 Sample Date: 06 Feb-24 13:40      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	61	61	61	61	61	0	0	0.00%	0
Overall		16	61.5	61.22	61.78	61	62	0.1291	0.5164	0.84%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
10		8	378	376.9	379.1	376	380	0.1637	1.309	0.35%	0
19		8	377.8	376.2	379.3	375	380	0.2386	1.909	0.51%	0
38		8	378.4	377	379.7	376	380	0.1997	1.598	0.42%	0
75		8	379.1	378	380.3	377	380	0.1695	1.356	0.36%	0
150		8	380.6	379.9	381.4	380	382	0.1145	0.9161	0.24%	0
Overall		48	379.7	378.9	380.5	375	388	0.4106	2.845	0.75%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
10		8	7.85	7.554	8.146	7	8.1	0.04432	0.3546	4.52%	0
19		8	7.825	7.536	8.114	7	8.1	0.04317	0.3454	4.41%	0
38		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
75		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
150		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
Overall		48	7.829	7.733	7.925	7	8.2	0.04782	0.3313	4.23%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
10		8	8.125	8.066	8.184	8	8.2	0.00884	0.07072	0.87%	0
19		8	8.1	8.055	8.145	8	8.2	0.006684	0.05347	0.66%	0
38		8	8.088	8.058	8.117	8	8.1	0.004423	0.03538	0.44%	0
75		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
150		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
Overall		48	8.106	8.087	8.126	8	8.2	0.009605	0.06654	0.82%	0 (0%)

# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
Test Code/ID: FML020624 / 04-6220-8945

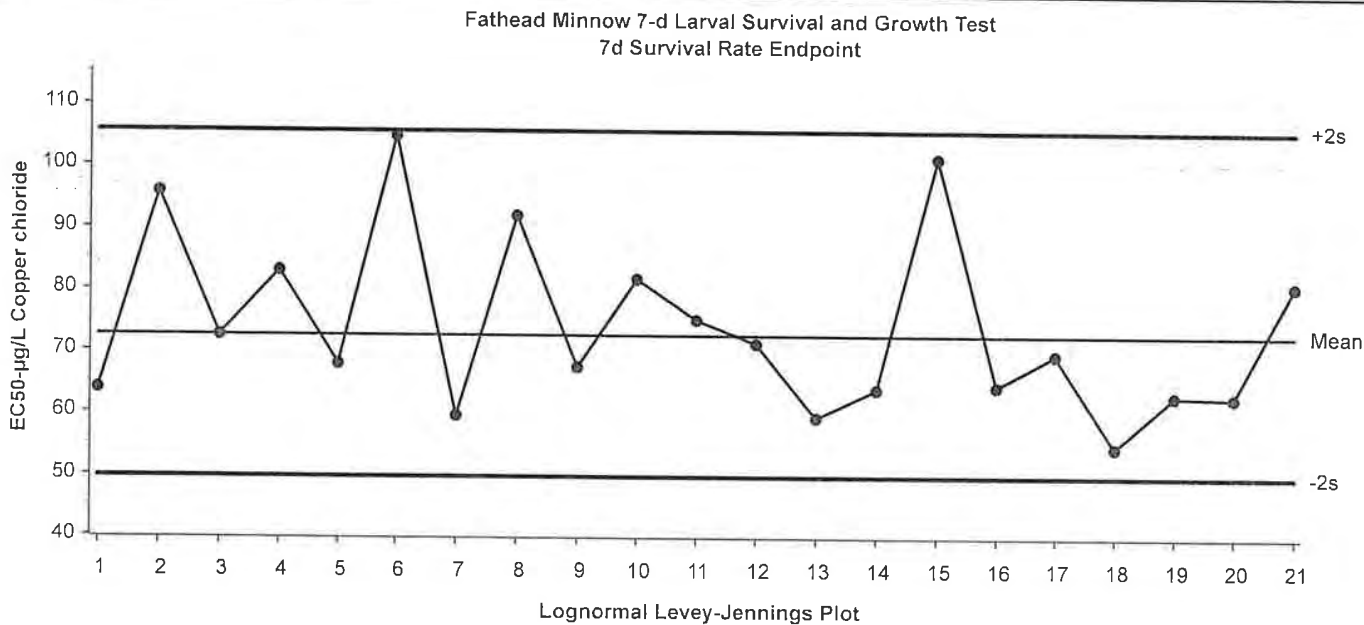
## Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

### Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)

Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: 7d Survival Rate	Source: Reference Toxicant-REF	



Mean: 72.46      Count: 20      -2s Action Limit: 49.7  
 Sigma: NA      CV: 19.00%      +2s Action Limit: 106

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	63.9	-8.557	-0.6667			18-8099-7551	11-3195-6885
2			10	14:30	95.83	23.38	1.483			00-9395-0169	09-6776-4624
3			17	14:45	72.45	-0.00922	-0.00067			10-4602-8256	00-4017-6619
4			24	13:40	83.04	10.58	0.7229			01-7885-2189	13-0007-2758
5			25	12:16	67.98	-4.481	-0.3386			11-1982-8946	16-3131-2159
6			31	15:30	104.9	32.47	1.964			07-7265-5981	14-1873-8638
7		Nov	7	15:10	59.58	-12.87	-1.038			19-2888-5334	07-9547-8315
8			14	15:30	92.05	19.59	1.269			18-8754-0700	05-2558-7597
9			17	14:01	67.38	-5.075	-0.3852			17-0726-1937	14-0961-0371
10			28	14:49	81.82	9.361	0.6446			10-1970-7599	00-2724-7341
11		Dec	5	13:45	75	2.543	0.183			19-1204-9208	03-6141-0747
12			12	13:30	71.3	-1.157	-0.08543			03-7560-9108	05-6885-8439
13			13	12:15	59.42	-13.04	-1.052			14-7892-5887	04-9254-9827
14			21	13:29	64	-8.457	-0.6584			06-6036-2868	13-4891-1637
15			22	14:30	101.4	28.89	1.78			00-5720-1635	14-1952-0593
16	2024	Jan	3	14:00	64.43	-8.029	-0.623			04-0866-8727	01-4746-8383
17			4	14:05	69.52	-2.939	-0.2197			15-6608-9784	08-1717-2208
18			9	13:20	54.55	-17.9	-1.506			14-8299-7228	00-5651-6529
19			23	14:00	63	-9.457	-0.742			12-1922-4773	10-8689-4329
20		Feb	2	14:20	62.67	-9.791	-0.7701			05-5157-4005	09-6073-8693
21			6	13:40	80.77	8.312	0.5761			04-6220-8945	10-6161-5529

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

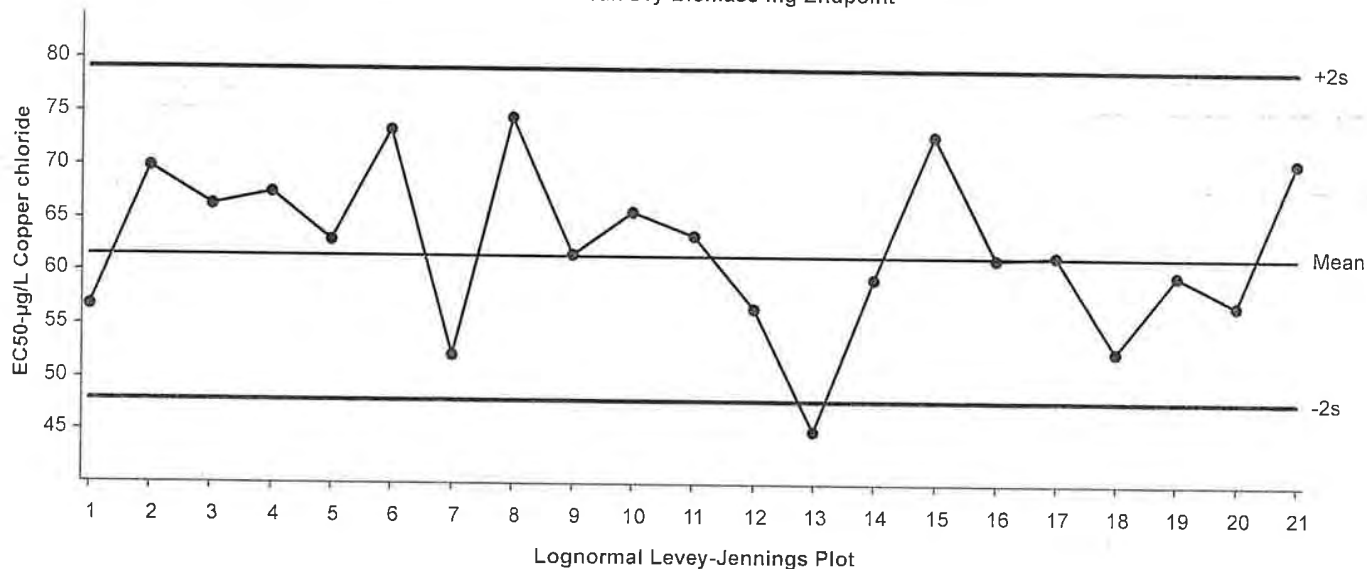
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 61.56      Count: 20      -2s Action Limit: 47.8  
 Sigma: NA      CV: 12.70%      +2s Action Limit: 79.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	56.73	-4.827	-0.6475			18-8099-7551	15-1441-4720
2			10	14:30	69.86	8.298	1.003			00-9395-0169	18-9888-9667
3			17	14:45	66.23	4.667	0.5795			10-4602-8256	13-8119-0525
4			24	13:40	67.38	5.825	0.7169			01-7885-2189	06-8805-4487
5			25	12:16	63.01	1.45	0.1847			11-1982-8946	04-1492-8778
6			31	15:30	73.46	11.9	1.401			07-7265-5981	21-3432-7293
7		Nov	7	15:10	52.21	-9.347	-1.306			19-2888-5334	11-0119-4879
8			14	15:30	74.52	12.96	1.515			18-8754-0700	03-4458-8213
9			17	14:01	61.66	0.1018	0.0131			17-0726-1937	06-0317-0204
10			28	14:49	65.63	4.075	0.5083			10-1970-7599	09-5836-2004
11		Dec	5	13:45	63.46	1.898	0.2409			19-1204-9208	02-5721-3294
12			12	13:30	56.61	-4.947	-0.6644			03-7560-9108	19-0990-5343
13			13	12:15	45.01	-16.55	-2.483		(-)	14-7892-5887	19-1033-5713
14			21	13:29	59.44	-2.118	-0.2777			06-6036-2868	01-3251-7777
15			22	14:30	72.95	11.39	1.346			00-5720-1635	06-1309-8628
16	2024	Jan	3	14:00	61.34	-0.2222	-0.02868			04-0866-8727	03-7640-5638
17			4	14:05	61.64	0.08199	0.01056			15-6608-9784	18-2508-7781
18			9	13:20	52.68	-8.881	-1.236			14-8299-7228	08-4892-6835
19			23	14:00	59.92	-1.64	-0.2141			12-1922-4773	11-2137-3210
20		Feb	2	14:20	57.13	-4.427	-0.5918			05-5157-4005	07-7973-9309
21			6	13:40	70.57	9.012	1.083			04-6220-8945	00-3964-3519



CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling Outfalls [003, 004, 005, 006, 007, 008, 009, 010]				ANALYSIS REQUIRED																				
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Recoverable Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Si, Ti, V, Zn																				
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreements 2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				TCDD (and all congeners) (E1613B) Fluoride (F), Chloride (Cl), Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E500), Perchlorate (Cl4O) TDS (SM2540C/E160.1) TSS (180.2 (SM2540D)) Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Si, Ti, V, Zn Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 L02 or A01-R); Soil Combined Radium 226 & 228; Sr-90 (E903, E904, E905); Iodine (I-131) (E906.0) Chromate Toxicity - Filterhead Nitrow (EPA-821-R-02-013) ABC Labs in Ventura, CA Ammonia-N (80.2) Cyanide (SM4500-CHE / E35.2) Priority Pollutants-Pesticides-PCBs (E909) Weck Labs in Hacienda Heights, CA LL Mercury - Total Recoverable (E1631E) LL Mercury - Total Dissolved (E1631F) Cr (VI), Total Dissolved (E216.6)																				
Sampler: Adrien Mobeka				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Comments																				
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Si, Ti, V, Zn	TCDD (and all congeners) (E1613B)	Fluoride (F), Chloride (Cl), Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E500), Perchlorate (Cl4O)	TDS (SM2540C/E160.1)	TSS (180.2 (SM2540D))	Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Si, Ti, V, Zn	Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 L02 or A01-R); Soil Combined Radium 226 & 228; Sr-90 (E903, E904, E905); Iodine (I-131) (E906.0)	Chromate Toxicity - Filterhead Nitrow (EPA-821-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (80.2)	Cyanide (SM4500-CHE / E35.2)	Priority Pollutants-Pesticides-PCBs (E909) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631F)	Cr (VI), Total Dissolved (E216.6)	Comments					
Outfall 004	Outfall004_20240206_Comp	2/6/2024 0835	WM	500 mL Poly	1	HNO3	85	Yes	X																			
			WM	1 L Glass Amber	2	None	110				X																	
			WM	500 mL Poly	1	None	125																					
			WM	500 mL Poly	1	None	155						X														48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	H2SO4	160												X									
			WM	1L Poly	1	None	165							X														
			WM	250 mL Poly	1	NaOH	220														X							
			WM	2.5 Gal Cube	1	None	225											X										Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230												X									Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 Gal Cube	5	None	235															X						Deliver to Weck Labs in Hacienda Heights, CA
	WM	1 L Glass Amber	4	None	250																X							
	WM	250mL Glass, double bagged	1	HCL	998																	X						
	Outfall 004	Outfall004_20240206_Comp_F	2/6/2024 0835	WM	1L Poly	1	None	195	Yes						X												Filter and preserve w/in 24hrs of receipt at lab	
				WM	250 mL Poly	1	None	280																	X			
WM				250mL Glass, double bagged	1	None	998																X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab	



570-171233 Chain of Custody

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm=SRAM

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 2/6/2024 1300 Company: H&A	Received By: <i>[Signature]</i> Date/Time: 2/6/24 1300 EC	1. _____ 2. _____ 48 Hour: _____ 5 Day: _____ Normal: _____ Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>
Relinquished By: <i>[Signature]</i> Date/Time: 2/6/24 1630 EC	Received By: <i>[Signature]</i> Date/Time: 2/6/24 1630	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	

2.0/2.2 1.6/1.8 SC14

### CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling Outfalls [003, 004, 005, 006, 007, 008, 009, 010]  <b>OUTFALL 004 COMPOSITE</b>						ANALYSIS REQUIRED																					
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)						Priority Pollutants-SVOCs (E625)	Cr (VI), Total Recoverable (E218.6)	Asbestos (EPA100.2)	Chlorpyrifos, Diazinon (E525.2) Weck Labs in Hacienda Heights, CA	Surfactants (MBAS) (SM5540C/E/425-1)	Settleable Solids (E160.5 (SM25-40F))										Comments
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.								Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																					
Sampler: Adrien Mobeka																													
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																					
Outfall 004	Outfall004_20240206_Comp	2/6/2024 0835	WM	1 L Glass Amber	6	None	175	Yes	X																				
			WM	250 mL Poly	1	None	260					X																	
			WM	1L Poly	1	None	270						X																
			WM	1L Poly	1	None	70								X														
			WM	1 L Glass Amber	2	None	275										X												Deliver to Weck Labs in Hacienda Heights, CA Extract within 24-Hours of sampling.
			WM	500 mL Poly	2	None	120								X														

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm=SRAM

Relinquished By <i>M. Dallah</i>	Date/Time 2/6/2024	Company 1300	Received By <i>HdA</i>	Date/Time 2/6/24	Company 1300 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u> X </u> 48 Hour: _____ 5 Day: _____ Normal: _____  Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u> X </u>
Relinquished By <i>[Signature]</i>	Date/Time 2/6/24	Company 1630 EC	Received By <i>[Signature]</i>	Date/Time 2/6/24	Company 1630	
Relinquished By	Date/Time	Company	Received By	Date/Time	Company	



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-171233-5

**Login Number: 171233**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/16/2024 1:16:06 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 006 - Comp

## JOB NUMBER

570-171237-5

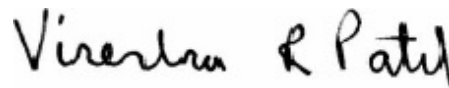
# Eurofins Calscience

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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3/16/2024 1:16:06 PM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 006 - Comp

Job ID: 570-171237-5

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 006 - Comp

Job ID: 570-171237-5

**Job ID: 570-171237-5**

**Eurofins Calscience**

## Job Narrative 570-171237-5

### Receipt

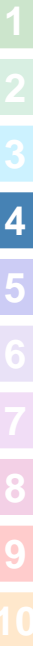
The samples were received on 2/6/2024 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 2.0° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.





# Detection Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 006 - Comp

Job ID: 570-171237-5

**Client Sample ID: Outfall006\_20240206\_Comp**

**Lab Sample ID: 570-171237-1**

No Detections.

1

2

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 006 - Comp

Job ID: 570-171237-5

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 006 - Comp

Job ID: 570-171237-5

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-171237-1	Outfall006_20240206_Comp	Water	02/06/24 09:20	02/06/24 16:30

1

2

3

4

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10



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 1, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 006\_20240206\_Comp  
 DATE RECEIVED: 6 Feb - 2024  
 ABC LAB. NO.: CSE0224.051

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS      % EFFECT = 0.00 %

GROWTH = PASS      % EFFECT = 1.81 %

Yours very truly,

Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 12:21 (p 1 of 1)  
 Test Code/ID: CSE0224.051fml / 17-0832-3738

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 05-2853-5621	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 14:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:27	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 09-2878-4089	Code: CSE0224.051fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 09:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 006
Sample Age: 53h (4.3 °C)	Client: Calscience Environmental Laboratories, Inc	

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
09-1942-2583	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
19-2729-1299	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
09-1942-2583	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
19-2729-1299	Mean Dry Biomass-mg	Control Resp	0.359	0.25	<<	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.359	0.3505	0.3675	0.342	0.372	0.003583	0.01014	2.82%	0.00%
100		8	0.3525	0.3481	0.3569	0.3467	0.3593	0.001876	0.005306	1.51%	1.81%

**7d Survival Rate Detail**

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Mean Dry Biomass-mg Detail**

MD5: 343281374B581F1834CFD71D8E687206

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3613	0.3607	0.372	0.372	0.342	0.3507	0.358	0.3553
100		0.3493	0.3507	0.35	0.3573	0.3593	0.3593	0.3467	0.3473

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 01 Mar-24 12:21 (p 1 of 4)  
 Test Code/ID: CSE0224.051fml / 17-0832-3738

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-1942-2583	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:20	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:19	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3
Batch ID: 05-2853-5621	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 14:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:27	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 09-2878-4089	Code: CSE0224.051fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 09:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 006
Sample Age: 53h (4.3 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

### TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

### 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

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

### Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

### 7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

Fathead Minnow 7-d Larval Survival and Growth Test

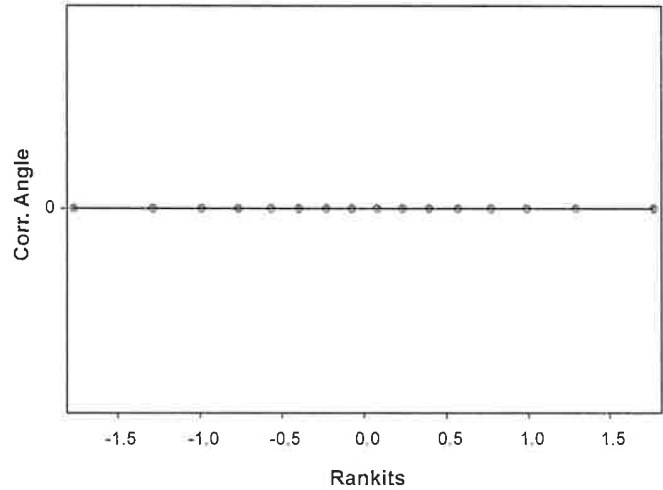
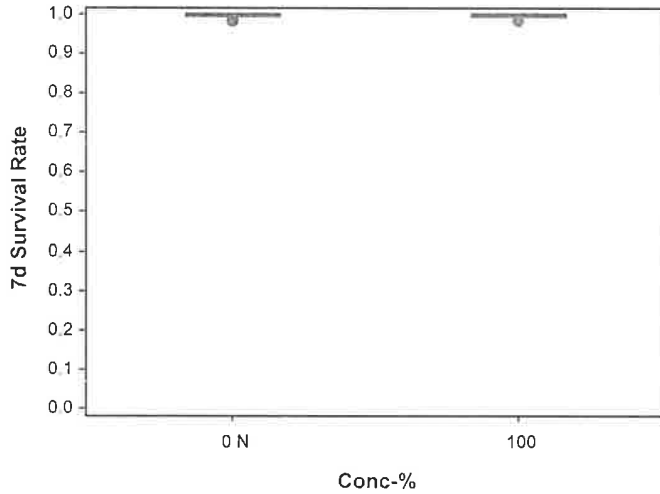
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-1942-2583      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:20      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:19      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 12:21 (p 3 of 4)  
 Test Code/ID: CSE0224.051fml / 17-0832-3738

Fathead Minnow 7-d Larval Survival and Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 19-2729-1299	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4	Analyzed: 01 Mar-24 12:20	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:19	MD5 Hash: 343281374B581F1834CFD71D8E687206	Editor ID: 009-702-627-3	Batch ID: 05-2853-5621	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 14:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	Ending Date: 15 Feb-24 14:27	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age: <24	Sample ID: 09-2878-4089	Code: CSE0224.051fml
Sample Date: 06 Feb-24 09:20	Material: Sample Water	Project: Boeing-SSFL NPDES 2023 PERMIT	Receipt Date: 06 Feb-24 13:46	CAS (PC):	Source: Bioassay Report
Sample Age: 53h (4.3 °C)	Client: Calscience Environmental Laboratories, Inc	Station: Outfall 006			

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	12	25.4	0.6955	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.359	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.000169	0.000169	1	2.582	0.1304	Non-Significant Effect
Error	0.0009162	6.544E-05	14			
Total	0.0010852		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.569	8.862	0.2309	Equal Variances
	Mod Levene Equality of Variance Test	1.701	8.862	0.2132	Equal Variances
	Variance Ratio F Test	3.648	8.885	0.1093	Equal Variances
Distribution	Anderson-Darling A2 Test	0.2824	3.878	0.6657	Normal Distribution
	D'Agostino Skewness Test	0.2304	2.576	0.8178	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1134	0.2471	1.0000	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9664	0.8408	0.7773	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.359	0.3505	0.3675	0.3593	0.342	0.372	0.003583	2.82%	0.00%
100		8	0.3525	0.3481	0.3569	0.3503	0.3467	0.3593	0.001876	1.51%	1.81%

**Mean Dry Biomass-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3613	0.3607	0.372	0.372	0.342	0.3507	0.358	0.3553
100		0.3493	0.3507	0.35	0.3573	0.3593	0.3593	0.3467	0.3473

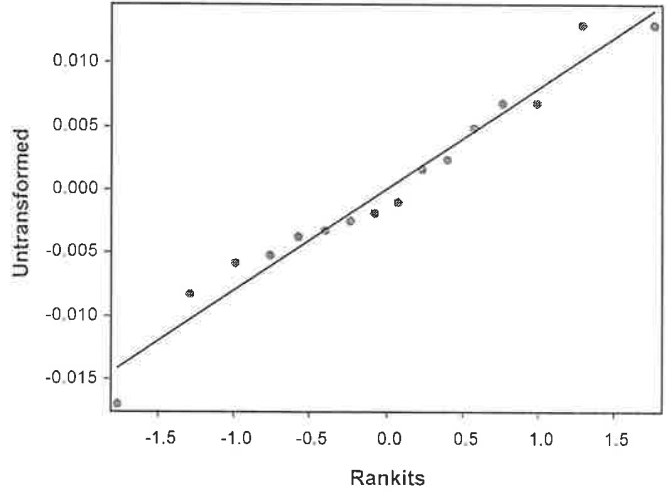
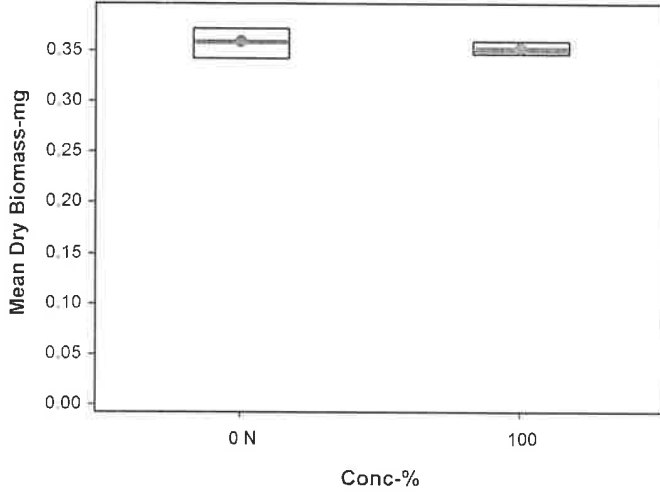


Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-2729-1299      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 01 Mar-24 12:20      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 01 Mar-24 12:19      MD5 Hash: 343281374B581F1834CFD71D8E687206      Editor ID: 009-702-627-3

Graphics



**CETIS Measurement Report**

Report Date: 01 Mar-24 12:21 (p 1 of 1)  
 Test Code/ID: CSE0224.051fml / 17-0832-3738

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 05-2853-5621	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 08 Feb-24 14:40	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 15 Feb-24 14:27	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b> <24
<b>Sample ID:</b> 09-2878-4089	<b>Code:</b> CSE0224.051fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 06 Feb-24 09:20	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 06 Feb-24 13:46	<b>CAS (PC):</b>	<b>Station:</b> Outfall 006
<b>Sample Age:</b> 53h (4.3 °C)	<b>Client:</b> Calscience Environmental Laboratories, Inc	

**Alkalinity (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	51	51	51	51	51	0	0	0.00%	0
Overall		16	56.5	53.47	59.53	51	62	1.42	5.68	10.05%	0 (0%)

**Conductivity-µmhos**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	382.2	378.4	386.1	376	388	0.5738	4.59	1.20%	0
100		8	145	142.5	147.5	140	150	0.372	2.976	2.05%	0
Overall		16	263.6	198.3	328.9	140	388	30.64	122.6	46.49%	0 (0%)

**Dissolved Oxygen-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.888	7.671	8.104	7.3	8.2	0.03235	0.2588	3.28%	0
100		8	7.813	7.532	8.093	7	8	0.04196	0.3357	4.30%	0
Overall		16	7.85	7.694	8.006	7	8.2	0.07303	0.2921	3.72%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	62	62	62	62	62	0	0	0.00%	0
Overall		16	81	70.54	91.46	62	100	4.906	19.62	24.23%	0 (0%)

**pH-Units**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	8.038	8.212	7.9	8.2	0.01294	0.1035	1.27%	0
100		8	7.612	7.518	7.707	7.4	7.7	0.01407	0.1126	1.48%	0
Overall		16	7.869	7.717	8.02	7.4	8.2	0.07113	0.2845	3.62%	0 (0%)

**Temperature-°C**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.04	23.98	24.1	24	24.2	0.009295	0.07436	0.31%	0
Overall		16	24.02	23.99	24.05	24	24.2	0.0136	0.05439	0.23%	0 (0%)

CHAIN OF CUSTODY FORM

ADDED C/F = +0.3<sup>02</sup>  
Temp. deg. C = 4.3  
PHARMACY = SAMPLE RECEIVING  
Chlorine (mg/L) = 0.1  
NH3 (mg/L) = 0.1

Client Name/Address:		Project:		ANALYSIS REQUIRED																														
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year OUTFALL 008 COMPOSITE		Total Recoverable Metals: (E200.7); B. Hardness as CaCO3 (E200.8); Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Ti TCDD (and all congeners) (E1613B) Orthophosphate (PO4), Fluoride (F-), Chloride (Cl-), Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E300); Perchlorate (E314.0) TDS (SM2540C/E160.1) SRAM list - Formaldehyde (E315A) Total Dissolved Metals: (E200.7); B. Hardness as CaCO3 (E200.8); Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Ti Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0) Chronic Toxicity - Fathead minnow (EPA-321-R-02-013) ABC Labs in Ventura, CA Ammonia-N (350.2) Cyanide (SM4500-CNE / E335.2) Priority Pollutants-Pesticides+PCBs (E608) Weick Labs in Hacienda Heights, CA LL Mercury (1631) Total Recoverable LL Mercury (1631) Total Dissolved																														
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520 289 8606, 520.904.6944 (cell)																																
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement #2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc		Field Manager: Mark Dominick 978.234.5033, 618.599.0702 (cell)																																
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals	TCDD	Orthophosphate	TDS	SRAM list	Total Dissolved Metals	Gross Alpha	Gross Beta	Combined Radium	K-40	Cesium-137	Strontium-90	Uranium	Tritium	Chronic Toxicity	Ammonia-N	Cyanide	Priority Pollutants	LL Mercury	LL Mercury	Comments					
Outfall 008	Outfall008_20240208_Comp	2/6/2024 10920	WM	500 mL Poly	1	HNO3	85	Yes	X																									
			WM	1 L Glass Amber	2	None	110				X																							
			WM	500 mL Poly	1	None	125					X																					48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	155							X																				
			WM	500 mL Poly	1	H2SO4	160								X																			
			WM	100 mL Glass Amber	1	H2SO4	160								X																			
			WM	250 mL Poly	1	NaOH	220									X																		
			WM	2.5 Gal Cube	1	None	225											X																Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate not MS/MSD
			WM	1 L Glass Amber	1	None	230																		X									Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 Gal Cube	5	None	235																											Filter and preserve w/in 24hrs of receipt at lab.
Outfall 008	Outfall008_20240206_Comp_F	2/6/2024 10920	WM	1 L Poly	1	None	195	Yes						X																		Filter and preserve w/in 24hrs of receipt at lab. Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures		
			WM	250mL Glass, double bagged	1	None	998																											

Hand-delivered to ABC Labs with this copy of the COC

Relinquished By		Date/Time	Company	Received By		Date/Time	Company	Turn-around time: (Check)	
M. Dominick		2-6-24	1345 H/A	Victoria Myr		2-6-24	1346	24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X _____ 48 Hour: _____ 5 Day: _____ Normal: _____	
Relinquished By		Date/Time	Company	Received By		Date/Time	Company	Sample Integrity: (Check) Intact: _____ On Ice: _____	
Relinquished By		Date/Time	Company	Received By		Date/Time	Company	Store samples for 6 months Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X _____	



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

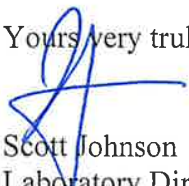


### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 6 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 38.00 ug/l  
EC25 = 57.82 ug/l  
EC50 = 80.77 ug/l

ENDPOINT: GROWTH  
NOEC = 38.00 ug/l  
IC25 = 54.21 ug/l  
IC50 = 70.57 ug/l

Yours very truly,

  
✓ Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-3188-9121	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	9.34%	1
12-8541-5621	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test	✓ 38	75	53.39	14.1%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
10-6161-5529	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	49.89	46.53	55.08	1
			EC20	53.86	49.38	60.78	
			EC25	57.82	52.22	66.47	
			EC40	69.71	60.76	85.23	
			EC50	80.77	64.57	102.5	
00-3964-3519	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	47.66	43.59	52.13	1
			✓ IC20	50.94	46.01	56.81	
			✓ IC25	54.21	48.39	61.7	
			✓ IC40	64.03	55.49	76.19	
			✓ IC50	70.57	60.02	93.7	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
10-6161-5529	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-3188-9121	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
00-3964-3519	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	PMSD	0.1406	0.12	0.3	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.4000	0.6667	0.0609	0.1217	22.82%	46.67%
150		4	0.1000	-0.1525	0.3525	0.0000	0.3333	0.0794	0.1587	158.70%	90.00%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.342	0.364	0.004842	0.009684	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3413	0.366	0.005384	0.01077	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3413	0.3547	0.002944	0.005888	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.3407	0.3607	0.004131	0.008262	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.07933	0.216	0.02887	0.05773	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0	0.07867	0.01856	0.03713	146.55%	92.77%



# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 28ECB5E5C36E53EA44D50952ED449010

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: F76AD684C03403B4619D68D6F5A6FE41

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 1 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.09338	9.34%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.79478	0.958956	5	84.71	<1.0E-05	Significant Effect
Error	0.203761	0.01132	18			
Total	4.99854		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	7.038	4.248	0.0008	Unequal Variances
	Mod Levene Equality of Variance Test	3.38	4.248	0.0251	Equal Variances
Distribution	Anderson-Darling A2 Test	3.628	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.308	2.576	0.0009	Non-Normal Distribution
	D'Agostino Skewness Test	3.098	2.576	0.0019	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	20.54	9.21	3.5E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7022	0.884	1.1E-05	Non-Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.5333	0.4000	0.6667	0.0609	22.82%	46.67%
150		4	0.1000	0.0000	0.3525	0.0222	0.0000	0.3333	0.0794	158.70%	90.00%

**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 2 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010      Editor ID: 009-702-627-3

**Angular (Corrected) Transformed Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.8195	0.6234	1.0160	0.8191	0.6847	0.9553	0.0616	15.04%	43.14%
150		4	0.2839	-0.0815	0.6493	0.1734	0.1295	0.6155	0.1148	80.88%	80.30%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

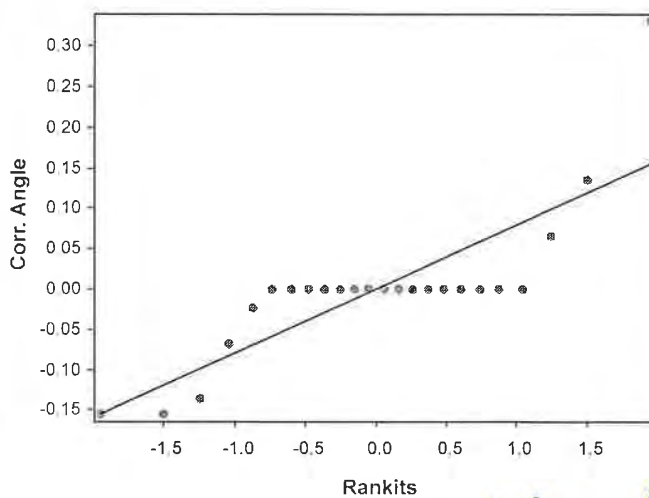
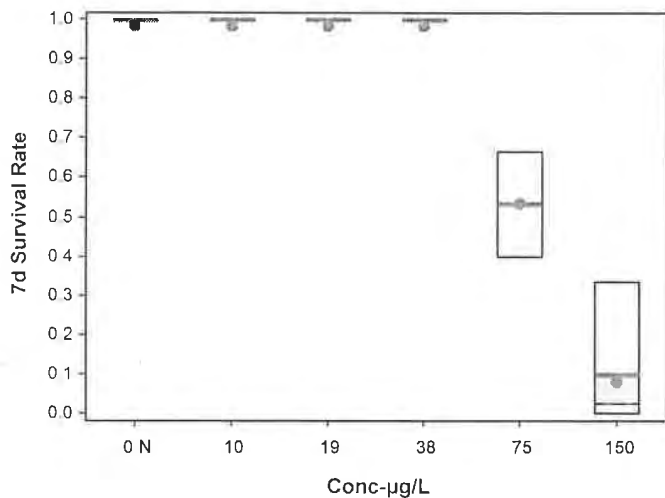
**Angular (Corrected) Transformed Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.8861	0.7520	0.6847
150		0.6155	0.2612	0.1295	0.1295

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

**Graphics**





**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 3 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO <span style="float: right;">Age:</span>

Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.04925	14.06%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	0	CDF	0.8333	Non-Significant Effect
		19	6	18	10	0	CDF	0.8333	Non-Significant Effect
		38	6	17.5	10	1	CDF	0.7867	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
PMSD	0.1406	0.12	0.3	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.396777	0.0793554	5	94.77	<1.0E-05	Significant Effect
Error	0.0150717	0.0008373	18			
Total	0.411849		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	21.19	15.09	0.0007	Unequal Variances
	Levene Equality of Variance Test	4.158	4.248	0.0110	Equal Variances
	Mod Levene Equality of Variance Test	3.182	4.248	0.0312	Equal Variances
Distribution	Anderson-Darling A2 Test	1.52	3.878	0.0001	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.511	2.576	0.0120	Normal Distribution
	D'Agostino Skewness Test	0.1499	2.576	0.8808	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	6.326	9.21	0.0423	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1935	0.2056	0.0206	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8702	0.884	0.0053	Non-Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.3477	0.342	0.364	0.004842	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3473	0.3413	0.366	0.005384	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3507	0.3413	0.3547	0.002944	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.349	0.3407	0.3607	0.004131	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.1553	0.07933	0.216	0.02887	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0.007556	0	0.07867	0.01856	146.55%	92.77%

**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 4 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

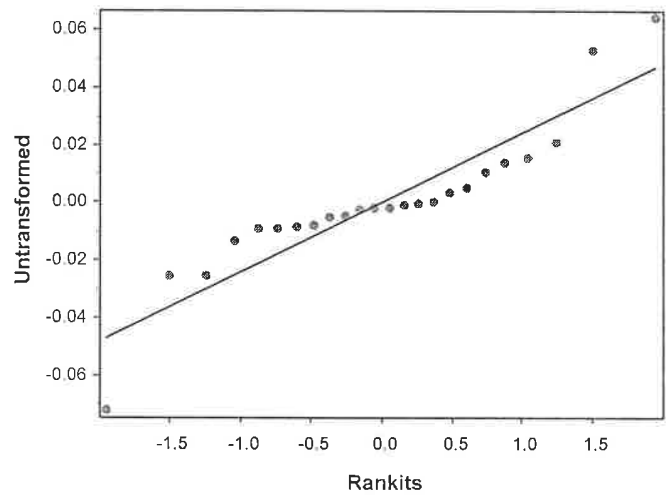
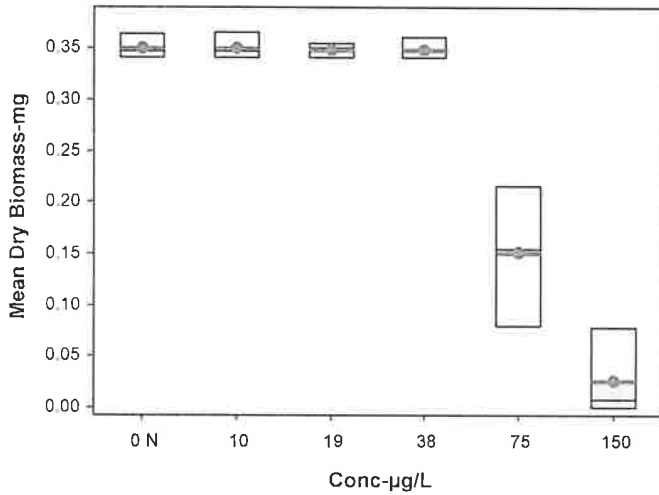
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

**Graphics**



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 1 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	49.89	46.53	55.08
EC20	53.86	49.38	60.78
EC25	57.82	52.22	66.47
EC40	69.71	60.76	85.23
EC50	80.77	64.57	102.5

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.5333	0.5333	0.4000	0.6667	22.82%	46.67%	32/60	0.5333	46.67%
150		4	0.1000	0.0222	0.0000	0.3333	158.70%	90.00%	6/60	0.1000	90.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

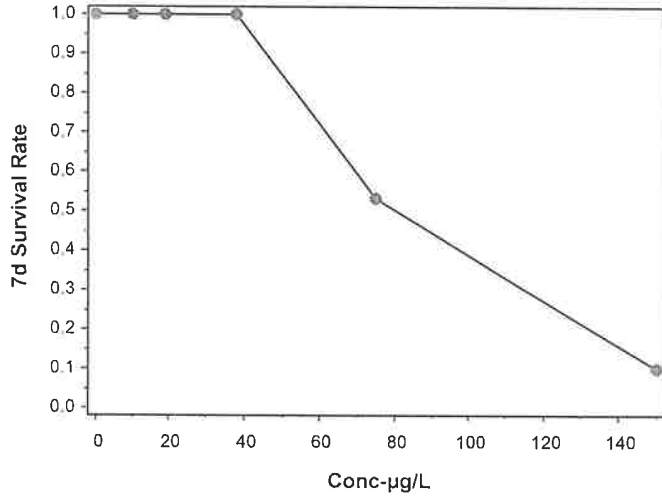
Report Date: 01 Mar-24 13:17 (p 2 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

### Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 3 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	419376	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	47.66	43.59	52.13
IC20	50.94	46.01	56.81
IC25	54.21	48.39	61.7
IC40	64.03	55.49	76.19
IC50	70.57	60.02	93.7

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3503	0.3477	0.342	0.364	2.76%	0.00%	0.3504	0.00%
10		4	0.3505	0.3473	0.3413	0.366	3.07%	-0.05%	0.3504	0.00%
19		4	0.3493	0.3507	0.3413	0.3547	1.69%	0.29%	0.3496	0.23%
38		4	0.3498	0.349	0.3407	0.3607	2.36%	0.14%	0.3496	0.23%
75		4	0.1515	0.1553	0.07933	0.216	38.11%	56.76%	0.1515	56.76%
150		4	0.02533	0.007556	0	0.07867	146.55%	92.77%	0.02533	92.77%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

# CETIS Analytical Report

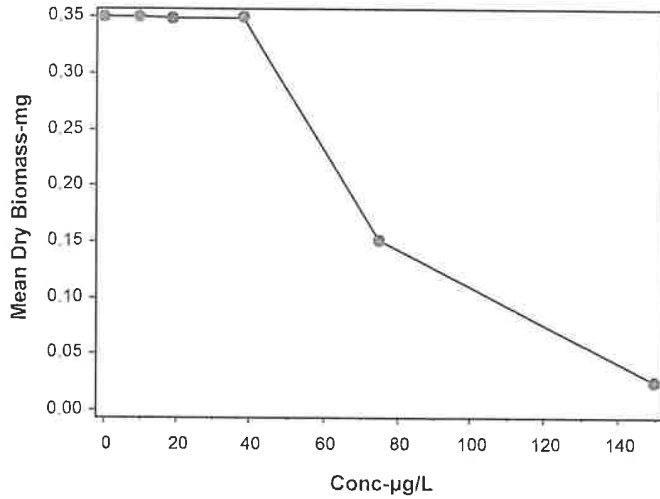
Report Date: 01 Mar-24 13:17 (p 4 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	61	61	61	61	61	0	0	0.00%	0
Overall		16	61.5	61.22	61.78	61	62	0.1291	0.5164	0.84%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
10		8	378	376.9	379.1	376	380	0.1637	1.309	0.35%	0
19		8	377.8	376.2	379.3	375	380	0.2386	1.909	0.51%	0
38		8	378.4	377	379.7	376	380	0.1997	1.598	0.42%	0
75		8	379.1	378	380.3	377	380	0.1695	1.356	0.36%	0
150		8	380.6	379.9	381.4	380	382	0.1145	0.9161	0.24%	0
Overall		48	379.7	378.9	380.5	375	388	0.4106	2.845	0.75%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
10		8	7.85	7.554	8.146	7	8.1	0.04432	0.3546	4.52%	0
19		8	7.825	7.536	8.114	7	8.1	0.04317	0.3454	4.41%	0
38		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
75		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
150		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
Overall		48	7.829	7.733	7.925	7	8.2	0.04782	0.3313	4.23%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
10		8	8.125	8.066	8.184	8	8.2	0.00884	0.07072	0.87%	0
19		8	8.1	8.055	8.145	8	8.2	0.006684	0.05347	0.66%	0
38		8	8.088	8.058	8.117	8	8.1	0.004423	0.03538	0.44%	0
75		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
150		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
Overall		48	8.106	8.087	8.126	8	8.2	0.009605	0.06654	0.82%	0 (0%)

# CETIS Measurement Report

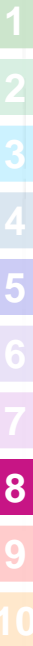
Report Date: 01 Mar-24 13:17 (p 2 of 2)  
Test Code/ID: FML020624 / 04-6220-8945

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

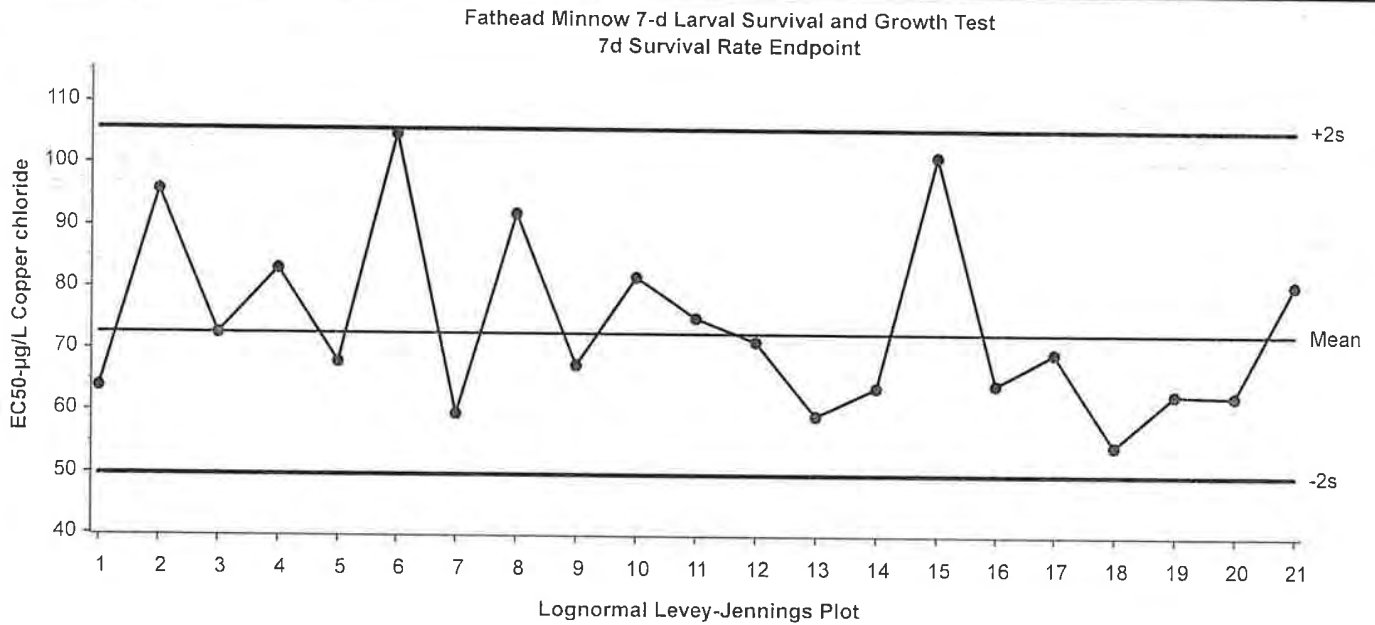
Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)





Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: 7d Survival Rate	Source: Reference Toxicant-REF	



Mean: 72.46      Count: 20      -2s Action Limit: 49.7  
 Sigma: NA      CV: 19.00%      +2s Action Limit: 106

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	63.9	-8.557	-0.6667			18-8099-7551	11-3195-6885
2			10	14:30	95.83	23.38	1.483			00-9395-0169	09-6776-4624
3			17	14:45	72.45	-0.00922	-0.00067			10-4602-8256	00-4017-6619
4			24	13:40	83.04	10.58	0.7229			01-7885-2189	13-0007-2758
5			25	12:16	67.98	-4.481	-0.3386			11-1982-8946	16-3131-2159
6			31	15:30	104.9	32.47	1.964			07-7265-5981	14-1873-8638
7		Nov	7	15:10	59.58	-12.87	-1.038			19-2888-5334	07-9547-8315
8			14	15:30	92.05	19.59	1.269			18-8754-0700	05-2558-7597
9			17	14:01	67.38	-5.075	-0.3852			17-0726-1937	14-0961-0371
10			28	14:49	81.82	9.361	0.6446			10-1970-7599	00-2724-7341
11		Dec	5	13:45	75	2.543	0.183			19-1204-9208	03-6141-0747
12			12	13:30	71.3	-1.157	-0.08543			03-7560-9108	05-6885-8439
13			13	12:15	59.42	-13.04	-1.052			14-7892-5887	04-9254-9827
14			21	13:29	64	-8.457	-0.6584			06-6036-2868	13-4891-1637
15			22	14:30	101.4	28.89	1.78			00-5720-1635	14-1952-0593
16	2024	Jan	3	14:00	64.43	-8.029	-0.623			04-0866-8727	01-4746-8383
17			4	14:05	69.52	-2.939	-0.2197			15-6608-9784	08-1717-2208
18			9	13:20	54.55	-17.9	-1.506			14-8299-7228	00-5651-6529
19			23	14:00	63	-9.457	-0.742			12-1922-4773	10-8689-4329
20		Feb	2	14:20	62.67	-9.791	-0.7701			05-5157-4005	09-6073-8693
21			6	13:40	80.77	8.312	0.5761			04-6220-8945	10-6161-5529

CETIS QC Plot

Report Date: 01 Mar-24 13:18 ( 1 of 1)

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

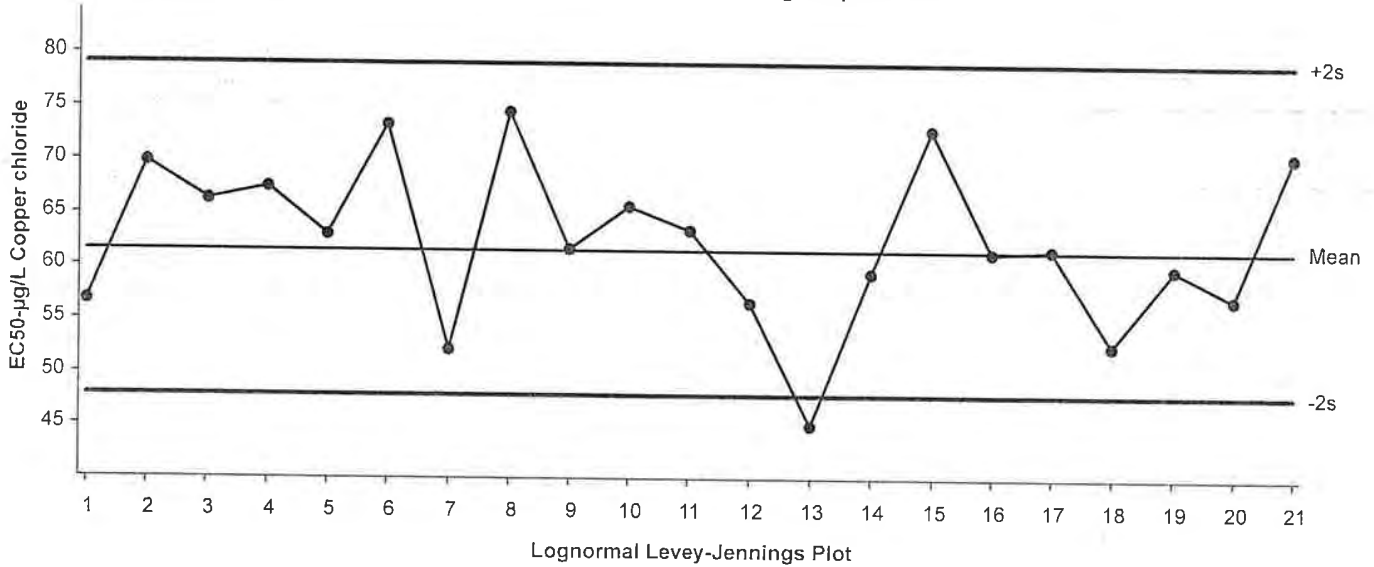
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 61.56

Count: 20

-2s Action Limit: 47.8

Sigma: NA

CV: 12.70%

+2s Action Limit: 79.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	56.73	-4.827	-0.6475			18-8099-7551	15-1441-4720
2			10	14:30	69.86	8.298	1.003			00-9395-0169	18-9888-9667
3			17	14:45	66.23	4.667	0.5795			10-4602-8256	13-8119-0525
4			24	13:40	67.38	5.825	0.7169			01-7885-2189	06-8805-4487
5			25	12:16	63.01	1.45	0.1847			11-1982-8946	04-1492-8778
6			31	15:30	73.46	11.9	1.401			07-7265-5981	21-3432-7293
7		Nov	7	15:10	52.21	-9.347	-1.306			19-2888-5334	11-0119-4879
8			14	15:30	74.52	12.96	1.515			18-8754-0700	03-4458-8213
9			17	14:01	61.66	0.1018	0.0131			17-0726-1937	06-0317-0204
10			28	14:49	65.63	4.075	0.5083			10-1970-7599	09-5836-2004
11		Dec	5	13:45	63.46	1.898	0.2409			19-1204-9208	02-5721-3294
12			12	13:30	56.61	-4.947	-0.6644			03-7560-9108	19-0990-5343
13			13	12:15	45.01	-16.55	-2.483		(-)	14-7892-5887	19-1033-5713
14			21	13:29	59.44	-2.118	-0.2777			06-6036-2868	01-3251-7777
15			22	14:30	72.95	11.39	1.346			00-5720-1635	06-1309-8628
16	2024	Jan	3	14:00	61.34	-0.2222	-0.02868			04-0866-8727	03-7640-5638
17			4	14:05	61.64	0.08199	0.01056			15-6608-9784	18-2508-7781
18			9	13:20	52.68	-8.881	-1.236			14-8299-7228	08-4892-6835
19			23	14:00	59.92	-1.64	-0.2141			12-1922-4773	11-2137-3210
20		Feb	2	14:20	57.13	-4.427	-0.5918			05-5157-4005	07-7973-9309
21			6	13:40	70.57	9.012	1.083			04-6220-8945	00-3964-3519

171237

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling Outfalls [003, 004, 005, 006, 007, 008, 009, 010]				ANALYSIS REQUIRED																				
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Recoverable Metals: (E200.7); B. Hardness as CaCO3 (E200.6); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn																				
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Standard Service Agreement#2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				TCDD (and all congeners) (E1613B) Fluoride (F-), Chloride (Cl-), Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E500), Perchlorate (E14.0) TDS (SM2540C/IE160.1) TSS (160.2 (SM2540D)) Total Dissolved Metals: (E200.7); B. Hardness as CaCO3 (E200.6); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium-226 & 228; Sr-90 (E903, E904, E905); Tritium (H-3) (E906.0) Chronic Toxicity - Fathead Minnow (E14-921-R-02-013) ABC Labs in Ventura, CA Ammonia-N (950.2) Cyanide (SM4600-CN/E1/E335.2) Priority Pollutants-Pesticides-PCBs (E909) Weck Labs in Hacienda Heights, CA LL Mercury - Total Recoverable (E1631E) LL Mercury - Total Dissolved (E1631E) Cr (VI), Total Dissolved (E218.6)																				
Sampler: Adrien Mobeka								Comments																				
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7); B. Hardness as CaCO3 (E200.6); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	TCDD (and all congeners) (E1613B)	Fluoride (F-), Chloride (Cl-), Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E500), Perchlorate (E14.0)	TDS (SM2540C/IE160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals: (E200.7); B. Hardness as CaCO3 (E200.6); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium-226 & 228; Sr-90 (E903, E904, E905); Tritium (H-3) (E906.0)	Chronic Toxicity - Fathead Minnow (E14-921-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (950.2)	Cyanide (SM4600-CN/E1/E335.2)	Priority Pollutants-Pesticides-PCBs (E909) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631E)	Cr (VI), Total Dissolved (E218.6)	Comments					
Outfall 006	Outfall006_20240206_Comp	2/6/2024 0920	WM	500 mL Poly	1	HNO3	85	Yes	X																			
			WM	1 L Glass Amber	2	None	110				X																	
			WM	500 mL Poly	1	None	125						X													48 hours Holding Time NO3 & NO2		
			WM	500 mL Poly	1	None	155						X															
			WM	500 mL Poly	1	H2SO4	160								X													
			WM	1L Poly	1	None	185								X													
			WM	250 mL Poly	1	NaOH	220															X						
			WM	2.5 Gal Cube	1	None	225											X										
			WM	1 L Glass Amber	1	None	230																					Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	5	None	235												X								Only test if first or second rain events of the year. Deliver to Weck Labs in Ventura, CA	
	WM	1 L Glass Amber	4	None	250															X					Deliver to Weck Labs in Hacienda Heights, CA			
	WM	250mL Glass, double bagged	1	HCL	998																X							
	Outfall006_20240206_Comp_F	2/6/2024 0920	WM	1L Poly	1	None	195	Yes							X										Filter and preserve w/in 24hrs of receipt at lab			
			WM	250 mL Poly	1	None	280																X					
WM			250mL Glass, double bagged	1	None	999																X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab			



570-171237 Chain of Custody

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm=SRAM

Relinquished By: <i>Michelle Dallalah</i> Date/Time: <i>2/6/2024 1300 H&amp;A</i> Company: <i>H&amp;A</i>	Received By: <i>[Signature]</i> Date/Time: <i>2/6/24 1300</i> Company: <i>EC</i>	24 Hour: _____ / 2 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X
Relinquished By: <i>[Signature]</i> Date/Time: <i>2/6/24 1630</i> Company: <i>EC</i>	Received By: <i>[Signature]</i> Date/Time: <i>2/6/24 1630</i> Company: <i>EC</i>	48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Sample Integrity: (Check) Intact: _____ On Ice: _____
		Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

1.8/2.0 1.6/1.8 SC14



### CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108									Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling Outfalls [003, 004, 005, 006, 007, 008, 009, 010]									ANALYSIS REQUIRED																					
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187									Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)									Comments																					
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.									Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)									Priority Pollutants-SVOCs (E625) Cr (VI), Total Recoverable (E218.6) Asbestos (EPA100.2) Chloroform, Dioxin (E525.2) Weck Labs in Hacienda Heights, CA Surfactants (MBAS) (SM5540C/E425-1) Settleable Solids (E160.5 (SM2540F))																					
Sampler: Adrien Mobeka									Sample Matrix Container Type # of Cont. Preservative Bottle # MS/MSD																														
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																															
Outfall 006	Outfall006_20240206_Comp	2/6/2024 0920	WM	1 L Glass Amber	6	None	175	Yes	X																														
			WM	250 mL Poly	1	None		260				X																											
			WM	1L Poly	1	None		270					X																										
			WM	1L Poly	1	None		70							X																								
			WM	1 L Glass Amber	2	None		275								X																							
			WM	500 mL Poly	2	None		120									X																						
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual, Sm=SRAM																																							
Relinquished By: <i>Michelle Dalal</i> Date/Time: <i>2/6/2024</i> Company: <i>1300 H&amp;A</i>									Received By: <i>[Signature]</i> Date/Time: <i>2/6/24 1300 EC</i>									Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>  X  </u> 48 Hour: _____ 5 Day: _____ Normal: _____																					
Relinquished By: <i>[Signature]</i> Date/Time: <i>2/6/24 1630</i> Company: <i>EC</i>									Received By: <i>[Signature]</i> Date/Time: <i>2/6/24 1630</i>									Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>  X  </u>																					



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-171237-5

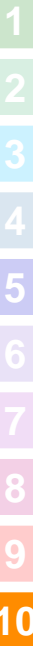
**Login Number: 171237**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is < /= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is < 6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/1/2024 6:21:49 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - Comp

## JOB NUMBER

570-170739-5

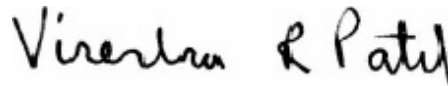
# Eurofins Calscience

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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3/1/2024 6:21:49 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-170739-5

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-170739-5

**Job ID: 570-170739-5**

**Eurofins Calscience**

## Job Narrative 570-170739-5

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

### Receipt

The samples were received on 2/2/2024 7:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 1.3°C, 1.4°C, 1.8°C, 1.9°C, 2.2°C and 2.4°C.

### Receipt Exceptions

The number of containers for the following samples did not match the information listed on the Chain-of-Custody (COC): Outfall008\_20240202\_Comp (570-170739-1). Received 54 containers, while the COC lists 63. 9 vials w/HCl was not received .

The clients office was contacted with the above sample receipt anomalies. The laboratory was provided written direction on how to proceed, please refer to the COC section of the report for further details.

### Subcontract Work

Method Chronic Toxicity - Fathead Minnow: This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

Eurofins Calscience

# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-170739-5

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-170739-5

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-170739-1	Outfall008_20240202_Comp	Water	02/02/24 09:30	02/02/24 19:00

1

2

3

4

5

6

7

8

9



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



February 27, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 008\_20240202\_Comp  
 DATE RECEIVED: 2 Feb - 2024  
 ABC LAB. NO.: CSE0224.021

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS      % EFFECT = 0.00 %

GROWTH = PASS      % EFFECT = -1.40 %

Yours very truly,

Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 22 Feb-24 16:24 (p 1 of 1)  
 Test Code/ID: CSE0224.021fml / 18-6265-8208

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 09-8888-8436	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 02 Feb-24 15:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 09 Feb-24 14:33	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 14-0049-4258	Code: CSE0224.021fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 02 Feb-24 09:30	Material: Sample Water	Source: Bioassay Report
Receipt Date: 02 Feb-24 13:55	CAS (PC):	Station: Outfall 008
Sample Age: 6h (4.3 °C)	Client: Eurofins Calscience	

### Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
06-2241-7825	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
20-4026-7780	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
06-2241-7825	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
20-4026-7780	Mean Dry Biomass-mg	Control Resp	0.3462	0.25	<<	Yes	Passes Criteria

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3462	0.3397	0.3528	0.3373	0.3633	0.002789	0.007888	2.28%	0.00%
100		8	0.3511	0.3405	0.3616	0.3387	0.3747	0.004465	0.01263	3.60%	-1.40%

### 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Mean Dry Biomass-mg Detail

MD5: EB90CA5D1645AAF0291AE2CDF3BF35A5

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3633	0.3447	0.344	0.3373	0.346	0.3507	0.3427	0.3413
100		0.3747	0.3493	0.352	0.3393	0.3387	0.3433	0.3467	0.3647

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 22 Feb-24 16:24 (p 1 of 4)  
 Test Code/ID: CSE0224.021fml / 18-6265-8208

**Fathead Minnow 7-d Larval Survival and Growth Test** **Aquatic Bioassay & Consulting Labs, Inc.**

<b>Analysis ID:</b> 06-2241-7825	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:23	<b>Analysis:</b> Parametric Bioequivalence-Two Sample	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:22	<b>MD5 Hash:</b> F33D79D05FEF902C5DB24788526CB24A	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 09-8888-8436	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:10	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:33	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 14-0049-4258	<b>Code:</b> CSE0224.021fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 09:30	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 008
<b>Sample Age:</b> 6h (4.3 °C)	<b>Client:</b> Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

**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

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

**Angular (Corrected) Transformed Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Angular (Corrected) Transformed Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

# CETIS Analytical Report

Report Date: 22 Feb-24 16:24 (p 2 of 4)  
 Test Code/ID: CSE0224.021fml / 18-6265-8208

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

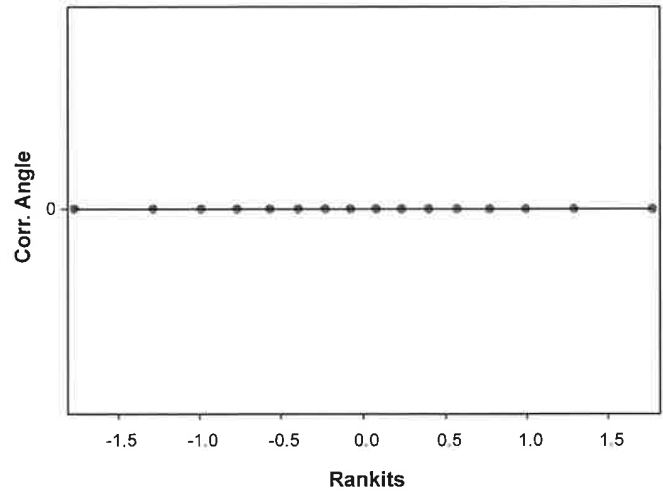
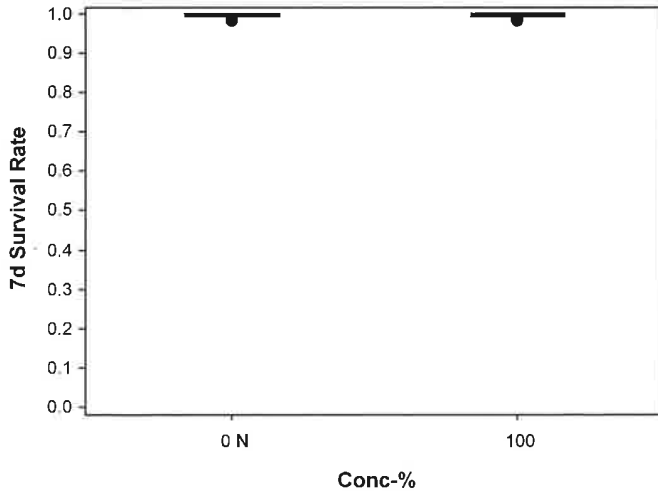
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-2241-7825      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:23      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 22 Feb-24 16:22      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

### Graphics





# CETIS Analytical Report

Report Date: 22 Feb-24 16:24 (p 3 of 4)  
 Test Code/ID: CSE0224.021fml / 18-6265-8208

**Fathead Minnow 7-d Larval Survival and Growth Test** **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID: 20-4026-7780      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:23      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 22 Feb-24 16:22      MD5 Hash: EB90CA5D1645AAF0291AE2CDF3BF35A      Editor ID: 009-702-627-3

Batch ID: 09-8888-8436      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 02 Feb-24 15:10      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 09 Feb-24 14:33      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 6d 23h      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 14-0049-4258      Code: CSE0224.021fml      Project: Boeing-SSFL NPDES 2023 PERMIT  
 Sample Date: 02 Feb-24 09:30      Material: Sample Water      Source: Bioassay Report  
 Receipt Date: 02 Feb-24 13:55      CAS (PC):      Station: Outfall 008  
 Sample Age: 6h (4.3 °C)      Client: Eurofins Calscience

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	9	18.54	0.7027	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3462	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	9.344E-05	9.344E-05	1	0.843	0.3741	Non-Significant Effect
Error	0.0015519	0.0001108	14			
Total	0.0016453		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.616	8.862	0.2244	Equal Variances
	Mod Levene Equality of Variance Test	1.209	8.862	0.2900	Equal Variances
	Variance Ratio F Test	2.563	8.885	0.2374	Equal Variances
Distribution	Anderson-Darling A2 Test	0.8609	3.878	0.0269	Normal Distribution
	D'Agostino Skewness Test	1.985	2.576	0.0472	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2141	0.2471	0.0483	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8874	0.8408	0.0507	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3462	0.3397	0.3528	0.3443	0.3373	0.3633	0.002789	2.28%	0.00%
100		8	0.3511	0.3405	0.3616	0.348	0.3387	0.3747	0.004465	3.60%	-1.40%

**Mean Dry Biomass-mg Detail**

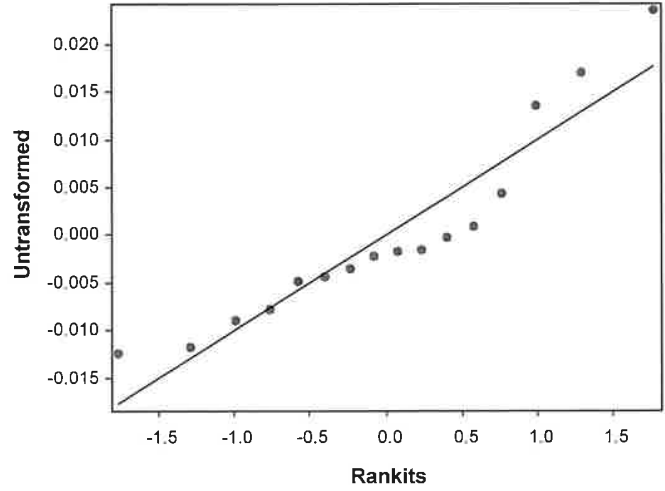
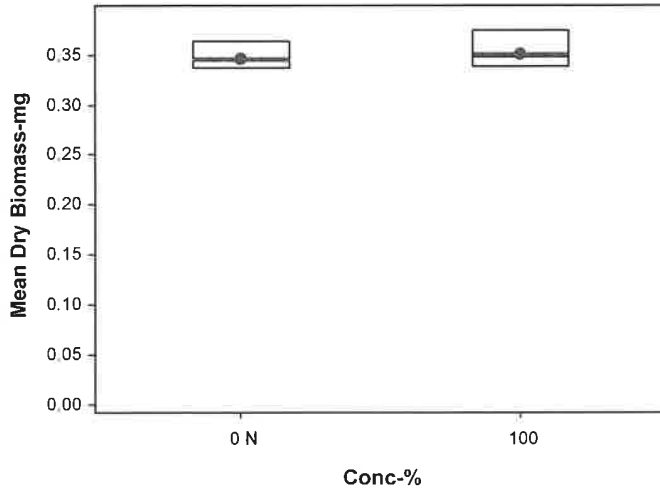
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3633	0.3447	0.344	0.3373	0.346	0.3507	0.3427	0.3413
100		0.3747	0.3493	0.352	0.3393	0.3387	0.3433	0.3467	0.3647

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-4026-7780      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 22 Feb-24 16:23      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 22 Feb-24 16:22      MD5 Hash: EB90CA5D1645AAF0291AE2CDF3BF35A      Editor ID: 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 22 Feb-24 16:24 (p 1 of 1)  
 Test Code/ID: CSE0224.021fml / 18-6265-8208

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 09-8888-8436	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:10	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:33	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 14-0049-4258	<b>Code:</b> CSE0224.021fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 09:30	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 008
<b>Sample Age:</b> 6h (4.3 °C)	<b>Client:</b> Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	37	37	37	37	37	0	0	0.00%	0
Overall		16	49.5	42.62	56.38	37	62	3.227	12.91	26.08%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	379	375.1	382.9	372	386	0.5825	4.66	1.23%	0
100		8	156.6	151.7	161.6	149	165	0.7438	5.951	3.80%	0
Overall		16	267.8	206.6	329.1	149	386	28.74	114.9	42.92%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.963	7.854	8.071	7.8	8.2	0.01628	0.1302	1.64%	0
100		8	8.05	7.754	8.346	7.8	8.9	0.04432	0.3546	4.40%	0
Overall		16	8.006	7.867	8.146	7.8	8.9	0.06549	0.262	3.27%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98.5	97.16	99.84	97	100	0.2004	1.604	1.63%	0
100		8	52	52	52	52	52	0	0	0.00%	0
Overall		16	75.25	62.44	88.06	52	100	6.009	24.04	31.94%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.137	8.038	8.237	7.9	8.2	0.01485	0.1188	1.46%	0
100		8	8.062	7.963	8.162	8	8.3	0.01485	0.1188	1.47%	0
Overall		16	8.1	8.035	8.165	7.9	8.3	0.03028	0.1211	1.50%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24	24	24	24	24	0	0	0.00%	0
Overall		16	24	24	24	24	24	0	0	0.00%	0 (0%)

CHAIN OF CUSTODY FORM

Temp. deg. C = 4.30  
Chlorine (mg/L) = 0.1  
NH3 (mg/L) = 0.1

Client Name/Address Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit <b>Annual Sampling &amp; 1st &amp; 2nd Event of the First Year</b> <b>OUTFALL 008</b> <b>COMPOSITE</b> Stormwater at Happy Valley				ANALYSIS REQUIRED																						
Eurofins Calscience Project Manager Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520 289 8606, 520 904 6944 (cell)				Total Recoverable Metals: (E2007); B, Hardness as CaCO3 (E2006); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	TCDD (and all congeners) (E1618B)	Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E300); Perchlorate (3140)	TDS (SM2540CIE1601)	TSS (1602 (SM2540D))	Total Dissolved Metals (E2007); B, Hardness as CaCO3 (E2006); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	Gross Alpha & Beta (E9000); K-40, CS-137 (E9011), Uranium (PASC-300 U-02 or A-01-R), Total Combined Radium-226 & 228, Sr-90 (E900, E904, E905), Tritium (H-3) (E9060)	Chronic Toxicity - Fathead Minnow (EPA) (E1602A13) ABC Labs in Ventura, CA	Ammonia-N (9502)	Cyanide (SM4500-CN-E1/E3352)	Priority Pollutants-Pesticides+PCBs (E600) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631E)	Cr (VI), Total Dissolved (E2186)	Comments								
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement #2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978 234 5033, 818 599 0702 (cell)																										
Sampler: Adrien Mobeka																												
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E2007); B, Hardness as CaCO3 (E2006); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	TCDD (and all congeners) (E1618B)	Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E300); Perchlorate (3140)	TDS (SM2540CIE1601)	TSS (1602 (SM2540D))	Total Dissolved Metals (E2007); B, Hardness as CaCO3 (E2006); Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	Gross Alpha & Beta (E9000); K-40, CS-137 (E9011), Uranium (PASC-300 U-02 or A-01-R), Total Combined Radium-226 & 228, Sr-90 (E900, E904, E905), Tritium (H-3) (E9060)	Chronic Toxicity - Fathead Minnow (EPA) (E1602A13) ABC Labs in Ventura, CA	Ammonia-N (9502)	Cyanide (SM4500-CN-E1/E3352)	Priority Pollutants-Pesticides+PCBs (E600) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631E)	Cr (VI), Total Dissolved (E2186)	Comments					
Outfall 008	Outfall008_20240202_Comp	2/2/2024 / 0930	WM	500 mL Poly	1	HNO3	85	Yes	X																			
			WM	1 L Glass Amber	2	None	110				X																	
			WM	500 mL Poly	1	None	125						X														48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	155							X														
			WM	500 mL Poly	1	H2SO4	160								X													
			WM	1L Poly	1	None	185									X												
			WM	250 mL Poly	1	NaOH	220														X							
			WM	2.5 Gal Cube	1	None	225																					Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate not MS/MSD
			WM	1 Gal Cube	5	None	235																					Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 L Glass Amber	4	None	250																					Deliver to Weck Labs In Hacienda Heights, CA
Outfall 008	Outfall008_20240202_Comp_F	2/2/2024 / 0930	WM	1L Poly	1	None	195	Yes						X											Filter and preserve w/in 24hrs of receipt at lab			
			WM	250 mL Poly	1	None	260																			X		
			WM	250mL Glass double bagged	1	None	999																				Sample receiving DO NOT OPEN BAG Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab	
Outfall 008	Outfall008_20240202_Comp_Extra	2/2/2024 / 0930	WM	1 L Glass Amber	2	None	110																			Hold		
			WM	500 mL Poly	1	None	125																				Hold	
			WM	1 L Glass Amber	4	None	250																				Hold	

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\* Hand-delivered to ABC with this copy of the CoC

Legend: R = Routine, A = Annual, Sm = SRAM

Relinquished By: <i>Mark Dominick</i> 2/2/24 / 1355 N/A	Received By: <i>ARL</i> 2/2/24 1355	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: _____	Received By: _____	Sample Integrity (Check) Intact: _____ On Ice: _____
Relinquished By: _____	Received By: _____	Store samples for 6 months Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

3/17/2024





**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

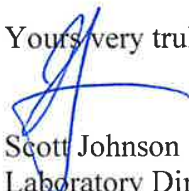


### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 2 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 19.00 ug/l  
EC25 = 45.85 ug/l  
EC50 = 62.67 ug/l

ENDPOINT: GROWTH  
NOEC = 19.00 ug/l  
IC25 = 38.87 ug/l  
IC50 = 57.13 ug/l

Yours very truly,

  
✓ Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 28 Feb-24 11:19 (p 1 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 12-1869-3585	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 02 Feb-24 14:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 09 Feb-24 14:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 10-4352-0612	Code: FML020224	Project: REF TOX
Sample Date: 02 Feb-24 14:20	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

## Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
06-8378-3644	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 19	38	26.87	5.23%	1
08-8523-0494	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	✓ 19	38	26.87	13.3%	1

## Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
09-6073-8693	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	39.12	32.26	42.55	1
			EC20	42.48	39.01	45.76	
			EC25	45.85	42.54	48.96	
			EC40	55.94	53.14	58.58	
			EC50	62.67	59.76	64.99	
07-7973-9309	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	28	17.65	44.15	1
			✓ IC20	33.68	22.96	45.87	
			✓ IC25	38.87	26.38	47.57	
			✓ IC40	49.83	38.69	58.03	
			✓ IC50	57.13	48.62	65.22	

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
06-8378-3644	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-6073-8693	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
07-7973-9309	Mean Dry Biomass-mg	Control Resp	0.3465	0.25	<<	Yes	Passes Criteria	
08-8523-0494	Mean Dry Biomass-mg	Control Resp	0.3465	0.25	<<	Yes	Passes Criteria	
08-8523-0494	Mean Dry Biomass-mg	PMSD	0.1334	0.12	0.3	Yes	Passes Criteria	

## 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	0.9833	0.9303	1.0360	0.9333	1.0000	0.0167	0.0333	3.39%	1.67%
19		4	0.9500	0.8970	1.0030	0.9333	1.0000	0.0167	0.0333	3.51%	5.00%
38		4	0.8667	0.7801	0.9533	0.8000	0.9333	0.0272	0.0544	6.28%	13.33%
75		4	0.3167	0.2636	0.3697	0.2667	0.3333	0.0167	0.0333	10.53%	68.33%
150		4	0.0167	-0.0364	0.0697	0.0000	0.0667	0.0167	0.0333	200.00%	98.33%

## Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3465	0.3357	0.3573	0.34	0.356	0.003403	0.006807	1.96%	0.00%
10		4	0.3397	0.3278	0.3515	0.3293	0.346	0.003717	0.007434	2.19%	1.97%
19		4	0.322	0.2853	0.3587	0.298	0.3467	0.01153	0.02306	7.16%	7.07%
38		4	0.264	0.2015	0.3265	0.2093	0.3027	0.01965	0.0393	14.89%	23.81%
75		4	0.0885	0.02436	0.1526	0.038	0.1367	0.02016	0.04031	45.55%	74.46%
150		4	0.0125	-0.02728	0.05228	0	0.05	0.0125	0.025	200.00%	96.39%

**CETIS Summary Report**

Report Date: 28 Feb-24 11:19 (p 2 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

**Aquatic Bioassay & Consulting Labs, Inc.**

**7d Survival Rate Detail**

MD5: 8A5A24FE371BD34EBBA55AE0620ED60B

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

**Mean Dry Biomass-mg Detail**

MD5: B4A8AFD716D4543A3E3A812D513D64AD

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15



**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 1 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8378-3644      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

Batch ID: 12-1869-3585      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 02 Feb-24 14:20      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 09 Feb-24 14:00      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 10-4352-0612      Code: FML020224      Project: REF TOX  
 Sample Date: 02 Feb-24 14:20      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	19	38	26.87	---	0.05227	5.23%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	16	10	1	CDF	0.6105	Non-Significant Effect
		19	6	12	10	1	CDF	0.1424	Non-Significant Effect
		38*	6	10	10	0	CDF	0.0417	Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.51927	1.10385	5	312.2	<1.0E-05	Significant Effect
Error	0.0636342	0.0035352	18			
Total	5.5829		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	1.578	4.248	0.2165	Equal Variances
	Mod Levene Equality of Variance Test	0.394	4.248	0.8464	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7299	3.878	0.0568	Normal Distribution
	D'Agostino Kurtosis Test	0.6599	2.576	0.5093	Normal Distribution
	D'Agostino Skewness Test	0.77	2.576	0.4413	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.028	9.21	0.5980	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1407	0.2056	0.2494	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9342	0.884	0.1213	Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	0.9833	0.9303	1.0000	1.0000	0.9333	1.0000	0.0167	3.39%	1.67%
19		4	0.9500	0.8970	1.0000	0.9333	0.9333	1.0000	0.0167	3.51%	5.00%
38		4	0.8667	0.7801	0.9533	0.8667	0.8000	0.9333	0.0272	6.28%	13.33%
75		4	0.3167	0.2636	0.3697	0.3333	0.2667	0.3333	0.0167	10.53%	68.33%
150		4	0.0167	0.0000	0.0697	0.0000	0.0000	0.0667	0.0167	200.00%	98.33%



# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 2 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8378-3644      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

### Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4080	1.3040	1.5130	1.4410	1.3100	1.4410	0.0329	4.68%	2.28%
19		4	1.3430	1.2380	1.4470	1.3100	1.3100	1.4410	0.0329	4.90%	6.85%
38		4	1.2030	1.0710	1.3350	1.1970	1.1070	1.3100	0.0415	6.90%	16.56%
75		4	0.5973	0.5393	0.6552	0.6155	0.5426	0.6155	0.0182	6.10%	58.56%
150		4	0.1624	0.0576	0.2672	0.1295	0.1295	0.2612	0.0329	40.55%	88.73%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

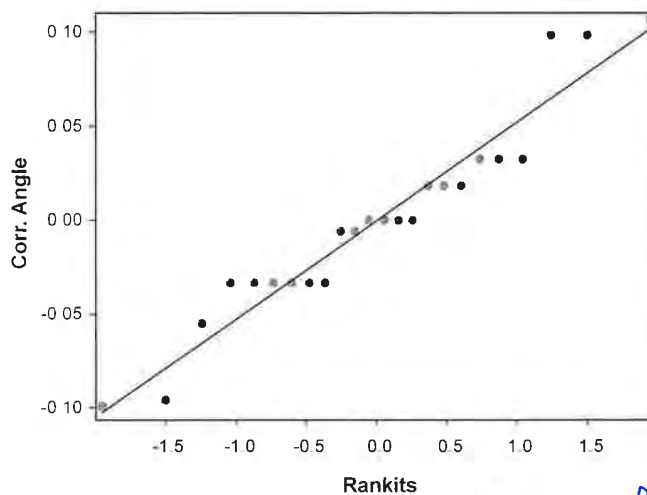
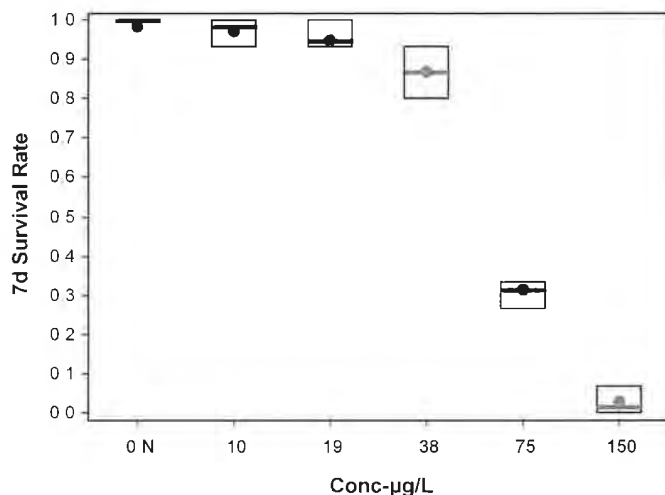
### Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.3100	1.4410	1.4410	1.4410
19		1.3100	1.3100	1.4410	1.3100
38		1.1070	1.1970	1.3100	1.1970
75		0.5426	0.6155	0.6155	0.6155
150		0.2612	0.1295	0.1295	0.1295

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

### Graphics



**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 3 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 08-8523-0494	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:09	<b>Analysis:</b> Parametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:08	<b>MD5 Hash:</b> B4A8AFD716D4543A3E3A812D513D64AD	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	19	38	26.87	---	0.04624	13.34%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	0.3557	2.407	0.04624	CDF	0.7081	Non-Significant Effect
		19	6	1.275	2.407	0.04624	CDF	0.3074	Non-Significant Effect
		38*	6	4.295	2.407	0.04624	CDF	0.0010	Significant Effect
		75*	6	13.43	2.407	0.04624	CDF	2.7E-05	Significant Effect
		150*	6	17.39	2.407	0.04624	CDF	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3465	0.25	<<	Yes	Passes Criteria
PMSD	0.1334	0.12	0.3	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.410159	0.0820318	5	111.2	<1.0E-05	Significant Effect
Error	0.0132841	0.0007380	18			
Total	0.423443		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	11.49	15.09	0.0425	Equal Variances
	Levene Equality of Variance Test	1.456	4.248	0.2526	Equal Variances
	Mod Levene Equality of Variance Test	0.9075	4.248	0.4979	Equal Variances
Distribution	Anderson-Darling A2 Test	0.6354	3.878	0.0982	Normal Distribution
	D'Agostino Kurtosis Test	1.139	2.576	0.2546	Normal Distribution
	D'Agostino Skewness Test	0.5625	2.576	0.5738	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.614	9.21	0.4461	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1458	0.2056	0.2047	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9467	0.884	0.2299	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3465	0.3357	0.3573	0.345	0.34	0.356	0.003403	1.96%	0.00%
10		4	0.3397	0.3278	0.3515	0.3417	0.3293	0.346	0.003717	2.19%	1.97%
19		4	0.322	0.2853	0.3587	0.3217	0.298	0.3467	0.01153	7.16%	7.07%
38		4	0.264	0.2015	0.3265	0.272	0.2093	0.3027	0.01965	14.89%	23.81%
75		4	0.0885	0.02436	0.1526	0.08967	0.038	0.1367	0.02016	45.55%	74.46%
150		4	0.0125	-0.02728	0.05228	0	0	0.05	0.0125	200.00%	96.39%

# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 4 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

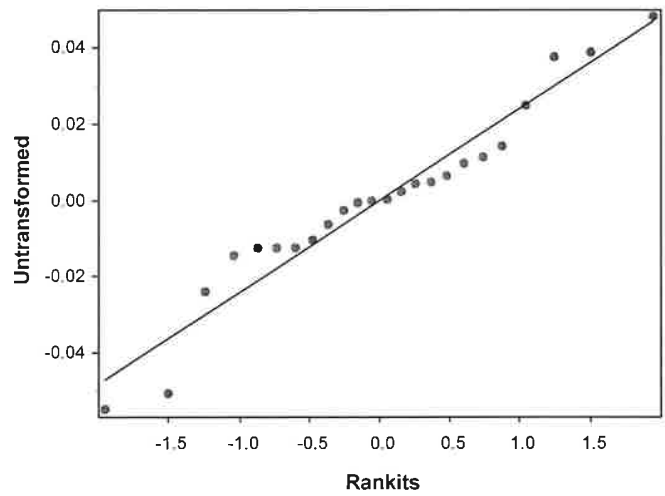
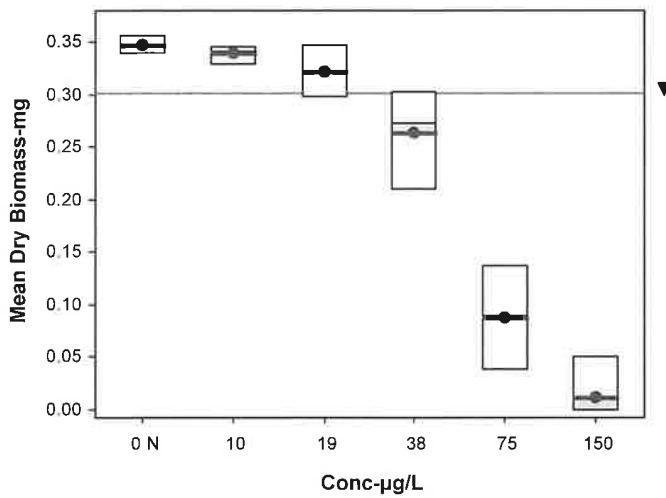
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-8523-0494      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD      Editor ID: 009-702-627-3

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

### Graphics



# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 1 of 4)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-6073-8693	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 22 Feb-24 16:09	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 22 Feb-24 16:08	MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B	Editor ID: 009-702-627-3
Batch ID: 12-1869-3585	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 02 Feb-24 14:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 09 Feb-24 14:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 10-4352-0612	Code: FML020224	Project: REF TOX
Sample Date: 02 Feb-24 14:20	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	39.12	32.26	42.55
EC20	42.48	39.01	45.76
EC25	45.85	42.54	48.96
EC40	55.94	53.14	58.58
EC50	62.67	59.76	64.99

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)						Isotonic Variate		
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	0.9833	1.0000	0.9333	1.0000	3.39%	1.67%	59/60	0.9833	1.67%
19		4	0.9500	0.9333	0.9333	1.0000	3.51%	5.00%	57/60	0.9500	5.00%
38		4	0.8667	0.8667	0.8000	0.9333	6.28%	13.33%	52/60	0.8667	13.33%
75		4	0.3167	0.3333	0.2667	0.3333	10.53%	68.33%	19/60	0.3167	68.33%
150		4	0.0167	0.0000	0.0000	0.0667	200.00%	98.33%	1/60	0.0167	98.33%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

# CETIS Analytical Report

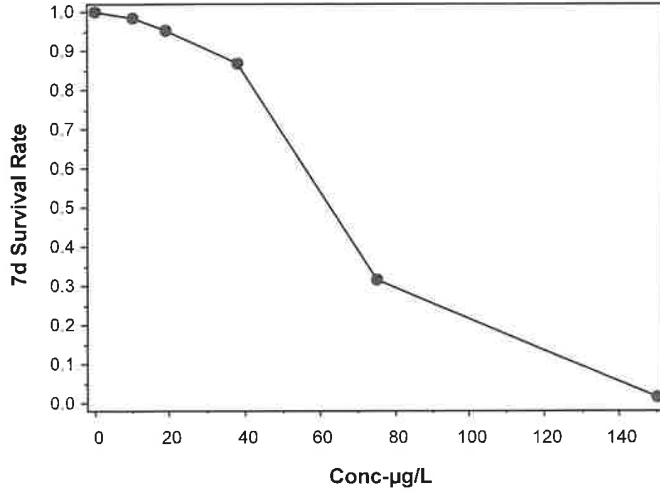
Report Date: 28 Feb-24 11:19 (p 2 of 4)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-6073-8693      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
Analyzed: 22 Feb-24 16:09      Analysis: Linear Interpolation (ICPIN)      Status Level: 1  
Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

### Graphics



**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 3 of 4)  
 Test Code/ID: FML020224 / 05-5157-4005

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

**Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID: 07-7973-9309      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Linear Interpolation (ICPIN)      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD      Editor ID: 009-702-627-3

Batch ID: 12-1869-3585      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 02 Feb-24 14:20      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 09 Feb-24 14:00      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 10-4352-0612      Code: FML020224      Project: REF TOX  
 Sample Date: 02 Feb-24 14:20      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	738144	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3465	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	28	17.65	44.15
IC20	33.68	22.96	45.87
IC25	38.87	26.38	47.57
IC40	49.83	38.69	58.03
IC50	57.13	48.62	65.22

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3465	0.345	0.34	0.356	1.96%	0.00%	0.3465	0.00%
10		4	0.3397	0.3417	0.3293	0.346	2.19%	1.97%	0.3397	1.96%
19		4	0.322	0.3217	0.298	0.3467	7.16%	7.07%	0.322	7.07%
38		4	0.264	0.272	0.2093	0.3027	14.89%	23.81%	0.264	23.81%
75		4	0.0885	0.08967	0.038	0.1367	45.55%	74.46%	0.0885	74.46%
150		4	0.0125	0	0	0.05	200.00%	96.39%	0.0125	96.39%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

# CETIS Analytical Report

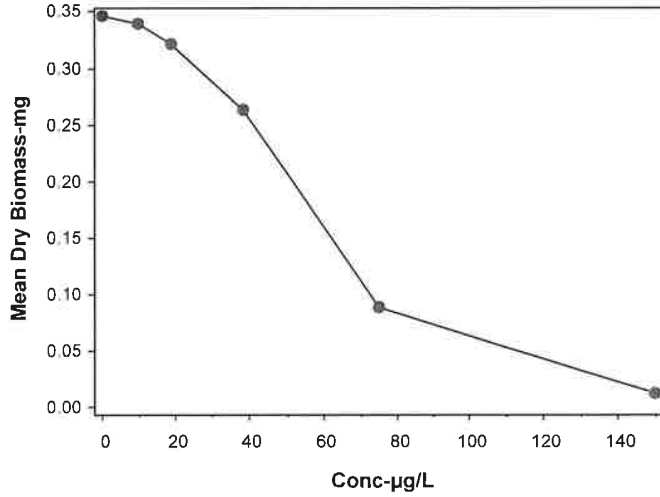
Report Date: 28 Feb-24 11:19 (p 4 of 4)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-7973-9309      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 22 Feb-24 16:09      Analysis: Linear Interpolation (ICPIN)      Status Level: 1  
Edit Date: 22 Feb-24 16:08      MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD      Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 28 Feb-24 11:19 (p 1 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	63	63	63	63	63	0	0	0.00%	0
Overall		16	62.5	62.22	62.78	62	63	0.1291	0.5164	0.83%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	379	375.1	382.9	372	386	0.5825	4.66	1.23%	0
10		8	377	374.2	379.8	372	384	0.4226	3.381	0.90%	0
19		8	378.4	373.2	383.6	374	393	0.7761	6.209	1.64%	0
38		8	379.4	375.6	383.2	376	390	0.5667	4.534	1.20%	0
75		8	381.1	376.2	386.1	377	395	0.7423	5.939	1.56%	0
150		8	385	380.4	389.6	380	395	0.6911	5.529	1.44%	0
Overall		48	380	378.4	381.6	372	395	0.7936	5.499	1.45%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.963	7.854	8.071	7.8	8.2	0.01628	0.1302	1.64%	0
10		8	7.925	7.818	8.032	7.8	8.1	0.01602	0.1282	1.62%	0
19		8	7.913	7.818	8.007	7.8	8.1	0.01408	0.1126	1.42%	0
38		8	7.913	7.808	8.017	7.7	8.1	0.01558	0.1246	1.58%	0
75		8	7.9	7.791	8.009	7.7	8.1	0.01637	0.1309	1.66%	0
150		8	7.913	7.818	8.007	7.8	8.1	0.01408	0.1126	1.42%	0
Overall		48	7.921	7.886	7.955	7.7	8.2	0.01709	0.1184	1.50%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98.5	97.16	99.84	97	100	0.2004	1.604	1.63%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	99.25	98.54	99.96	97	100	0.3354	1.342	1.35%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.137	8.038	8.237	7.9	8.2	0.01485	0.1188	1.46%	0
10		8	8.088	7.993	8.182	7.9	8.2	0.01408	0.1126	1.39%	0
19		8	8.088	7.993	8.182	7.9	8.2	0.01408	0.1126	1.39%	0
38		8	8.088	8.018	8.157	8	8.2	0.01043	0.08346	1.03%	0
75		8	8.113	8.043	8.182	8	8.2	0.01043	0.08346	1.03%	0
150		8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
Overall		48	8.102	8.074	8.13	7.9	8.2	0.01412	0.09783	1.21%	0 (0%)



# CETIS Measurement Report

Report Date: 28 Feb-24 11:19 (p 2 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

### Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)



Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

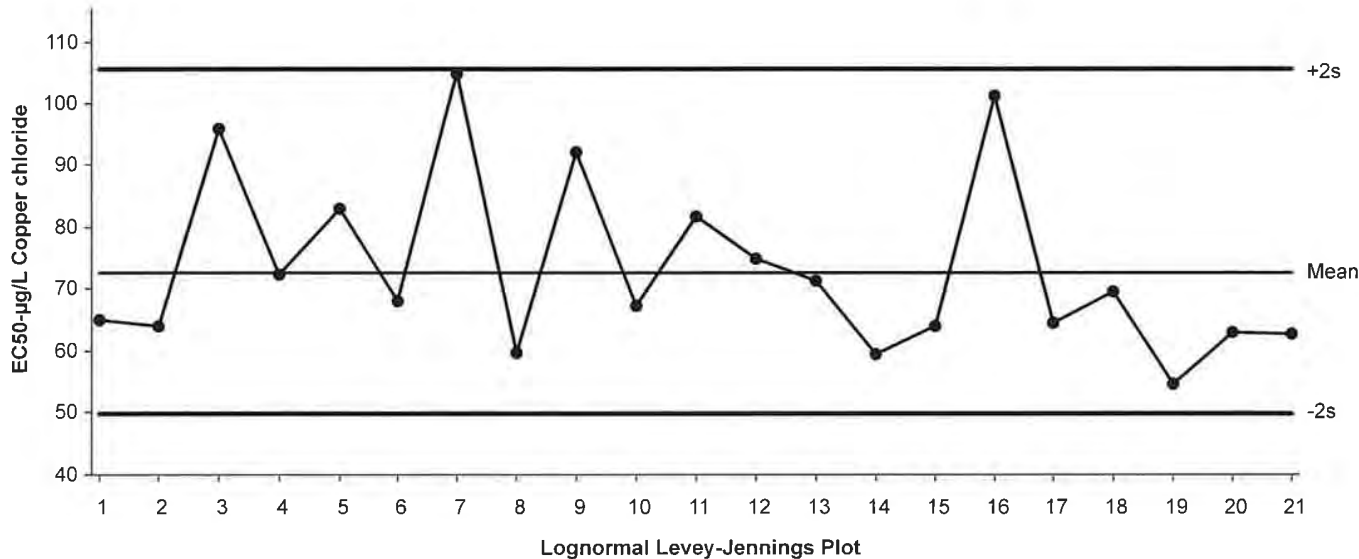
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



Mean: 72.53      Count: 20      -2s Action Limit: 49.9  
 Sigma: NA      CV: 18.90%      +2s Action Limit: 105

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	5	13:15	64.91	-7.621	-0.593			07-7980-5469	03-0584-6653
2			6	14:45	63.9	-8.63	-0.6767			18-8099-7551	11-3195-6885
3			10	14:30	95.83	23.3	1.488			00-9395-0169	09-6776-4624
4			17	14:45	72.45	-0.08171	-0.00602			10-4602-8256	00-4017-6619
5			24	13:40	83.04	10.51	0.7226			01-7885-2189	13-0007-2758
6			25	12:16	67.98	-4.553	-0.3463			11-1982-8946	16-3131-2159
7			31	15:30	104.9	32.39	1.972			07-7265-5981	14-1873-8638
8		Nov	7	15:10	59.58	-12.95	-1.05			19-2888-5334	07-9547-8315
9			14	15:30	92.05	19.52	1.273			18-8754-0700	05-2558-7597
10			17	14:01	67.38	-5.148	-0.3933			17-0726-1937	14-0961-0371
11			28	14:49	81.82	9.288	0.6437			10-1970-7599	00-2724-7341
12		Dec	5	13:45	75	2.47	0.1789			19-1204-9208	03-6141-0747
13			12	13:30	71.3	-1.23	-0.09137			03-7560-9108	05-6885-8439
14			13	12:15	59.42	-13.11	-1.065			14-7892-5887	04-9254-9827
15			21	13:29	64	-8.53	-0.6684			06-6036-2868	13-4891-1637
16			22	14:30	101.4	28.82	1.787			00-5720-1635	14-1952-0593
17	2024	Jan	3	14:00	64.43	-8.101	-0.6327			04-0866-8727	01-4746-8383
18			4	14:05	69.52	-3.011	-0.2265			15-6608-9784	08-1717-2208
19			9	13:20	54.55	-17.98	-1.522			14-8299-7228	00-5651-6529
20			23	14:00	63	-9.53	-0.7525			12-1922-4773	10-8689-4329
21		Feb	2	14:20	62.67	-9.863	-0.7808			05-5157-4005	09-6073-8693

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

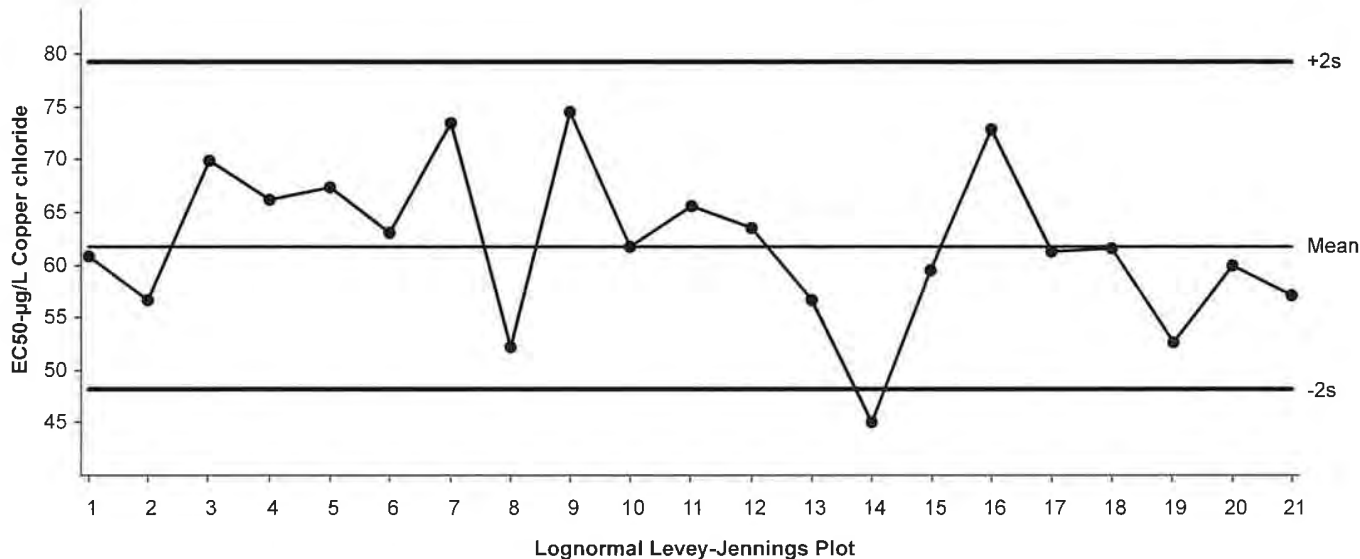
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 61.81      Count: 20      -2s Action Limit: 48.1  
 Sigma: NA      CV: 12.50%      +2s Action Limit: 79.3

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	5	13:15	60.85	-0.953	-0.1244			07-7980-5469	07-5020-1148
2			6	14:45	56.73	-5.073	-0.6857			18-8099-7551	15-1441-4720
3			10	14:30	69.86	8.052	0.9805			00-9395-0169	18-9888-9667
4			17	14:45	66.23	4.42	0.553			10-4602-8256	13-8119-0525
5			24	13:40	67.38	5.578	0.6918			01-7885-2189	06-8805-4487
6			25	12:16	63.01	1.204	0.1544			11-1982-8946	04-1492-8778
7			31	15:30	73.46	11.65	1.383			07-7265-5981	21-3432-7293
8		Nov	7	15:10	52.21	-9.593	-1.35			19-2888-5334	11-0119-4879
9			14	15:30	74.52	12.72	1.498			18-8754-0700	03-4458-8213
10			17	14:01	61.66	-0.1449	-0.0188			17-0726-1937	06-0317-0204
11			28	14:49	65.63	3.828	0.4811			10-1970-7599	09-5836-2004
12		Dec	5	13:45	63.46	1.652	0.2111			19-1204-9208	02-5721-3294
13			12	13:30	56.61	-5.194	-0.7028			03-7560-9108	19-0990-5343
14			13	12:15	45.01	-16.79	-2.539		(-)	14-7892-5887	19-1033-5713
15			21	13:29	59.44	-2.365	-0.3124			06-6036-2868	01-3251-7777
16			22	14:30	72.95	11.14	1.327			00-5720-1635	06-1309-8628
17	2024	Jan	3	14:00	61.34	-0.469	-0.06098			04-0866-8727	03-7640-5638
18			4	14:05	61.64	-0.1647	-0.02137			15-6608-9784	18-2508-7781
19			9	13:20	52.68	-9.128	-1.279			14-8299-7228	08-4892-6835
20			23	14:00	59.92	-1.886	-0.2482			12-1922-4773	11-2137-3210
21		Feb	2	14:20	57.13	-4.673	-0.6295			05-5157-4005	07-7973-9309

CHAIN OF CUSTODY FORM

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R/A	R+Sm	R/A+Sm	R	A	R/A	R	R	R+Sm	R+Sm	A	R	R	R	A+Sm	Comments				
									Total Recoverable Metals (E2007): B, Hardness as CaCO3 (E2008): Ag, Al, As, Ba, Bi, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	TCDD (and all congeners) (E1613B)	Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E900), Perchlorate (E14.0)	TDS (SM2540C/E100.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals (E2007): B, Hardness as CaCO3 (E2008): Ag, Al, As, Ba, Bi, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	Gross Alpha & Beta (E900): K-40, Cs-137 (E901): Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium 226 & 228, Sr-90 (E903, E904, E905), Tritium (H-3) (E906.0)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (950.2)	Cyanide (SM4500-CHL / E335.2)	Priority Poliaromatics+PCBs (E608) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631E)	Cr (VI), Total Dissolved (E216.6)						
Outfall 008	Outfall008_20240202_Comp	2/2/2024 / 10930	WM	500 mL Poly	1	HNO3	85	Yes	X																			
			WM	1 L Glass Amber	2	None	110				X																	
			WM	500 mL Poly	1	None	125						X														48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	155						X															
			WM	500 mL Poly	1	H2SO4	160																					
			WM	1L Poly	1	None	165										X											
			WM	250 mL Poly	1	NaOH	220														X							
			WM	2.5 Gal Cube	1	None	225												X									Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD
			WM	1 L Glass Amber	1	None	230																X					Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 Gal Cube	8	None	235																					
			WM	1 L Glass Amber	4	None	250																		X			Deliver to Weck Labs in Hacienda Heights, CA
2	Outfall008_20240202_Comp_F	2/2/2024 / 10930	WM	250mL Glass double bagged	1	HCL	998														X							
			WM	1L Poly	1	None	195	Yes							X											Filter and preserve w/in 24hrs of receipt at lab		
			WM	250 mL Poly	1	None	260																	X				
3	Outfall008_20240202_Comp_Extra	2/2/2024 / 10930	WM	250mL Glass double bagged	1	None	999														X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab		
			WM	1 L Glass Amber	2	None	110						H													Hold		
			WM	500 mL Poly	1	None	125							H													Hold	
			WM	1 L Glass Amber	4	None	250																				Hold	

Legend: R = Routine, A = Annual, Sm = SRAM



570-170739 Chain of Custody

Relinquished By: <u>Michelle Dellalah</u> 4pm 2/2/24 HPA Date/Time: 2/2/24 Company: HPA	Received By: <u>[Signature]</u> 4pm 2/2/24 Date/Time: 2/2/24 Company:
Relinquished By: <u>[Signature]</u> 1900 Date/Time: 2/2/24 Company: 1900	Received By: <u>[Signature]</u> 1900 2/2/24 Date/Time: 2/2/24 Company:
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____

Intact: \_\_\_\_\_ On Ice: \_\_\_\_\_  
Store samples for 6 months  
Data Requirements: (Check)  
No Level IV: \_\_\_\_\_ All Level IV: X

1.5/1.6, 2-2/2-2, 1.7/1.4, 1.9/1.9, 2.4/2.4, 1.3/1.3 SC12



CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing - SSFL <b>Annual Sampling &amp;</b> 1st & 2nd Event of the First Year OUTFALL 008 <b>COMPOSITE</b> Stormwater at Happy Valley				Sm Sm Sm Sm Sm Sm Sm Sm Sm Sm Sm <b>ANALYSIS REQUIRED</b>														
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187						SRAM list- 1,4-Dioxane (E624 (S18260M_SIM))	SRAM list- E8330A/B	SRAM list- Energetic Constituents, Terphenyls (E625/8270C)	SRAM list- PAHs (E625, 1SIM)	SRAM list- SVOCs (E625, 1SIM / 8270C)	SRAM list- Glycols (E8321B); Diethylene Glycol, Triethylene glycol	SRAM list- Herbicides (8151A)	SRAM list- Pesticides/PCBs (E608)	SRAM list- PCBs (1668C)	SRAM list- Methyl Mercury (1630 (Mod))		<b>Comments</b>			
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)														
Sampler: Adrien Mobeka																				
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list- 1,4-Dioxane (E624 (S18260M_SIM))	SRAM list- E8330A/B	SRAM list- Energetic Constituents, Terphenyls (E625/8270C)	SRAM list- PAHs (E625, 1SIM)	SRAM list- SVOCs (E625, 1SIM / 8270C)	SRAM list- Glycols (E8321B); Diethylene Glycol, Triethylene glycol	SRAM list- Herbicides (8151A)	SRAM list- Pesticides/PCBs (E608)	SRAM list- PCBs (1668C)	SRAM list- Methyl Mercury (1630 (Mod))			
Outfall 008	Outfall008_20240202_Comp	2/2/2024 /0930	WM	40 mL VOA	3	HCl	No	X												
			WM	1 L Glass Amber	2	None	No		X											
			WM	1 L Glass Amber	2	None	No			X										
			WM	1 L Glass Amber	2	None	No				X									
			WM	1 L Glass Amber	2	None	No					X								
			WM	1 L Glass Amber	2	None	No							X						
			WM	1 L Glass Amber	4	None	No								X					
			WM	1 L Glass Amber	4	None	No									X				
			WM	1 L Glass Amber	4	None	No										H			Put on HOLD
			WM	1 L Glass Amber	2	None	No											X		
Legend: A=Annual, R=Routine, Sm = SRAM																				
Relinquished By: <i>Michelle Dallalah</i> Date/Time: <i>2/2/24 4pm</i> Company: <i>H&amp;A</i>		Received By: <i>[Signature]</i> Date/Time: <i>2/2/24 4pm</i>				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____														
Relinquished By: <i>[Signature]</i> Date/Time: <i>2/2/24 1900</i> Company: _____		Received By: <i>[Signature]</i> Date/Time: <i>2/2/24 1900</i>				Sample Integrity: (Check) Intact: _____ On Ice: _____														
Relinquished By: _____ Date/Time: _____ Company: _____		Received By: _____ Date/Time: _____				Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X														



CHAIN OF CUSTODY FORM

Client Name/Address: <b>Haley &amp; Aldrich</b> 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing - SSFL Annual Sampling & 1st & 2nd Event of the First Year OUTFALL 008 COMPOSITE Stormwater at Happy Valley				ANALYSIS REQUIRED											
Eurofins Calscience Project Manager: <b>Virendra Patel</b> 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-395-5494 ECI Project #57013187								Comments											
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreements 2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.																			
Eurofins Calscience Project Manager: <b>Katherine Miller</b> 520.289.8606, 520.904.6944 (cell)				Field Manager: <b>Mark Dominick</b> 978.234.5033, 818.599.0702 (cell)				Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm		
Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm	Sm			
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list - Total Dissolved Metals (E200.8 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - 1,4-Dioxane (E624 (SW8260M_SMI))	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW8015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW8015B)	SRAM list - TPH: Oil Range Organics, ORO (SW8015B)	SRAM list - VOCs (E624.1 / 8260B)	SRAM list - Formaldehyde (8351A)	SRAM List - MMH, Hydrazine, 1,1-Dimethylhydrazine (SW8315M/DV-WC-0077)	Weck Labs in Hacienda Heights, CA		
2          Outfall 008	Outfall008_20240202_Comp_F	2/2/2024 10930	WM	1 L Poly	1	None	Yes	H									Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
			WM	500 mL Poly	1	HNO <sub>3</sub>	Yes		H								Put on HOLD		
			WM	40 mL VOA	3	HCl	No			X									
			WM	1 L Glass Amber	2	None	No				X								
		Outfall008_20240202_Comp	2/2/2024 10930	WM	250mL Glass Amber	1	None	No				X							
			WM	250mL Glass Amber	1	None	No						X						
			WM	40 mL VOA	3	HCl	No							X					
			WM	125mL Glass Amber	1	None	No								X				
			WM	1 L Glass Amber	1	None	No										X	Deliver to Weck Labs in Hacienda Heights, CA	
Legend: A=Annual, R=Routine, Sm = SRAM																			
Relinquished By: <i>M. Dallah</i> Date/Time: <i>4pm 2/2/24</i> Company: <i>H&amp;A</i>				Received By: <i>M. Dallah</i> Date/Time: <i>2/2/24 pm</i>				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____											
Relinquished By: <i>M. Dallah</i> Date/Time: <i>2/2/24 1900</i> Company:				Received By: <i>V. Patel</i> Date/Time: <i>2/2/24 1900</i>				Sample Integrity: (Check) Intact: _____ On Ice: _____											
Relinquished By:				Received By:				Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X											



**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

Client Information (Sub Contract Lab)		Sampler		Lab PM:		Carrier Tracking No(s):		COC No:								
Client Contact: Shipping/Receiving		Phone:		Patel, Virendra		Virendra.Patel@et.eurofinsus.com		570-345931 1								
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note):		State California; State Program California		Page: Page 1 of 1								
Address: 13715 Rider Trail North, Earth City, MO, 63045				Due Date Requested: 3/6/2024		TAT Requested (days):		Job #: 570-170739-10								
State, Zip: MO, 63045				PO #:		WO #:		<b>Analysis Requested</b> A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)  Other:								
Project Name: Boeing NPDES SSFL Outfall 009 Comp				Project #: 57013187		SSOW#:										
Site:																
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, ST=Sludge, A=Air)	Preservation Code	901.1_CsFIL_Geo_0 K-40 and Csium-137 Perform MS/MSD (Yes or No)	901.1_CsFIL_Geo_0 K-40 and Csium-137	AGIR_UJExtChrom_Actin Total Uranium	900.0IEVaporation Gross Alpha/Beta	903.0IPrecSep_21 Radium-226	904.0IPrecSep_0 Radium-228	905.0IPrecSep_7 Strontium-90	906.0ILSC_Dist_Surop Tritium	Total Number of Containers	Special Instructions/Note:
Outfall008_20240123_Comp (570-170739-1)		2/2/24	09:30 Pacific	Water		X	X	X	X	X	X	X	X		2	Boeing SSFL, DO NOT FILTER; use prep date from preservation
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.																
<b>Possible Hazard Identification</b>										<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>						
Unconfirmed										<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I II III, IV Other (specify)					Primary Deliverable Rank: 2					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:					Date:		Time:		Method of Shipment:							
Relinquished by: [Signature]					Date/Time: 2/6/24 1257		Company:		Received by:				Date/Time:		Company:	
Relinquished by:					Date/Time:		Company:		Received by:				Date/Time:		Company:	
Relinquished by:					Date/Time:		Company:		Received by:				Date/Time:		Company:	
Custody Seals Intact:		Custody Seal No.			Cooler Temperature(s) °C and Other Remarks:											
Δ Yes Δ No																





**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-345940.1																																																					
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1																																																					
Company: Eurofins Environment Testing Northwest,				Accreditations Required (See note): State California; State Program California				Job #: 570-170739-2																																																					
Address: 5755 8th Street East,		Due Date Requested: 2/23/2024		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="10">Analysis Requested</th> </tr> <tr> <td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td> </tr> <tr> <td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td> </tr> <tr> <td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td> </tr> <tr> <td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td> </tr> </table>						Analysis Requested																																																		Preservation Codes:	
Analysis Requested																																																													
City: Tacoma		TAT Requested (days):		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers		A HCL	M Hexane																																																		
State, Zip: WA, 98424		PO #:								1631E/ Mercury, Total	1630_ME/1630_Dist_L_PFP Methyl Mercury	1631E/Filtration_ME Mercury, Dissolved	B NaOH	N None	O AsNaO2	P Na2O4S																																													
Phone: 206-622-6960(Tel)		WO #:		Project Name: Boeing NPDES SSFL Outfall 009 Comp		Project #: 57013187		Other		C Zn Acetate	Q Na2SO3																																																		
Email:		SSOW#:								D Nitric Acid	R Na2S2O3	E NaHSO4	S H2SO4	F MeOH	T TSP Dodecahydrate	G Amchlor	U Acetone																																												
Project Name: Boeing NPDES SSFL Outfall 009 Comp		Project #: 57013187		Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, DT=Tissue, AA=)		Special Instructions/Note:																																															
Site:																																																													

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

<b>Possible Hazard Identification</b>				<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>			
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I II III, IV Other (specify)				Primary Deliverable Rank: 2			
Empty Kit Relinquished by:				Special Instructions/QC Requirements:			
Date:		Time:		Date:		Method of Shipment:	
Relinquished by: <i>[Signature]</i>		Date/Time: 02/20/24 13:00		Company: <i>[Signature]</i>		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

Page 36 of 42

3/1/2024



# Eurofins Calscience

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

## Chain of Custody Record



Environment Testing

<b>Client Information (Sub Contract Lab)</b>			Sampler		Lab PM: Patel, Virendra			Carrier Tracking No(s):			COC No: 570-345940.1																														
Client Contact Shipping/Receiving			Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com			State of Origin: California			Page: Page 1 of 1																														
Company: Eurofins Environment Testing Northwest,					Accreditations Required (See note): State - California; State Program California					Job #: 570-170739-2																															
Address: 5755 8th Street East,			Due Date Requested: 2/23/2024		<b>Analysis Requested</b>							<b>Preservation Codes:</b> <table style="font-size: small; width: 100%;"> <tr><td>A HCL</td><td>M Hexane</td></tr> <tr><td>B NaOH</td><td>N None</td></tr> <tr><td>C Zn Acetate</td><td>O AsNaO2</td></tr> <tr><td>D Nitric Acid</td><td>P Na2O4S</td></tr> <tr><td>E NaHSO4</td><td>Q Na2SO3</td></tr> <tr><td>F MeOH</td><td>R Na2S2O3</td></tr> <tr><td>G Amchlor</td><td>S H2SO4</td></tr> <tr><td>H Ascorbic Acid</td><td>T TSP Dodecahydrate</td></tr> <tr><td>I Ice</td><td>U Acetone</td></tr> <tr><td>J DI Water</td><td>V MCAA</td></tr> <tr><td>K EDTA</td><td>W pH 4-5</td></tr> <tr><td>L EDA</td><td>Y Trizma</td></tr> <tr><td></td><td>Z other (specify)</td></tr> </table>				A HCL	M Hexane	B NaOH	N None	C Zn Acetate	O AsNaO2	D Nitric Acid	P Na2O4S	E NaHSO4	Q Na2SO3	F MeOH	R Na2S2O3	G Amchlor	S H2SO4	H Ascorbic Acid	T TSP Dodecahydrate	I Ice	U Acetone	J DI Water	V MCAA	K EDTA	W pH 4-5	L EDA	Y Trizma		Z other (specify)
A HCL	M Hexane																																								
B NaOH	N None																																								
C Zn Acetate	O AsNaO2																																								
D Nitric Acid	P Na2O4S																																								
E NaHSO4	Q Na2SO3																																								
F MeOH	R Na2S2O3																																								
G Amchlor	S H2SO4																																								
H Ascorbic Acid	T TSP Dodecahydrate																																								
I Ice	U Acetone																																								
J DI Water	V MCAA																																								
K EDTA	W pH 4-5																																								
L EDA	Y Trizma																																								
	Z other (specify)																																								
City: Tacoma			TAT Requested (days):																																						
State, Zip: WA, 98424			PO #:																																						
Phone: 206-622-6960(Tel)			WO #:																																						
Project Name: Boeing NPDES SSFL - Outfall 009 Comp			Project #: 57013187																																						
Site:			SSOW#:																																						
<b>Sample Identification - Client ID (Lab ID)</b>			<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1631E/ Mercury, Total	1630_ME/1630_Dist_PFP_Methyl Mercury	1631E/Filtration_ME Mercury, Dissolved	Total Number of Containers	<b>Special Instructions/Note:</b>																												
Outfall008_20240123_Comp (570-170739-1)			2/2/24	09:30 Pacific		Water			X	X																															
Outfall008_20240123_Comp_F (570-170739-2)			2/2/24	09:30 Pacific		Water				X																															

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

<b>Possible Hazard Identification</b>			<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>		
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		

Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Special Instructions/QC Requirements:	
--	--	-----------------------------	--	---------------------------------------	--

Empty Kit Relinquished by		Date:		Time:		Method of Shipment:	
Relinquished by: <i>[Signature]</i>		Date/Time: 02/20/24 13:00		Company: <i>[Signature]</i>		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	

Custody Seals Intact: Δ Yes Δ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:	
-------------------------------------	--	------------------	--	---	--



**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Shipping/Receiving		Phone:	Patel, Virendra		E-Mail:		570-345957 1	
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State California; State Program California		State of Origin: California		Page: Page 1 of 1		
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:		Due Date Requested: 2/16/2024 TAT Requested (days):		Job #: 570-170739-6		Preservation Codes:		
Project Name: Boeing NPDES SSFL Outfall 009 Comp Site:		PO #: WO #: Project #: 57013187 SSOW#:		Analysis Requested		A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers
Outfall008_20240123_Comp (570-170739-1)		2/2/24	09:30 Pacific	Water		X	X	X
Special Instructions/Note:								

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

<b>Possible Hazard Identification</b>		<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>	
Unconfirmed		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I II III, IV Other (specify)		Primary Deliverable Rank: 2	
Empty Kit Relinquished by:		Special Instructions/QC Requirements:	
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:	

Page 38 of 42

3/1/2024





**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**

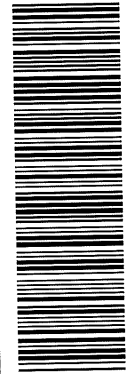


Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM: Patel, Virendra			Carrier Tracking No(s):	COC No: 570-345957 1																					
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com			State of Origin: California	Page: Page 1 of 1																					
Company: Eurofins Lancaster Laboratories Environm			Accreditations Required (See note): State California, State Program California			Job #: 570-170739-6																						
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601		Due Date Requested: 2/16/2024	<table border="1"> <thead> <tr> <th colspan="10">Analysis Requested</th> </tr> </thead> <tbody> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td>833088330_P_SPE</td> <td>6018C_DAL_GLY8016_DAL_Prep (MOD) Custom Analyte List</td> <td>626-1_PREC/626_Prep_LVI 626-1 Diphenyl Ether/Perylene (TIC)</td> <td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>				Analysis Requested										Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	833088330_P_SPE	6018C_DAL_GLY8016_DAL_Prep (MOD) Custom Analyte List	626-1_PREC/626_Prep_LVI 626-1 Diphenyl Ether/Perylene (TIC)						Preservation Codes: A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)	
Analysis Requested																												
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	833088330_P_SPE	6018C_DAL_GLY8016_DAL_Prep (MOD) Custom Analyte List	626-1_PREC/626_Prep_LVI 626-1 Diphenyl Ether/Perylene (TIC)																								
Project Name: Boeing NPDES SSFL Outfall 009 Comp Site:		TAT Requested (days):	PO #:		WO #:		Project #: 57013187		SSOW#:																			
Sample Identification Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers		Special Instructions/Note:																
Outfall008_20240123_Comp (570-170739-1)		2/2/24	09:30 Pacific	Water		X	X	X																				
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																												
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																							
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																							
Deliverable Requested: I II III, IV Other (specify)					Primary Deliverable Rank: 2																							
Special Instructions/QC Requirements:																												
Empty Kit Relinquished by			Date:			Time:			Method of Shipment:																			
Relinquished by:			Date/Time: 02/01/24 13:20			Company:			Received by:			Date/Time:			Company:													
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:													
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:													
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:																								



**FedEx**



570-170739 Waybill

RT **198**  
FZ **197**

10:30   
3730  
02.07

ORIGIN ID: DTHA  
ARASH AHMADIAN  
EUROFINS CALSCIENCE  
2841 DOW AVE  
SUITE 100  
TUSTIN CA 927807211  
UNITED STATES US

SHIP DATE: 06FEB24  
ACTWT: 50.00 LB MAN  
CAD: 0343492/CAFE3755

BILL SENDER

TO **SHIPPING/RECEIVING**  
**EUROFINS ENVIRONMENT TESTING NORTHE**  
**301 ALPHA DRIVE**  
**RIDC PARK**  
**PITTSBURGH PA 15238**

(412) 963-7068  
PO: YES

REF: 8570-94799

Uncorrected temp  
Thermometer ID 3.6 °C  
CF-0.7 Initials PO  
PT-WI-SR-001 effective 11/8/18



**FedEx**  
Express



TRK# **7286 4125 3730**  
0201

**WED - 07 FEB 10:30A**  
**PRIORITY OVERNIGHT**

**XN AGCA**

**15238**  
**PA-US PIT**



Part # 159469-434 NTW EXP 10/24

585C5/EC2B/RED7

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- 5
- 6
- 7
- 8
- 9

# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-170739-5

**Login Number: 170739**

**List Source: Eurofins Calscience**

**List Number: 1**

**Creator: Patel, Virendra**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004  
Generated 3/22/2024 3:48:43 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 008 - Comp

## JOB NUMBER

570-173136-4

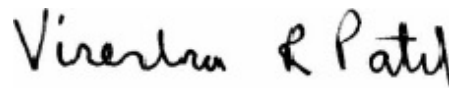


## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



Generated  
3/22/2024 3:48:43 PM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



# Table of Contents

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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-173136-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-173136-4

**Job ID: 570-173136-4**

**Eurofins Calscience**

## Job Narrative 570-173136-4

### Receipt

The samples were received on 2/20/2024 5:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 1.5° C, 1.6° C, 2.2° C and 2.8° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-173136-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 008 - Comp

Job ID: 570-173136-4

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-173136-1	Outfall008_20240220_Comp	Water	02/20/24 09:20	02/20/24 17:30

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**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 21, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 008\_20240220\_Comp  
 DATE RECEIVED: 20 Feb - 2024  
 ABC LAB. NO.: CSE0224.170

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS % EFFECT = 0.00 %

GROWTH = PASS % EFFECT = 2.21 %

Yours very truly,

Scott Johnson  
 Laboratory Director

**CETIS Summary Report**

Report Date: 20 Mar-24 10:16 (p 1 of 1)  
 Test Code/ID: CSE0224.170fml / 20-2895-9244

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-1697-7015	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:41	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 14:02	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 19-5409-1355	Code: CSE0224.170fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 09:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 008
Sample Age: 5h (2.3 °C)	Client: Eurofins Calscience	

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
04-1570-4748	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
09-3685-7898	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
04-1570-4748	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
09-3685-7898	Mean Dry Biomass-mg	Control Resp	0.3578	0.25	<<	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3578	0.3468	0.3687	0.338	0.378	0.004612	0.01304	3.65%	0.00%
100		8	0.3498	0.3421	0.3575	0.3387	0.366	0.003251	0.009195	2.63%	2.21%

**7d Survival Rate Detail**

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Mean Dry Biomass-mg Detail**

MD5: 4196D62D340C93D68826D01AD8384DA2

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.366	0.37	0.338	0.356	0.3553	0.346	0.3527	0.378
100		0.366	0.3413	0.3453	0.3387	0.3493	0.3593	0.346	0.3527

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15



# CETIS Analytical Report

Report Date: 20 Mar-24 10:16 (p 1 of 4)  
 Test Code/ID: CSE0224.170fml / 20-2895-9244

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-1570-4748	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 10:16	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Mar-24 10:15	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3
Batch ID: 19-1697-7015	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:41	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 14:02	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 19-5409-1355	Code: CSE0224.170fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 09:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 008
Sample Age: 5h (2.3 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

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

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

Fathead Minnow 7-d Larval Survival and Growth Test

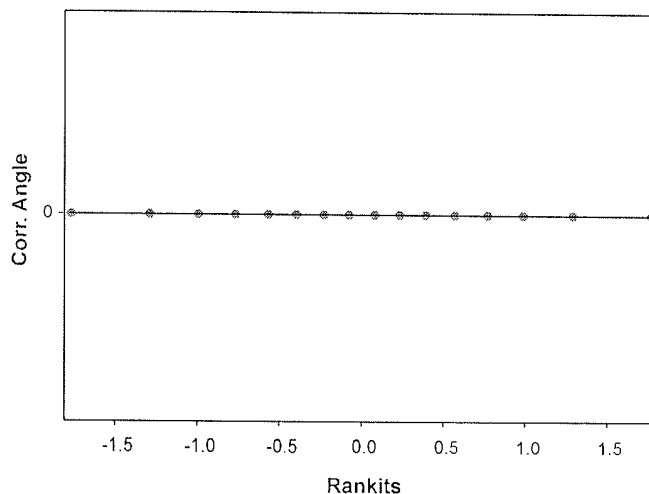
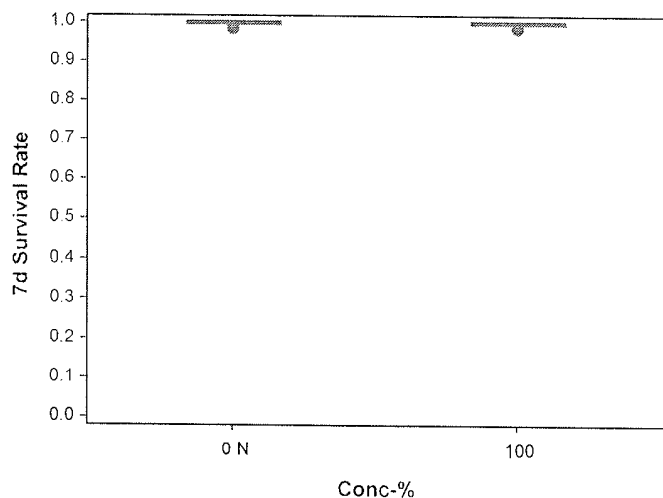
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-1570-4748      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 20 Mar-24 10:16      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 20 Mar-24 10:15      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Graphics



**CETIS Analytical Report**

Report Date: 20 Mar-24 10:16 (p 3 of 4)  
 Test Code/ID: CSE0224.170fml / 20-2895-9244

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-3685-7898	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 10:16	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Mar-24 10:15	MD5 Hash: 4196D62D340C93D68826D01AD8384DA2	Editor ID: 009-702-627-3
Batch ID: 19-1697-7015	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:41	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 14:02	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 19-5409-1355	Code: CSE0224.170fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 09:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 008
Sample Age: 5h (2.3 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	13	17.17	0.6938	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3578	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0002507	0.0002507	1	1.969	0.1824	Non-Significant Effect
Error	0.0017828	0.0001273	14			
Total	0.0020335		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.9612	8.862	0.3435	Equal Variances
	Mod Levene Equality of Variance Test	0.6027	8.862	0.4504	Equal Variances
	Variance Ratio F Test	2.013	8.885	0.3765	Equal Variances
Distribution	Anderson-Darling A2 Test	0.2732	3.878	0.6951	Normal Distribution
	D'Agostino Skewness Test	0.4594	2.576	0.6459	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1433	0.2471	0.5395	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9744	0.8408	0.9035	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3578	0.3468	0.3687	0.3557	0.338	0.378	0.004612	3.65%	0.00%
100		8	0.3498	0.3421	0.3575	0.3477	0.3387	0.366	0.003251	2.63%	2.21%

**Mean Dry Biomass-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.366	0.37	0.338	0.356	0.3553	0.346	0.3527	0.378
100		0.366	0.3413	0.3453	0.3387	0.3493	0.3593	0.346	0.3527

# CETIS Analytical Report

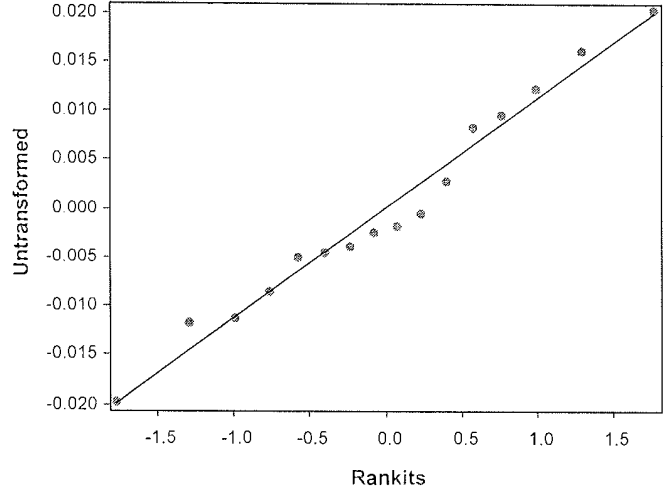
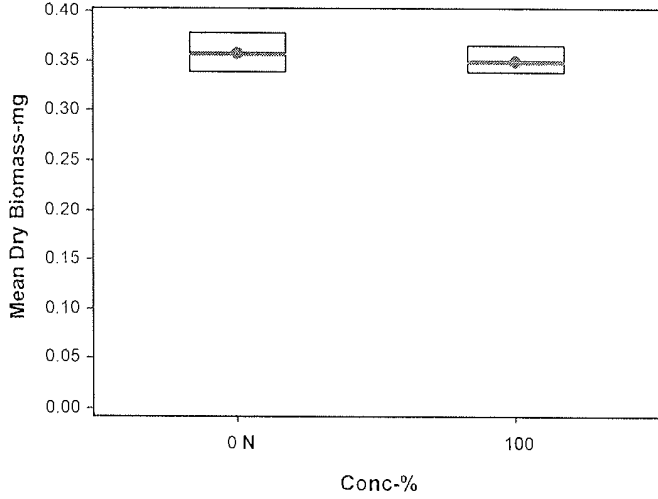
Report Date: 20 Mar-24 10:16 (p 4 of 4)  
Test Code/ID: CSE0224.170fml / 20-2895-9244

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-3685-7898	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 10:16	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Mar-24 10:15	MD5 Hash: 4196D62D340C93D68826D01AD8384DA2	Editor ID: 009-702-627-3

## Graphics



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# CETIS Measurement Report

Report Date: 20 Mar-24 10:16 (p 1 of 1)  
 Test Code/ID: CSE0224.170fml / 20-2895-9244

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-1697-7015	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:41	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 14:02	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 19-5409-1355	Code: CSE0224.170fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 20 Feb-24 09:20	Material: Sample Water	Source: Bioassay Report
Receipt Date: 20 Feb-24 13:50	CAS (PC):	Station: Outfall 008
Sample Age: 5h (2.3 °C)	Client: Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	63.62	63.19	64.06	63	64	0.06469	0.5175	0.81%	0
100		8	66	66	66	66	66	0	0	0.00%	0
Overall		16	64.81	64.13	65.49	63	66	0.3191	1.276	1.97%	0 (0%)

### Conductivity-µmhos

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	376.4	371.8	380.9	367	385	0.6812	5.449	1.45%	0
100		8	179.6	174.3	184.9	172	192	0.7932	6.346	3.53%	0
Overall		16	278	223.8	332.2	172	385	25.44	101.8	36.60%	0 (0%)

### Dissolved Oxygen-mg/L

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.925	7.571	8.279	6.9	8.2	0.05293	0.4234	5.34%	0
100		8	7.975	7.63	8.32	7	8.3	0.05165	0.4132	5.18%	0
Overall		16	7.95	7.734	8.166	6.9	8.3	0.1012	0.405	5.09%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	73	73	73	73	73	0	0	0.00%	0
Overall		16	86.5	79.07	93.93	73	100	3.486	13.94	16.12%	0 (0%)

### pH-Units

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	7.965	8.285	7.7	8.3	0.02386	0.1909	2.35%	0
100		8	7.8	7.674	7.926	7.6	8	0.0189	0.1512	1.94%	0
Overall		16	7.962	7.837	8.088	7.6	8.3	0.05907	0.2363	2.97%	0 (0%)

### Temperature-°C

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)

CHAIN OF CUSTODY FORM

$Temp. deg. C = 2.3^{\circ}C$   
 $Temp. deg. C = +0.3^{\circ}C$   
 Chlorine (mg/L) =  $LO$   
 NH3 (mg/L) =  $LO$   
 Comments: 137

Client Name/Address:		Project:		ANALYSIS REQUIRED																									
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year Outfall [008, 009]		R R+Sm R+Sm R R R R R R+Sm R+Sm R R R Total Recoverable Metals: (E200.8); Al, As, Cd, Cu, Pb, Zn TCDD (and all congeners) (E1613B) Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E300); Perchlorate (314.0) TDS (SM2540C/E160.1) TSS (160.2 (SM2540D)) Total Dissolved Metals: (E200.8); Al, As, Cd, Cu, Pb, Zn Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium 226 & 228, Sr-90 (E903, E904, E905), Tritium (H-3) (E906.0) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA Ammonia-N (350.2) Cyanide (SM4500-CN-E / E395.2) Routine Pesticides - only 4,4'-DDE (E608) Weck Labs in Hacienda Heights, CA LL Mercury - Total Recoverable (E1631E) LL Mercury - Total Dissolved (E1631E)																									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		NH3 (mg/L) = $LO$																									
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Outfall 008 COMPOSITE		Comments: 137																									
Sampler: Adrien Mobeka		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		HOLD																									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8); Al, As, Cd, Cu, Pb, Zn	TCDD (and all congeners) (E1613B)	Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E300); Perchlorate (314.0)	TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals: (E200.8); Al, As, Cd, Cu, Pb, Zn	Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium 226 & 228, Sr-90 (E903, E904, E905), Tritium (H-3) (E906.0)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013)	ABC Labs in Ventura, CA	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E395.2)	Routine Pesticides - only 4,4'-DDE (E608)	Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631E)	Comments					
Outfall 008	Outfall008_20240220_Comp	2/20/2024 0920	WM	500 mL Poly	1	HNO3	85	Yes	H																				
			WM	1 L Glass Amber	2	None	110			X																			
			WM	500 mL Poly	1	None	125					X																	
			WM	500 mL Poly	1	None	155						X																
			WM	500 mL Poly	1	H2SO4	160							X							X								
			WM	1L Poly	1	None	185								X														
			WM	250 mL Poly	1	NaOH	220									X						X							
			WM	2.5 Gal Cube	1	None	225										X												Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230																						
	WM	1 Gal Cube	5	None	235												X										Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA		
	WM	1 L Glass Amber	4	None	250																X						Deliver to Weck Labs in Hacienda Heights, CA		
	WM	250mL Glass, double bagged	1	HCL	998																	X							
	Outfall008_20240220_Comp_F	2/20/2024 0920	WM	1L Poly	1	None	195	Yes							H												Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
WM			250mL Glass, double bagged	1	None	999																X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab			
WM		1 L Glass Amber	2	None	110						H															Hold			
Outfall008_20240220_Comp_Extra	2/20/2024 0920	WM	500 mL Poly	1	None	125																					Hold		
		WM	1 L Glass Amber	4	None	250																	H				Hold		

\* Hand-delivered to ABC Labs with this copy + 16 copies  
 Relinquished By: Michelle Dallalah 2/20/24 / 1350  
 Company: H&A  
 Received By: Victor M... 2/20/24 1350  
 Legend: R = Routine, Sm = SRAM  
 Turn-around time: (Check)  
 24 Hour: \_\_\_\_\_ 72 Hour: \_\_\_\_\_ 10 Day: X  
 48 Hour: \_\_\_\_\_ 5 Day: \_\_\_\_\_ Normal: \_\_\_\_\_  
 Sample Integrity: (Check)  
 Intact: \_\_\_\_\_ On Ice: \_\_\_\_\_  
 Store samples for 6 months.  
 Data Requirements: (Check)  
 No Level IV: \_\_\_\_\_ All Level IV: X



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



## CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 20 February 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 38.00 ug/l

EC25 = 55.90 ug/l

EC50 = 73.81 ug/l

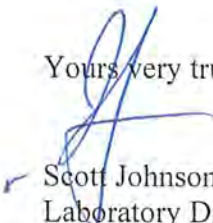
ENDPOINT: GROWTH

NOEC = 38.00 ug/l

IC25 = 50.12 ug/l

IC50 = 63.54 ug/l

Yours very truly,

  
Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 19 Mar-24 16:54 (p 1 of 2)  
 Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	PMSD	S
15-8471-1056	7d Survival Rate	Steel Many-One Rank Sum Test	✓	38	75	53.39	6.69%	1
04-7965-7265	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	✓	38	75	53.39	8.81%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓	Level	µg/L	95% LCL	95% UCL	S
12-7660-0176	7d Survival Rate	Linear Interpolation (ICPIN)	✓	EC15	48.74	45.58	53.75	1
				EC20	52.32	48.1	59.01	
				EC25	55.9	50.63	64.26	
				EC40	66.65	58.2	80.01	
				EC50	73.81	63.25	98.94	
06-8568-1699	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓	IC15	44.76	42.2	46.88	1
				IC20	47.44	44.84	49.76	
				IC25	50.12	47.33	52.7	
				IC40	58.17	54.5	62.02	
				IC50	63.54	59.21	68.18	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
12-7660-0176	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
15-8471-1056	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
04-7965-7265	Mean Dry Biomass-mg	Control Resp	0.3572	0.25	<<	Yes	Passes Criteria	
06-8568-1699	Mean Dry Biomass-mg	Control Resp	0.3572	0.25	<<	Yes	Passes Criteria	
04-7965-7265	Mean Dry Biomass-mg	PMSD	0.08813	0.12	0.3	Yes	Below Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.4833	0.2481	0.7186	0.3333	0.6667	0.0739	0.1478	30.58%	51.67%
150		4	0.0833	-0.0182	0.1849	0.0000	0.1333	0.0319	0.0638	76.59%	91.67%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3572	0.3372	0.3772	0.344	0.3707	0.00628	0.01256	3.52%	0.00%
10		4	0.3607	0.3399	0.3814	0.3447	0.376	0.006515	0.01303	3.61%	-0.98%
19		4	0.3492	0.3295	0.3689	0.3407	0.3673	0.006191	0.01238	3.55%	2.24%
38		4	0.3513	0.3368	0.3659	0.344	0.364	0.00457	0.009141	2.60%	1.63%
75		4	0.1028	0.0513	0.1544	0.07133	0.1413	0.01619	0.03239	31.50%	71.21%
150		4	0.025	-0.00833	0.05833	0	0.046	0.01047	0.02094	83.78%	93.00%



**CETIS Summary Report**

Report Date: 19 Mar-24 16:54 (p 2 of 2)  
 Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: ABBC1B7016A9ECA77F5C90D6B4E58FA4

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.4000	0.5333	0.3333
150		0.1333	0.1333	0.0667	0.0000

**Mean Dry Biomass-mg Detail**

MD5: E63EFCB4509A50ACFA672AB621AAD4B

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.344	0.3493	0.3707	0.3647
10		0.376	0.3447	0.358	0.364
19		0.342	0.3673	0.3467	0.3407
38		0.3453	0.364	0.352	0.344
75		0.1413	0.08133	0.1173	0.07133
150		0.046	0.038	0.016	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	6/15	8/15	5/15
150		2/15	2/15	1/15	0/15



**CETIS Analytical Report**

Report Date: 19 Mar-24 16:53 (p 1 of 3)  
 Test Code/ID: FML022024 / 08-4635-5285

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-8471-1056 **Endpoint:** 7d Survival Rate **CETIS Version:** CETISv2.1.4  
 Analyzed: 19 Mar-24 16:52 **Analysis:** Nonparametric-Control vs Treatments **Status Level:** 1  
 Edit Date: 19 Mar-24 16:51 **MD5 Hash:** ABBC1B7016A9ECA77F5C90D6B4E58FA **Editor ID:** 009-702-627-3

**Batch ID:** 21-1962-2834 **Test Type:** Growth-Survival (7d) **Analyst:**  
**Start Date:** 20 Feb-24 14:35 **Protocol:** EPA/821/R-02-013 (2002) **Diluent:** Laboratory Water  
**Ending Date:** 27 Feb-24 13:50 **Species:** Pimephales promelas **Brine:** Not Applicable  
**Test Length:** 6d 23h **Taxon:** Actinopterygii **Source:** Aquatic Biosystems, CO **Age:** <24-

**Sample ID:** 17-9891-1339 **Code:** FML022024 **Project:** REF TOX  
**Sample Date:** 20 Feb-24 14:35 **Material:** Copper chloride **Source:** Reference Toxicant  
**Receipt Date:** **CAS (PC):** **Station:** REF TOX  
**Sample Age:** --- **Client:** ABC Labs

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.06686	6.69%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.93156	0.986312	5	163.8	<1.0E-05	Significant Effect
Error	0.108389	0.0060216	18			
Total	5.03995		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	10.46	4.248	7.9E-05	Unequal Variances
	Mod Levene Equality of Variance Test	8.245	4.248	0.0003	Unequal Variances
Distribution	Anderson-Darling A2 Test	3.339	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.269	2.576	0.0233	Normal Distribution
	D'Agostino Skewness Test	0.04631	2.576	0.9631	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.148	9.21	0.0762	Normal Distribution
	Kolmogorov-Smirnov D Test	0.3333	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7692	0.884	9.6E-05	Non-Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.4833	0.2481	0.7186	0.4667	0.3333	0.6667	0.0739	30.58%	51.67%
150		4	0.0833	0.0000	0.1849	0.1111	0.0000	0.1333	0.0319	76.59%	91.67%

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-8471-1056      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 19 Mar-24 16:52      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 19 Mar-24 16:51      MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA      Editor ID: 009-702-627-3

Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.7686	0.5292	1.0080	0.7517	0.6155	0.9553	0.0752	19.57%	46.68%
150		4	0.2846	0.0996	0.4695	0.3362	0.1295	0.3738	0.0581	40.85%	80.26%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.4000	0.5333	0.3333
150		0.1333	0.1333	0.0667	0.0000

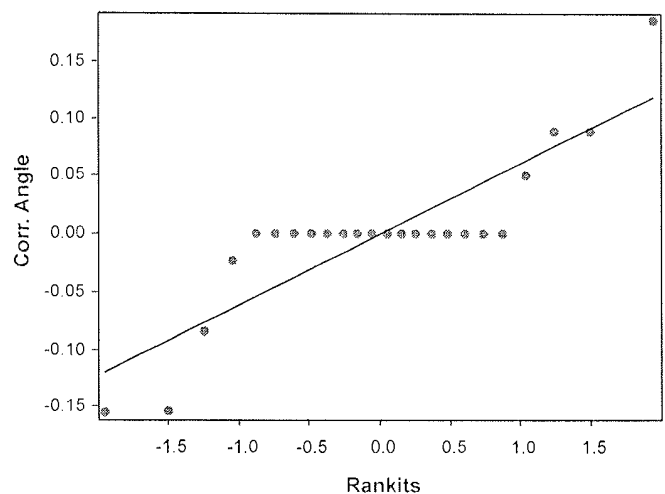
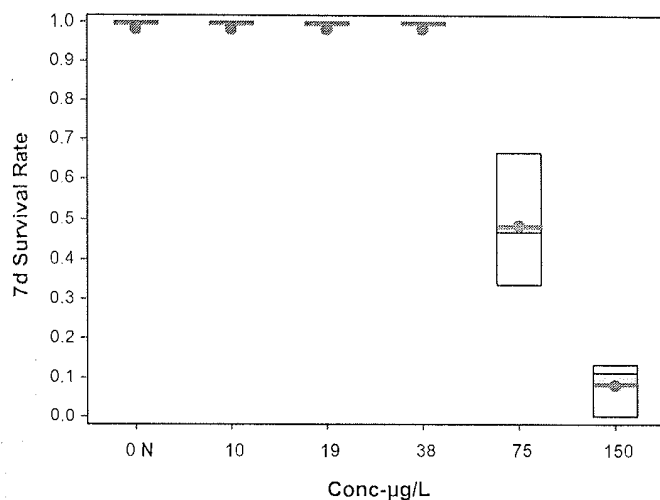
Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.6847	0.8188	0.6155
150		0.3738	0.3738	0.2612	0.1295

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	6/15	8/15	5/15
150		2/15	2/15	1/15	0/15

Graphics



**CETIS Analytical Report**

Report Date: 19 Mar-24 16:53 (p 3 of 3)  
 Test Code/ID: FML022024 / 08-4635-5285

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-7965-7265	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: E63EFCB4509A50ACFA672AB621AADDC4	Editor ID: 009-702-627-3
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.03148	8.81%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	-0.2676	2.407	0.03148	CDF	0.9000	Non-Significant Effect
		19	6	0.6118	2.407	0.03148	CDF	0.5980	Non-Significant Effect
		38	6	0.4461	2.407	0.03148	CDF	0.6707	Non-Significant Effect
		75*	6	19.45	2.407	0.03148	CDF	2.7E-05	Significant Effect
		150*	6	25.4	2.407	0.03148	CDF	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3572	0.25	<<	Yes	Passes Criteria
PMSD	0.08813	0.12	0.3	Yes	Below Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.463048	0.0926097	5	270.8	<1.0E-05	Significant Effect
Error	0.0061561	0.0003420	18			
Total	0.469204		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	6.152	15.09	0.2918	Equal Variances
	Levene Equality of Variance Test	4.401	4.248	0.0086	Unequal Variances
	Mod Levene Equality of Variance Test	3.517	4.248	0.0216	Equal Variances
Distribution	Anderson-Darling A2 Test	0.3149	3.878	0.5691	Normal Distribution
	D'Agostino Kurtosis Test	0.2706	2.576	0.7867	Normal Distribution
	D'Agostino Skewness Test	0.4876	2.576	0.6258	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.311	9.21	0.8560	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1139	0.2056	0.5917	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9779	0.884	0.8540	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3572	0.3372	0.3772	0.357	0.344	0.3707	0.00628	3.52%	0.00%
10		4	0.3607	0.3399	0.3814	0.361	0.3447	0.376	0.006515	3.61%	-0.98%
19		4	0.3492	0.3295	0.3689	0.3443	0.3407	0.3673	0.006191	3.55%	2.24%
38		4	0.3513	0.3368	0.3659	0.3487	0.344	0.364	0.00457	2.60%	1.63%
75		4	0.1028	0.0513	0.1544	0.09933	0.07133	0.1413	0.01619	31.50%	71.21%
150		4	0.025	-0.00833	0.05833	0.027	0	0.046	0.01047	83.78%	93.00%

Fathead Minnow 7-d Larval Survival and Growth Test

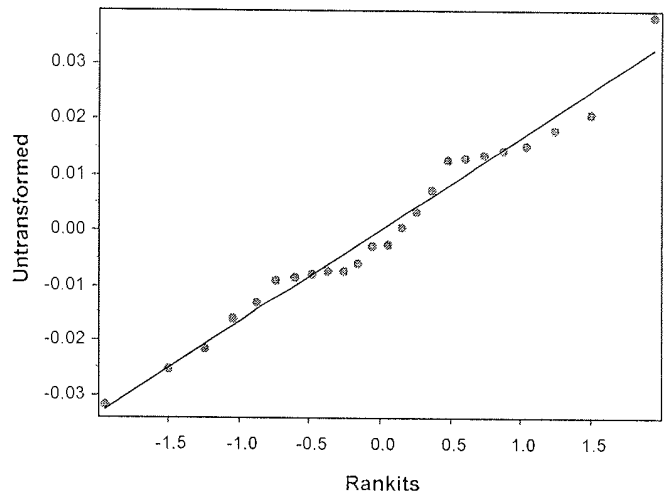
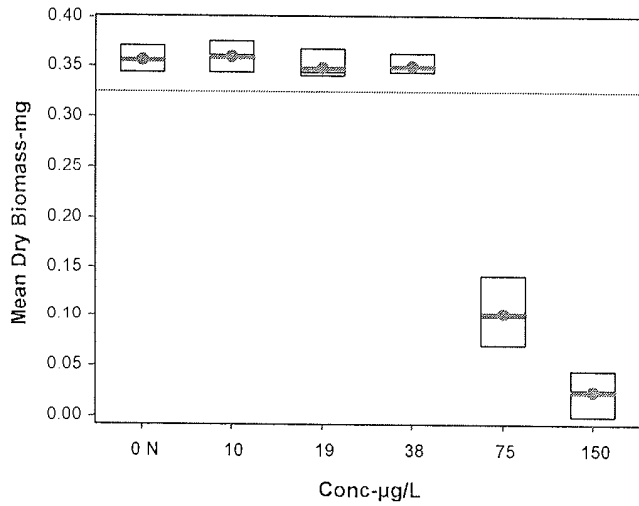
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-7965-7265      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 19 Mar-24 16:52      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 19 Mar-24 16:51      MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.344	0.3493	0.3707	0.3647
10		0.376	0.3447	0.358	0.364
19		0.342	0.3673	0.3467	0.3407
38		0.3453	0.364	0.352	0.344
75		0.1413	0.08133	0.1173	0.07133
150		0.046	0.038	0.016	0

Graphics



**CETIS Analytical Report**

Report Date: 19 Mar-24 16:54 (p 1 of 4)  
 Test Code/ID: FML022024 / 08-4635-5285

<b>Fathead Minnow 7-d Larval Survival and Growth Test</b>				<b>Aquatic Bioassay &amp; Consulting Labs, Inc.</b>			
Analysis ID: 12-7660-0176	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4					
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1					
Edit Date: 19 Mar-24 16:51	MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA	Editor ID: 009-702-627-3					
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:					
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable					
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age: <24				
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX					
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant					
Receipt Date:	CAS (PC):	Station: REF TOX					
Sample Age: ---	Client: ABC Labs						

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	1	0.8	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
EC15	48.74	45.58	53.75
EC20	52.32	48.1	59.01
EC25	55.9	50.63	64.26
EC40	66.65	58.2	80.01
EC50	73.81	63.25	98.94

7d Survival Rate Summary			Calculated Variate(A/B)							Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.4833	0.4667	0.3333	0.6667	30.58%	51.67%	29/60	0.4833	51.67%
150		4	0.0833	0.1111	0.0000	0.1333	76.59%	91.67%	5/60	0.0833	91.67%

7d Survival Rate Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.4000	0.5333	0.3333
150		0.1333	0.1333	0.0667	0.0000

7d Survival Rate Binomials					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	6/15	8/15	5/15
150		2/15	2/15	1/15	0/15

# CETIS Analytical Report

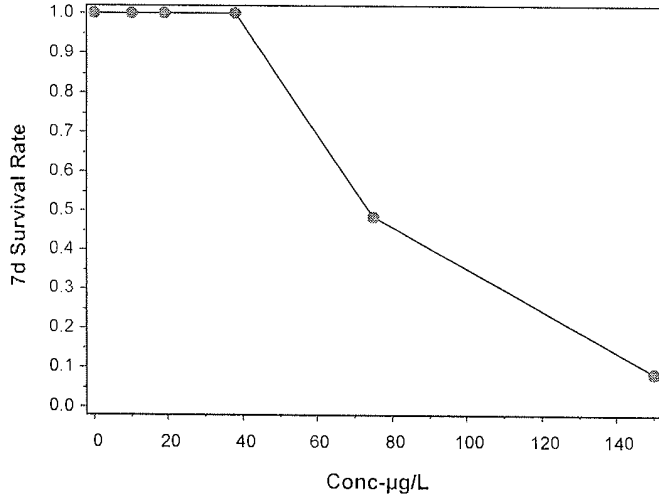
Report Date: 19 Mar-24 16:54 (p 2 of 4)  
Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-7660-0176	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: ABBC1B7016A9ECA77F5C90D6B4E58FA	Editor ID: 009-702-627-3

### Graphics



**CETIS Analytical Report**

Report Date: 19 Mar-24 16:54 (p 3 of 4)  
 Test Code/ID: FML022024 / 08-4635-5285

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8568-1699	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4	Editor ID: 009-702-627-3
Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	936611	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3572	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	44.76	42.2	46.88
IC20	47.44	44.84	49.76
IC25	50.12	47.33	52.7
IC40	58.17	54.5	62.02
IC50	63.54	59.21	68.18

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3572	0.357	0.344	0.3707	3.52%	0.00%	0.3589	0.00%
10		4	0.3607	0.361	0.3447	0.376	3.61%	-0.98%	0.3589	0.00%
19		4	0.3492	0.3443	0.3407	0.3673	3.55%	2.24%	0.3503	2.40%
38		4	0.3513	0.3487	0.344	0.364	2.60%	1.63%	0.3503	2.40%
75		4	0.1028	0.09933	0.07133	0.1413	31.50%	71.21%	0.1028	71.36%
150		4	0.025	0.027	0	0.046	83.78%	93.00%	0.025	93.03%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.344	0.3493	0.3707	0.3647
10		0.376	0.3447	0.358	0.364
19		0.342	0.3673	0.3467	0.3407
38		0.3453	0.364	0.352	0.344
75		0.1413	0.08133	0.1173	0.07133
150		0.046	0.038	0.016	0



# CETIS Analytical Report

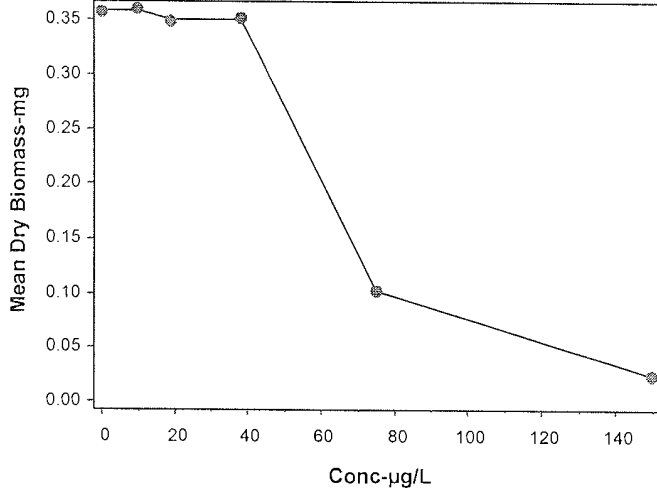
Report Date: 19 Mar-24 16:54 (p 4 of 4)  
Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8568-1699	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 19 Mar-24 16:52	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 19 Mar-24 16:51	MD5 Hash: E63EFCB4509A50ACFA672AB621AADC4	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 19 Mar-24 16:54 (p 1 of 2)  
 Test Code/ID: FML022024 / 08-4635-5285

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 21-1962-2834	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 20 Feb-24 14:35	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 27 Feb-24 13:50	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 17-9891-1339	Code: FML022024	Project: REF TOX
Sample Date: 20 Feb-24 14:35	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	63.62	63.19	64.06	63	64	0.06469	0.5175	0.81%	0
150		8	60	60	60	60	60	0	0	0.00%	0
Overall		16	61.81	60.8	62.83	60	64	0.4763	1.905	3.08%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	376.4	371.8	380.9	367	385	0.6812	5.449	1.45%	0
10		8	384.5	374	395	370	398	1.566	12.52	3.26%	0
19		8	383.8	374.8	392.7	373	397	1.339	10.71	2.79%	0
38		8	384.5	376.9	392.1	375	395	1.136	9.087	2.36%	0
75		8	385.1	378	392.3	377	396	1.068	8.543	2.22%	0
150		8	387	380.4	393.6	379	396	0.9865	7.892	2.04%	0
Overall		48	383.5	380.8	386.3	367	398	1.361	9.426	2.46%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.925	7.571	8.279	6.9	8.2	0.05293	0.4234	5.34%	0
10		8	7.875	7.502	8.248	6.8	8.1	0.0558	0.4464	5.67%	0
19		8	7.875	7.466	8.284	6.7	8.2	0.06115	0.4892	6.21%	0
38		8	7.863	7.46	8.265	6.7	8.1	0.06011	0.4809	6.12%	0
75		8	7.863	7.46	8.265	6.7	8.1	0.06011	0.4809	6.12%	0
150		8	7.863	7.46	8.265	6.7	8.1	0.06011	0.4809	6.12%	0
Overall		48	7.877	7.749	8.006	6.7	8.2	0.06388	0.4425	5.62%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	7.965	8.285	7.7	8.3	0.02386	0.1909	2.35%	0
10		8	8.05	7.883	8.217	7.7	8.2	0.025	0.2	2.48%	0
19		8	8.037	7.871	8.204	7.7	8.2	0.02494	0.1996	2.48%	0
38		8	8.012	7.837	8.188	7.7	8.2	0.02625	0.21	2.62%	0
75		8	7.987	7.796	8.179	7.7	8.2	0.02869	0.2295	2.87%	0
150		8	8	7.821	8.179	7.8	8.2	0.02673	0.2138	2.67%	0
Overall		48	8.035	7.977	8.094	7.7	8.3	0.0291	0.2016	2.51%	0 (0%)

# CETIS Measurement Report

Report Date: 19 Mar-24 16:54 (p 2 of 2)  
Test Code/ID: FML022024 / 08-4635-5285

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

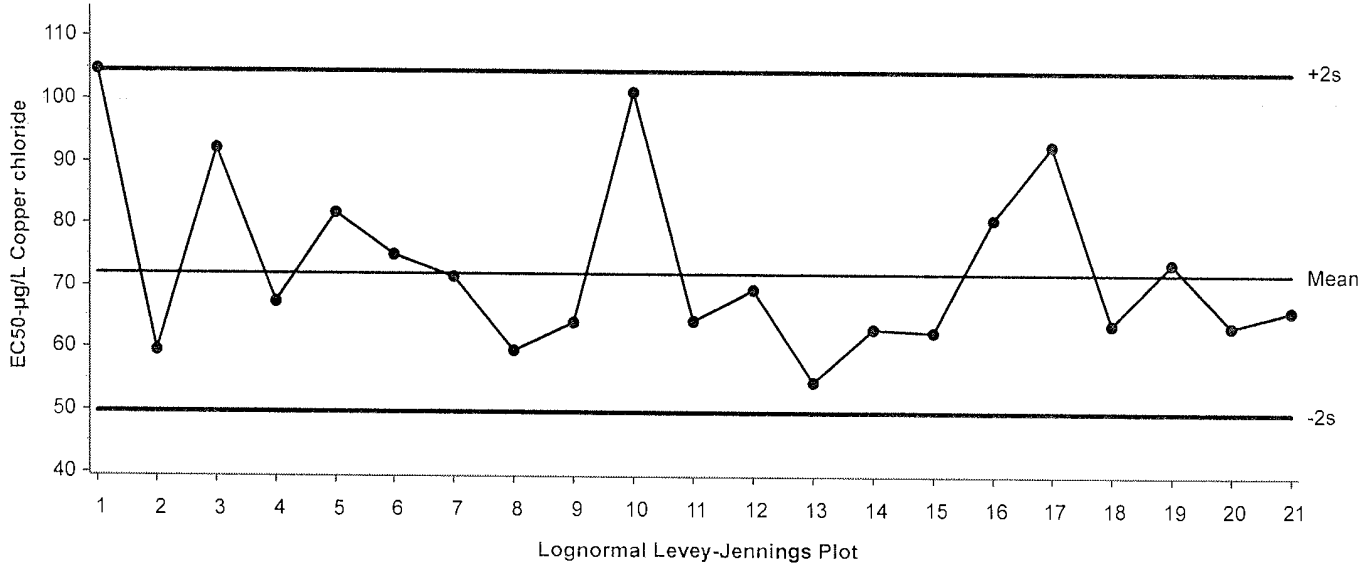
Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)



Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: 7d Survival Rate	Source: Reference Toxicant-REF	

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



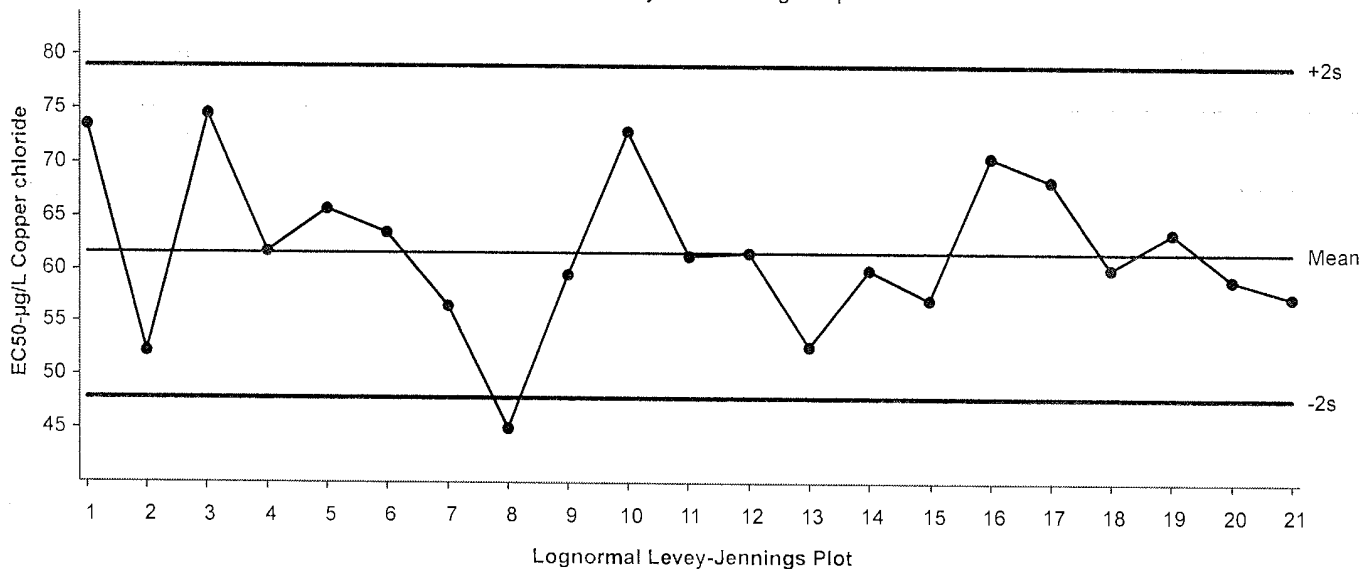
Mean: 72.02      Count: 20      -2s Action Limit: 49.6  
 Sigma: NA      CV: 18.90%      +2s Action Limit: 105

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	104.9	32.9	2.013		(+)	07-7265-5981	14-1873-8638
2		Nov	7	15:10	59.58	-12.44	-1.015			19-2888-5334	07-9547-8315
3			14	15:30	92.05	20.02	1.312			18-8754-0700	05-2558-7597
4			17	14:01	67.38	-4.642	-0.3564			17-0726-1937	14-0961-0371
5			28	14:49	81.82	9.794	0.6822			10-1970-7599	00-2724-7341
6		Dec	5	13:45	75	2.976	0.2166			19-1204-9208	03-6141-0747
7			12	13:30	71.3	-0.724	-0.05406			03-7560-9108	05-6885-8439
8			13	12:15	59.42	-12.6	-1.029			14-7892-5887	04-9254-9827
9			21	13:29	64	-8.024	-0.632			06-6036-2868	13-4891-1637
10			22	14:30	101.4	29.33	1.828			00-5720-1635	14-1952-0593
11	2024	Jan	3	14:00	64.43	-7.595	-0.5963			04-0866-8727	01-4746-8383
12			4	14:05	69.52	-2.506	-0.1894			15-6608-9784	08-1717-2208
13			9	13:20	54.55	-17.47	-1.487			14-8299-7228	00-5651-6529
14			23	14:00	63	-9.024	-0.7162			12-1922-4773	10-8689-4329
15		Feb	2	14:20	62.67	-9.357	-0.7446			05-5157-4005	09-6073-8693
16			6	13:40	80.77	8.745	0.6131			04-6220-8945	10-6161-5529
17			8	14:30	92.76	20.74	1.354			03-7992-6322	19-2866-0483
18			13	13:39	63.81	-8.21	-0.6476			03-2019-4612	14-1051-0807
19			20	14:35	73.81	1.782	0.1308			08-4635-5285	12-7660-0176
20			27	11:15	63.69	-8.33	-0.6576			19-5637-4552	05-7937-9277
21		Mar	5	15:00	66.07	-5.955	-0.4617			15-3336-6648	16-9471-0776

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.  
 Test Type: Growth-Survival (7d) Organism: Pimephales promelas Material: Copper chloride  
 Protocol: EPA/821/R-02-013 (2002) Endpoint: Mean Dry Biomass-mg Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
 Mean Dry Biomass-mg Endpoint



Mean: 61.5 Count: 20 -2s Action Limit: 47.9  
 Sigma: NA CV: 12.60% +2s Action Limit: 79

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	73.46	11.96	1.418			07-7265-5981	21-3432-7293
2		Nov	7	15:10	52.21	-9.285	-1.306			19-2888-5334	11-0119-4879
3			14	15:30	74.52	13.02	1.533			18-8754-0700	03-4458-8213
4			17	14:01	61.66	0.1633	0.02117			17-0726-1937	06-0317-0204
5			28	14:49	65.63	4.136	0.5195			10-1970-7599	09-5836-2004
6		Dec	5	13:45	63.46	1.96	0.2504			19-1204-9208	02-5721-3294
7			12	13:30	56.61	-4.886	-0.6606			03-7560-9108	19-0990-5343
8			13	12:15	45.01	-16.49	-2.491		(-)	14-7892-5887	19-1033-5713
9			21	13:29	59.44	-2.057	-0.2715			06-6036-2868	01-3251-7777
10			22	14:30	72.95	11.45	1.363			00-5720-1635	06-1309-8628
11	2024	Jan	3	14:00	61.34	-0.1607	-0.02088			04-0866-8727	03-7640-5638
12			4	14:05	61.64	0.1435	0.0186			15-6608-9784	18-2508-7781
13			9	13:20	52.68	-8.82	-1.235			14-8299-7228	08-4892-6835
14			23	14:00	59.92	-1.578	-0.2075			12-1922-4773	11-2137-3210
15		Feb	2	14:20	57.13	-4.365	-0.5876			05-5157-4005	07-7973-9309
16			6	13:40	70.57	9.074	1.098			04-6220-8945	00-3964-3519
17			8	14:30	68.31	6.812	0.8384			03-7992-6322	00-8689-1143
18			13	13:39	60.14	-1.356	-0.178			03-2019-4612	17-1613-5689
19			20	14:35	63.54	2.043	0.2609			08-4635-5285	06-8568-1699
20			27	11:15	59.08	-2.418	-0.3202			19-5637-4552	04-7521-9748
21		Mar	5	15:00	57.49	-4.006	-0.5376			15-3336-6648	12-9818-4247

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

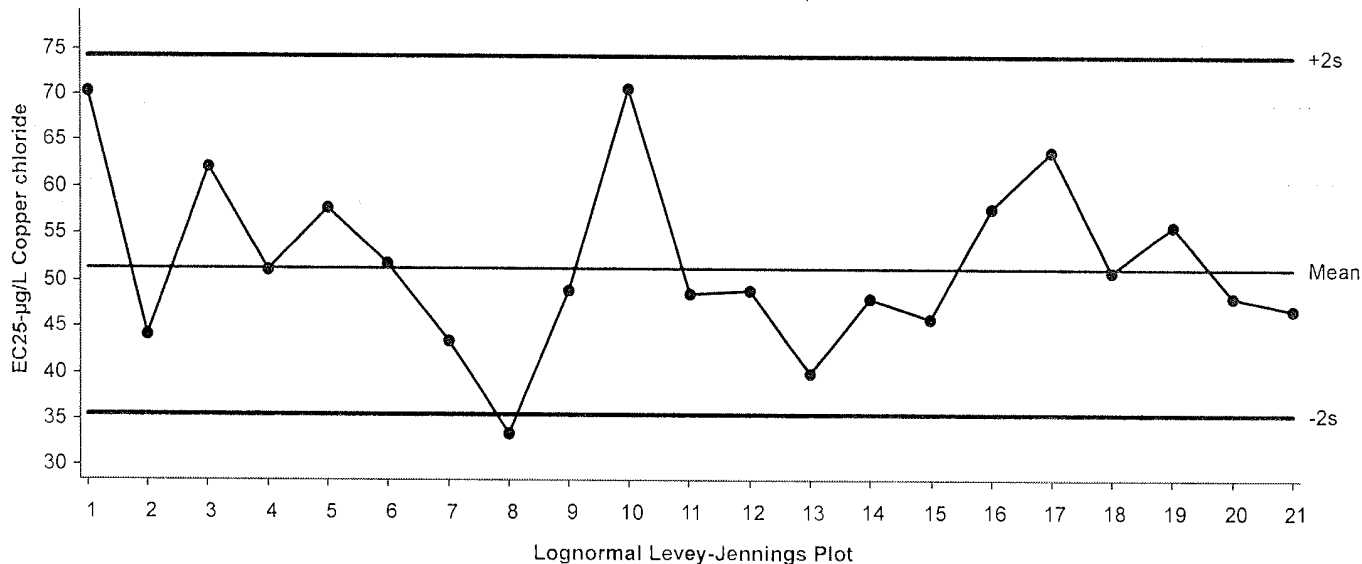
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



Mean: 51.32      Count: 20      -2s Action Limit: 35.5  
 Sigma: NA      CV: 18.60%      +2s Action Limit: 74.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	70.38	19.06	1.715			07-7265-5981	14-1873-8638
2		Nov	7	15:10	44.17	-7.149	-0.8145			19-2888-5334	07-9547-8315
3			14	15:30	62.23	10.91	1.047			18-8754-0700	05-2558-7597
4			17	14:01	51.06	-0.257	-0.02726			17-0726-1937	14-0961-0371
5			28	14:49	57.82	6.506	0.648			10-1970-7599	00-2724-7341
6		Dec	5	13:45	51.88	0.5591	0.05883			19-1204-9208	03-6141-0747
7			12	13:30	43.55	-7.766	-0.8908			03-7560-9108	05-6885-8439
8			13	12:15	33.53	-17.79	-2.31		(-)	14-7892-5887	04-9254-9827
9			21	13:29	49	-2.316	-0.2507			06-6036-2868	13-4891-1637
10			22	14:30	70.65	19.33	1.736			00-5720-1635	14-1952-0593
11	2024	Jan	3	14:00	48.57	-2.744	-0.2984			04-0866-8727	01-4746-8383
12			4	14:05	48.96	-2.353	-0.2548			15-6608-9784	08-1717-2208
13			9	13:20	39.95	-11.37	-1.36			14-8299-7228	00-5651-6529
14			23	14:00	48	-3.316	-0.3626			12-1922-4773	10-8689-4329
15		Feb	2	14:20	45.85	-5.467	-0.6116			05-5157-4005	09-6073-8693
16			6	13:40	57.82	6.506	0.648			04-6220-8945	10-6161-5529
17			8	14:30	63.9	12.58	1.191			03-7992-6322	19-2866-0483
18			13	13:39	50.91	-0.4089	-0.04343			03-2019-4612	14-1051-0807
19			20	14:35	55.9	4.587	0.4648			08-4635-5285	12-7660-0176
20			27	11:15	48.28	-3.038	-0.3313			19-5637-4552	05-7937-9277
21		Mar	5	15:00	46.93	-4.385	-0.4849			15-3336-6648	16-9471-0776

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

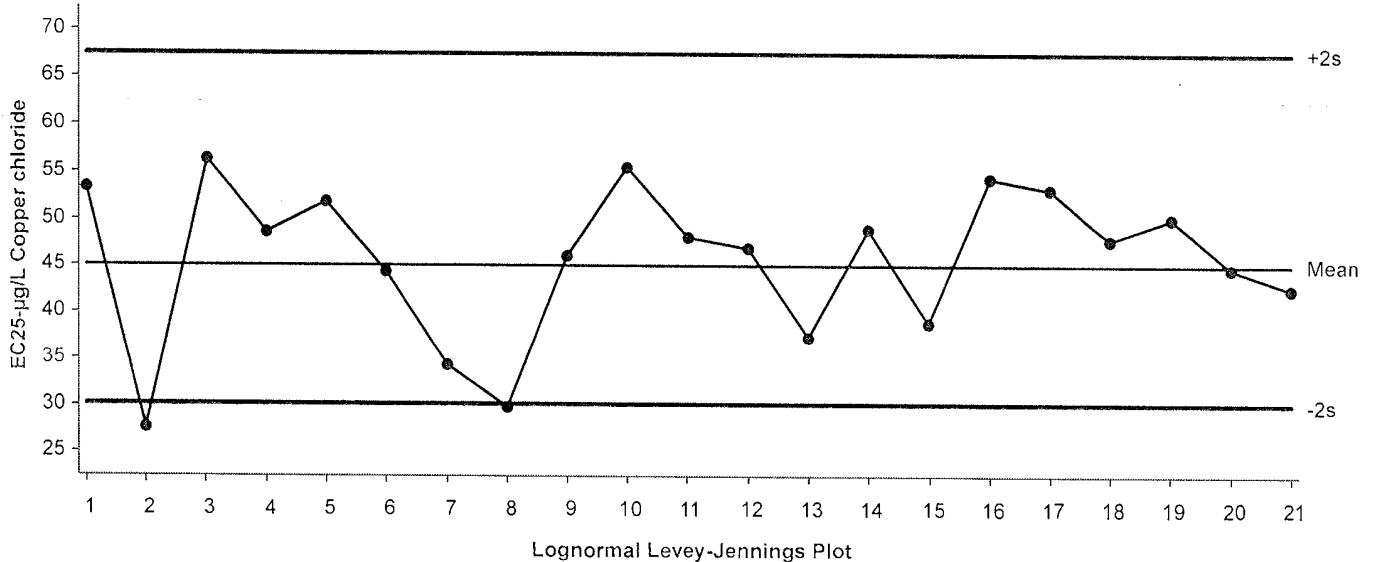
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 45.06

Count: 20

-2s Action Limit: 30

Sigma: NA

CV: 20.50%

+2s Action Limit: 67.6

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	31	15:30	53.26	8.199	0.8243			07-7265-5981	21-3432-7293
2		Nov	7	15:10	27.53	-17.53	-2.43		(-)	19-2888-5334	11-0119-4879
3			14	15:30	56.26	11.2	1.095			18-8754-0700	03-4458-8213
4			17	14:01	48.63	3.574	0.3763			17-0726-1937	06-0317-0204
5			28	14:49	51.82	6.757	0.6889			10-1970-7599	09-5836-2004
6		Dec	5	13:45	44.32	-0.736	-0.0812			19-1204-9208	02-5721-3294
7			12	13:30	34.29	-10.77	-1.346			03-7560-9108	19-0990-5343
8			13	12:15	29.79	-15.27	-2.04		(-)	14-7892-5887	19-1033-5713
9			21	13:29	46.06	0.9958	0.1078			06-6036-2868	01-3251-7777
10			22	14:30	55.47	10.41	1.025			00-5720-1635	06-1309-8628
11	2024	Jan	3	14:00	47.99	2.925	0.3101			04-0866-8727	03-7640-5638
12			4	14:05	46.88	1.825	0.1957			15-6608-9784	18-2508-7781
13			9	13:20	37.28	-7.785	-0.9352			14-8299-7228	08-4892-6835
14			23	14:00	48.96	3.9	0.4093			12-1922-4773	11-2137-3210
15		Feb	2	14:20	38.87	-6.191	-0.7287			05-5157-4005	07-7973-9309
16			6	13:40	54.21	9.148	0.9114			04-6220-8945	00-3964-3519
17			8	14:30	53.15	8.095	0.8146			03-7992-6322	00-8689-1143
18			13	13:39	47.77	2.712	0.2882			03-2019-4612	17-1613-5689
19			20	14:35	50.12	5.062	0.525			08-4635-5285	06-8568-1699
20			27	11:15	44.64	-0.4166	-0.0458			19-5637-4552	04-7521-9748
21		Mar	5	15:00	42.55	-2.513	-0.2829			15-3336-6648	12-9818-4247

173136

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year Outfall [008, 009]		Outfall 008 COMPOSITE		ANALYSIS REQUIRED														Comments						
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Recoverable Metals: (E200.8): Al, As, Cd, Cu, Pb, Zn TCDD (and all congeners) (E1613B) Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E300); Perchlorate (314.0) TDS (SM2540C/E160.1) TSS (160.2 (SM2540D)) Total Dissolved Metals: (E200.8): Al, As, Cd, Cu, Pb, Zn Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium 226 & 228, Sr-90 (E903, E904, E905), Tritium (H-3) (E906.0) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA Ammonia-N (350.2) Cyanide (SM4500-CN-E / E335.2) Routine Pesticides - only 4,4'-DDE (E608) Weck Labs in Hacienda Heights, CA LL Mercury - Total Recoverable (E1631E) LL Mercury - Total Dissolved (E1631E)																						
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																								
Sampler: Adrien Mobeka																										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.8): Al, As, Cd, Cu, Pb, Zn	TCDD (and all congeners) (E1613B)	Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, Bromide (E300); Perchlorate (314.0)	TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals: (E200.8): Al, As, Cd, Cu, Pb, Zn	Gross Alpha & Beta (E900.0); K-40, CS-137 (E901.1); Uranium (HASL-300 U-02 or A-01-R), Total Combined Radium 226 & 228, Sr-90 (E903, E904, E905), Tritium (H-3) (E906.0)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (350.2)	Cyanide (SM4500-CN-E / E335.2)	Routine Pesticides - only 4,4'-DDE (E608) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631E)	LL Mercury - Total Dissolved (E1631E)	Comments				
Outfall 008	Outfall008_20240220_Comp	2/20/2024 0920	WM	500 mL Poly	1	HNO <sub>3</sub>	85	Yes	H														HOLD			
			WM	1 L Glass Amber	2	None	110			X																
			WM	500 mL Poly	1	None	125					X													48 hours Holding Time NO <sub>3</sub> & NO <sub>2</sub>	
			WM	500 mL Poly	1	None	155						X													
			WM	500 mL Poly	1	H <sub>2</sub> SO <sub>4</sub>	160												X							
			WM	1L Poly	1	None	185							X												
			WM	250 mL Poly	1	NaOH	220													X						
			WM	2.5 Gal Cube	1	None	225											X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 Gal Cube	5	None	235												X							Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 L Glass Amber	4	None	250															X				Deliver to Weck Labs in Hacienda Heights, CA
	WM	250mL Glass, double bagged	1	HCL	998																X					
	Outfall008_20240220_Comp_F	2/20/2024 0920	WM	1L Poly	1	None	195	Yes						H										Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
			WM	250mL Glass, double bagged	1	None	999															X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab	
Outfall008_20240220_Comp_Extra	2/20/2024 0920	WM	1 L Glass Amber	2	None	110				H													Hold			
		WM	500 mL Poly	1	None	125					H													Hold		
		WM	1 L Glass Amber	4	None	250															H			Hold		

Legend: R = Routine, Sm = SRAM

Relinquished By: *Michelle Dallalahr* Date/Time: 2/20/24 13:15 Company: *H&A*

Relinquished By: *MKA* Date/Time: 2/20/24 1730 Company: *EC*

Received By: *MKA* Date/Time: 2/20/24 1315

Received By: *MKA* Date/Time: 2/20/24 1730



570-173136 Chain of Custody

No Level IV: \_\_\_\_\_ All Level IV:   X  

0.5 / 0.5 SC12  
1.6/1.6, 2.4/2.8, 1.5/1.5, 2.2/2.2,



CHAIN OF CUSTODY FORM

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year Outfall [008, 009]				ANALYSIS REQUIRED													
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Outfall 008 COMPOSITE				Comments													
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement #2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																	
Sampler: Adrien Mobeka		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Routine SVOCs - only Pentachlorophenol, Benzidine, Bis(2-ethylhexyl)Phthalate, 3,3'-Dichlorobenzidine (E625)	Surfactants (MBAS) (SM5540C/E425.1)									
Outfall 008	Outfall008_20240220_Comp	2/20/2024 0920	WM	1 L Glass Amber	6	None	175	Yes	X										
			WM	500 mL Poly	2	None	120			X									
	Outfall008_20240220_Comp_Extra	2/20/2024 0910	WM	1 L Glass Amber	2	None	175		H		Hold. Field staff CHECK BOTTLE 350mL								
			WM	500 mL Poly	1	None	120			H	Hold								
QA/QC	FB_Outfall008_20240220	2/20/24 0920	WM	1 L Glass Amber	1	None			X										

**Legend: R = Routine, Sm = SRAM**

Relinquished By: <i>Michelle Dollalah</i> Date/Time: <i>2/20/24 13:15 H&amp;A</i> Company:	Received By: <i>MKB</i> Date/Time: <i>2/20/24 13:15</i> Company:	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: <i>2/20/24 1730</i> Company:	Received By: <i>[Signature]</i> Date/Time: <i>2/20/24 1730</i> Company:	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing - SSFL 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year Outfall [008, 009]				ANALYSIS REQUIRED													
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Outfall 008 COMPOSITE				SRAM list- Cr (VI), Total Recoverable (E218.6)	SRAM list- E8330A/B	SRAM list- Energetic Constituents, Terphenyls (E625/8270C)	SRAM list- PAHs (E625.1SIM)	SRAM list- SVOCs (E625.1SIM / 8270C)	SRAM list- Glycols (E8321B): Diethylene Glycol, Triethylene glycol	SRAM list- Herbicides (8151A)	SRAM list- Pesticides/PCBs (E608)	SRAM list- PCBs (1668C)	SRAM list- Methyl Mercury (1630 (Mod))	HOLD for Analysis	Comments		
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc. Sampler: Adrien Mobeka				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																	
Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list- Cr (VI), Total Recoverable (E218.6)	SRAM list- E8330A/B	SRAM list- Energetic Constituents, Terphenyls (E625/8270C)	SRAM list- PAHs (E625.1SIM)	SRAM list- SVOCs (E625.1SIM / 8270C)	SRAM list- Glycols (E8321B): Diethylene Glycol, Triethylene glycol	SRAM list- Herbicides (8151A)	SRAM list- Pesticides/PCBs (E608)	SRAM list- PCBs (1668C)	SRAM list- Methyl Mercury (1630 (Mod))	HOLD for Analysis	Comments		
Outfall 008	Outfall008_20240220_Comp	2/20/2024 0920	WM	250mL Poly	1	None	No	X													
			WM	1 L Glass Amber	2	None	No		X												
			WM	1 L Glass Amber	2	None	No			X											
			WM	1 L Glass Amber	2	None	No				X										
			WM	1 L Glass Amber	2	None	No					X									
			WM	40 mL VOA	2	None	No							X							
			WM	1 L Glass Amber	4	None	No								X						
			WM	1 L Glass Amber	4	None	No									X					
			WM	1 L Glass Amber	4	None	No										H				Put on HOLD
			WM	1 L Glass Amber	2	None	No												X		
			WM	1 L Glass Amber	no 6	None	No													H	Put on Hold, Field staff CHECK OFFICE COUNT <del>NO</del>

Legend: R = Routine, Sm = SRAM

Relinquished By: <i>Michelle Dallalah</i> Date/Time: <i>2/20/24 13:15 H&amp;A</i> Company: <i>H&amp;A</i>	Received By: <i>YKL</i> Date/Time: <i>2/20/24 13:15</i>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>YKL</i> Date/Time: <i>2/20/24 17:50</i> Company: <i>EC</i>	Received By: <i>YKL</i> Date/Time: <i>2/20/24 17:30</i>	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108								Project: Boeing - SSFL 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year Outfall [008, 009]								ANALYSIS REQUIRED											
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187																Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)								Comments			
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement #2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc. Sampler: Adrien Mobeka								Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)								SRAM list - Total Dissolved Metals (E200.8 & E200.7) SRAM list - Total Recoverable Metals (E200.8 & E200.7) SRAM list - 1,4-Dioxane (E624 (SW8260M_SIM)) SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW8015B) SRAM list - TPH: Kerosene Range Organics, KRO (SW8015B) SRAM list - TPH: Oil Range Organics, ORO (SW8015B) SRAM list - 1,4-Dioxane (E624, 1,1,2,2-TCDF) SRAM list - Formaldehyde (8351A) SRAM list - Cr (VI), Total Dissolved (E218.6) SRAM list - MMH, Hydrazine, 1,1-Dimethylhydrazine (SW8315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list - Total Dissolved Metals (E200.8 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - 1,4-Dioxane (E624 (SW8260M_SIM))	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW8015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW8015B)	SRAM list - TPH: Oil Range Organics, ORO (SW8015B)	SRAM list - 1,4-Dioxane (E624, 1,1,2,2-TCDF)	SRAM list - Formaldehyde (8351A)	SRAM list - Cr (VI), Total Dissolved (E218.6)	SRAM list - MMH, Hydrazine, 1,1-Dimethylhydrazine (SW8315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA	Comments									
Outfall 008	Outfall008_20240220_Comp_F	2/20/2024 0920	WM	1 L Poly	1	None	Yes	H										Filter and preserve w/in 24hrs of receipt at lab and then put on HOLD.									
			WM	250mL Poly	1	None										X											
	Outfall008_20240220_Comp	2/20/2024 0920	WM	500 mL Poly	1	HNO <sub>3</sub>	Yes		H										Put on HOLD								
			WM	40 mL VOA	3	HCl				X																	
			WM	1 L Glass Amber	2	None						X															
			WM	250mL Glass Amber	1	None							X														
			WM	250mL Glass Amber	1	None								X													
			<del>WM</del>	<del>40 mL VOA</del>	<del>3</del>	<del>HCl</del>																					
			WM	125mL Glass Amber	1	None											X										
WM	1 L Glass Amber	1	None													X	Deliver to Weck Labs in Hacienda Heights, CA										

Legend: R = Routine, Sm = SRAM

Relinquished By: <i>Michelle Dallalah</i> Date/Time: <i>2/20/24 13:15</i> Company: <i>HEA</i>	Received By: <i>ML</i> Date/Time: <i>2/20/24 13:15</i>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>ML</i> Date/Time: <i>2/20/24 17:30</i> Company: _____	Received By: <i>ML</i> Date/Time: <i>2/20/24 17:30</i>	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X



**Darren Miller**

---

**From:** Virendra Patel  
**Sent:** Wednesday, February 28, 2024 11:08 AM  
**To:** Lily-Anna Lacount  
**Cc:** Frontier - Specialty PMs  
**Subject:** RE: Sample Received Today

**INFO:** INTERNAL EMAIL - Sent from your own Eurofins email domain.

Lily-Anna –

Yes this was sent in error, please return to our location. Please use our FedEx Account # 136853945

Priority overnight service by 10:30 am is fine.

Kind Regards,

**Virendra Patel** (*He/ Him*)  
Client Services Manager – Operations /  
Senior Project Manager

Eurofins Environment Testing Southwest, LLC  
2841 Dow Avenue, Suite 100  
Tustin, CA 92780

Phone: 714-895 5494  
Direct: 657-210-6327  
Mobile: 714-887-9901

[Virendra.Patel@ET.EurofinsUS.com](mailto:Virendra.Patel@ET.EurofinsUS.com)

**NOTE:** Beginning Monday, February 5 all reports generated and emailed to our customers will be sent from the domain [@Reports.ET.EurofinsUS.com](mailto:@Reports.ET.EurofinsUS.com). To guarantee the prompt delivery of your results, please add this email domain to the whitelist in your email program's security settings or with your email service provider.

Learn more about eCOC – our NEW electronic COC application



[www.EurofinsUS.com/Env](http://www.EurofinsUS.com/Env)

Follow Us! [Facebook](#) | [LinkedIn](#)



**From:** Lily-Anna Lacount <Lilly-Anna.Lacount@et.eurofinsus.com>  
**Sent:** Wednesday, February 28, 2024 10:12 AM  
**To:** Virendra Patel <Virendra.Patel@et.eurofinsus.com>  
**Cc:** Frontier - Specialty PMs <Frontier-SpecialtyPMs@et.eurofinsus.com>  
**Subject:** Sample Received Today

**INFO:** INTERNAL EMAIL - Sent from your own Eurofins email domain.

Hi Virendra,

We received the sample on the attached COC today however we had already received this sample the weekend prior. The COC noted this was additional volume however we did not require any additional to be sent. Was this sent in error? Would you like us to return this sample?

Thanks,  
Lilly-Anna Lacount  
Project Manager

Eurofins Specialty Metals Testing  
5755 8<sup>th</sup> St E  
Fife, WA 98424

Direct: (253) 922-2310 ext. 351

Email: [Lilly-Anna.Lacount@et.eurofinsus.com](mailto:Lilly-Anna.Lacount@et.eurofinsus.com)  
Website: [www.eurofinsus.com/env](http://www.eurofinsus.com/env)



FedEx®

Do I RT 198 1 A>this  
10:30

FZ 197

ORIGIN ID  
SAMPLE CON  
EUROFINS CALSCIENCE  
2841 DOW AVE  
SUITE 100  
TUSTIN, CA 927807211  
UNITED STATES US

0535 DATE: 26FEB24  
02.27 WGT: 27.70 LB  
0343492/CAFE3803

BILL SENDER

Pat # 585567194B/C64

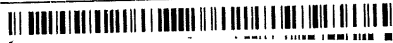
TO SHIPPING/RECEIVING  
EUROFINS ENVIRONMENT TESTING-NORTHE  
301 ALPHA DRIVE  
RIDC PARK  
PITTSBURGH PA 15238

(412) 963-7058  
PO: YES

REF: 8570-96273



570-173136 Waybill



Uncorrected temp 2.4 °C  
Thermometer ID 20

CF ~0.8 Initials BC

PT-WI-SR-001 effective 11/8/18



FedEx  
Express



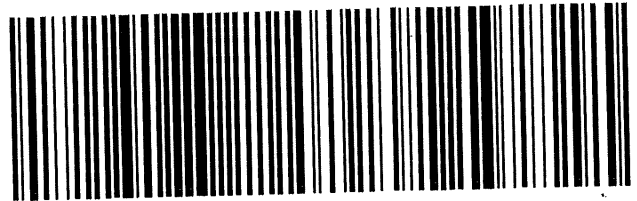
J2410231122011V

TRK# 7314 3060 0535  
0201

TUE - 27 FEB 10:30A  
PRIORITY OVERNIGHT

XN AGCA

15238  
PA-US PIT



2372727

Custody Seal 2/29/24

Environment Tes  
TestAmerica

euoifns

DATE

SIGNATURE

ORIGIN ID:TCMA (253) 922-2310  
SAMPLE RECEIVING  
EUROFINS ENVIRONMENTAL TESTING NW  
5755 8TH ST E

SHIP DATE: 28FEB24  
ACTWGT: 25.80 LB  
CAD: 989746/CAFE3755

FIFE, WA 98424  
UNITED STATES US

BILL THIRD PARTY

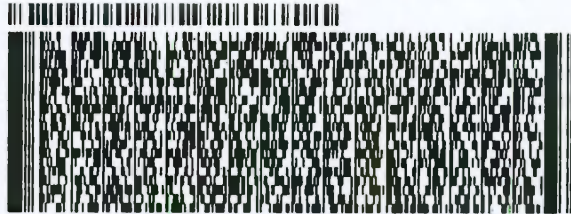


570-173136 Waybill

TO VIRENDRA PATEL  
EUROFINS CALSCIENCE  
2841 DOW AVE  
SUITE 100  
TUSTIN CA 92780

5R5CF/194R/af87

INU: REF: DEPT:  
PD:



FedEx  
Express



J233023051201ur

TRK# 7221 1236 6918  
0201

THU - 29 FEB 10:30A  
PRIORITY OVERNIGHT

92 DTHA

92780  
CA-US SNA



- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-173136-4

**Login Number: 173136**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 2/18/2024 12:27:45 PM

**JOB DESCRIPTION**

Boeing NPDES SSFL - Outfall 009 - Comp

**JOB NUMBER**

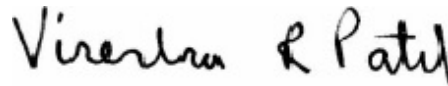
570-169112-5

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



Generated  
2/18/2024 12:27:45 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-169112-5

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-169112-5

**Job ID: 570-169112-5**

**Eurofins Calscience**

## Job Narrative 570-169112-5

### Receipt

The samples were received on 1/23/2024 5:36 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 7 coolers at receipt time were 1.4° C, 1.6° C, 1.7° C, 1.8° C, 1.9° C, 2.0° C and 2.1° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-169112-5

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-169112-5

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-169112-1	Outfall009_20240123_Comp	Water	01/23/24 10:00	01/23/24 17:36

1

2

3

4

5

6

7

8

9





**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



February 7, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall009\_20240123\_Comp  
 DATE RECEIVED: 23 Jan - 2024  
 ABC LAB. NO.: CSE0124.141

**CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

REPRODUCTION = PASS    % EFFECT = 7.45 %

Yours very truly,

Scott Johnson  
 Laboratory Director

\*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia.

# CETIS Summary Report

Report Date: 02 Feb-24 17:20 (p 1 of 1)  
 Test Code/ID: CSE0124.141cer / 13-5477-3141

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID: 12-0565-4877	Test Type: Reproduction-Survival (7d)	Analyst:					
Start Date: 23 Jan-24 15:12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 30 Jan-24 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable					
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO	Age: <24				
Sample ID: 05-4805-3545	Code: CSE0124.141cer	Project: Boeing-SSFL NPDES 2023 PERMIT					
Sample Date: 23 Jan-24	Material: Sample Water	Source: Bioassay Report					
Receipt Date: 23 Jan-24 13:07	CAS (PC):	Station: Outfall 009					
Sample Age: 15h (3.8 °C)	Client: Eurofins Calscience						

Single Comparison Summary					
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
08-5570-2892	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
21-0471-6962	Reproduction	TST-Welch's t Test	<1.0E-05	100% passed reproduction	1

Test Acceptability							
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
08-5570-2892	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
21-0471-6962	Reproduction	Control Resp	30.2	15	<<	Yes	Passes Criteria

7d Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Reproduction Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	30.2	28.62	31.78	26	37	0.7525	3.365	11.14%	0.00%
100		20	27.95	26.95	28.95	25	33	0.4783	2.139	7.65%	7.45%

7d Survival Rate Detail											
MD5: E2FCA10CAEB5BD33B061F6901431A2E1											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Detail											
MD5: 32ACC55E419538E991CE6C86ABC116B5											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	32	34	28	26	26	30	30	33	30	27
		35	28	28	31	26	31	37	35	31	26
100		31	29	29	25	28	26	26	26	28	29
		28	30	25	28	26	33	25	29	29	29

7d Survival Rate Binomials											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Analytical Report

Report Date: 02 Feb-24 17:20 (p 1 of 2)  
 Test Code/ID: CSE0124.141cer / 13-5477-3141

**Ceriodaphnia 7-d Survival and Reproduction Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 21-0471-6962	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 01 Feb-24 12:21	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Feb-24 12:17	MD5 Hash: 32ACC55E419538E991CE6C86ABC116B5	Editor ID:
Batch ID: 12-0565-4877	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 23 Jan-24 15:12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 30 Jan-24 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 05-4805-3545	Code: CSE0124.141cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 23 Jan-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 23 Jan-24 13:07	CAS (PC):	Station: Outfall 009
Sample Age: 15h (3.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	37	7.164	0.8514	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	30.2	15	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	50.625	50.625	1	6.367	0.0159	Significant Effect
Error	302.15	7.95132	38			
Total	352.775		39			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	4.284	7.353	0.0453	Equal Variances
	Mod Levene Equality of Variance Test	4.077	7.353	0.0506	Equal Variances
	Variance Ratio F Test	2.475	3.432	0.0551	Equal Variances
Distribution	Anderson-Darling A2 Test	0.6386	3.878	0.0964	Normal Distribution
	D'Agostino Kurtosis Test	0.233	2.576	0.8157	Normal Distribution
	D'Agostino Skewness Test	1.123	2.576	0.2615	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.315	9.21	0.5181	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1332	0.1617	0.0714	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9546	0.9236	0.1089	Normal Distribution

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	30.2	28.62	31.78	30	26	37	0.7525	11.14%	0.00%
100		20	27.95	26.95	28.95	28	25	33	0.4783	7.65%	7.45%

**Reproduction Detail**

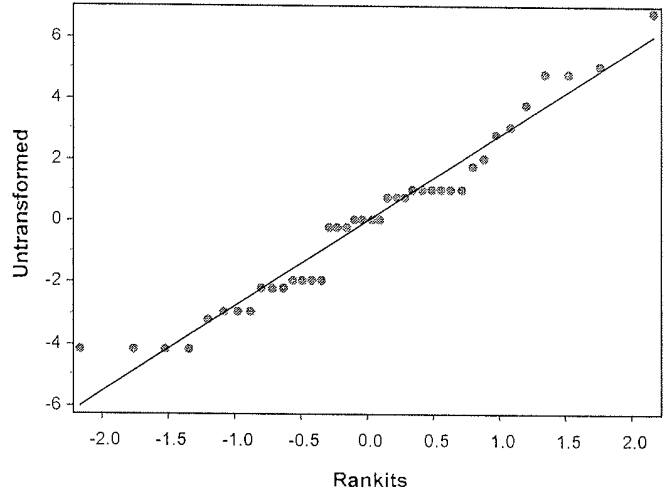
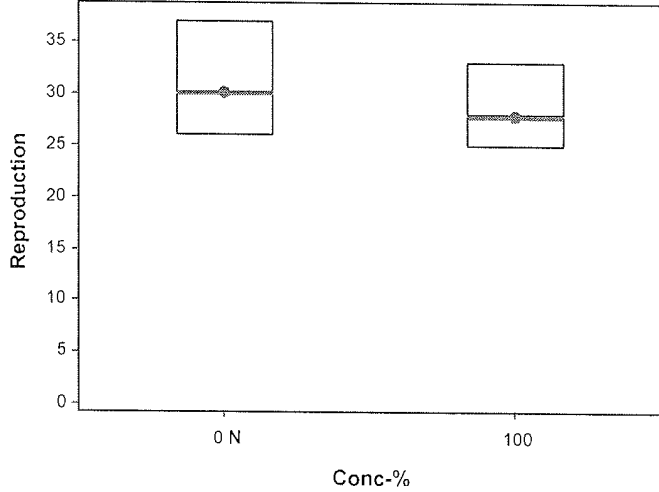
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	32	34	28	26	26	30	30	33	30	27
		35	28	28	31	26	31	37	35	31	26
100		31	29	29	25	28	26	26	26	28	29
		28	30	25	28	26	33	25	29	29	29

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 21-0471-6962      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
Analyzed: 01 Feb-24 12:21      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 01 Feb-24 12:17      MD5 Hash: 32ACC55E419538E991CE6C86ABC116B5      Editor ID:

Graphics



# CETIS Analytical Report

Report Date: 02 Feb-24 17:20 (p 1 of 2)  
 Test Code/ID: CSE0124.141cer / 13-5477-3141

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-5570-2892	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Feb-24 12:21	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 01 Feb-24 12:17	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID:
Batch ID: 12-0565-4877	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 23 Jan-24 15:12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 30 Jan-24 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 05-4805-3545	Code: CSE0124.141cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 23 Jan-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 23 Jan-24 13:07	CAS (PC):	Station: Outfall 009
Sample Age: 15h (3.8 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	Comparison Result
Untransformed	C > T	100% passed 7d survival rate endpoint

### Fisher Exact Test

Control	vs	Conc-%	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		100	1.0000	Exact	1.0000	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### 7d Survival Rate Frequencies

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	20	0	20	1.0000	0.0000	0.00%
100		20	0	20	1.0000	0.0000	0.00%

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

### 7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Analytical Report

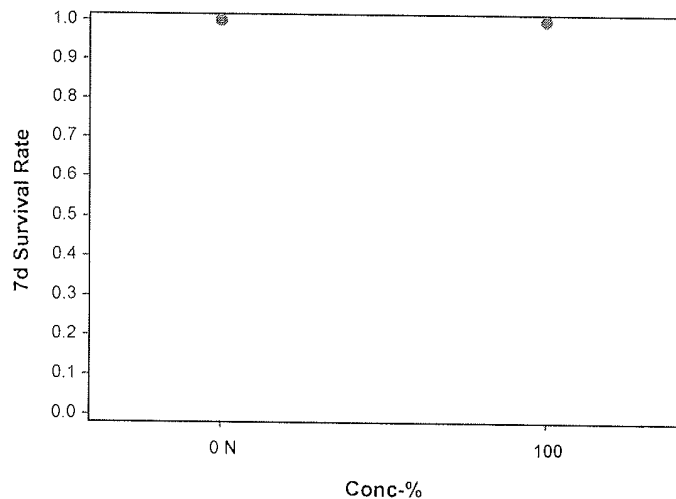
Report Date: 02 Feb-24 17:20 (p 2 of 2)  
Test Code/ID: CSE0124.141cer / 13-5477-3141

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-5570-2892	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Feb-24 12:21	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 01 Feb-24 12:17	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID:

## Graphics



# CETIS Measurement Report

Report Date: 02 Feb-24 17:20 (p 1 of 1)  
 Test Code/ID: CSE0124.141cer / 13-5477-3141

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 12-0565-4877	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 23 Jan-24 15:12	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 30 Jan-24 14:17	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 05-4805-3545	Code: CSE0124.141cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 23 Jan-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 23 Jan-24 13:07	CAS (PC):	Station: Outfall 009
Sample Age: 15h (3.8 °C)	Client: Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	169	169	169	169	169	0	0	0.00%	0
Overall		16	115.5	86.06	144.9	62	169	13.81	55.25	47.84%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	377.8	383.2	377	387	0.4064	3.251	0.85%	0
100		8	333	327.6	338.4	321	339	0.8018	6.414	1.93%	0
Overall		16	356.8	343.4	370.1	321	387	6.254	25.02	7.01%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.012	7.659	8.366	7	8.3	0.0528	0.4224	5.27%	0
100		8	8	7.595	8.405	6.9	8.4	0.0605	0.484	6.05%	0
Overall		16	8.006	7.772	8.24	6.9	8.4	0.1097	0.4389	5.48%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	97	97	97	97	97	0	0	0.00%	0
100		8	670	670	670	670	670	0	0	0.00%	0
Overall		16	383.5	225.8	541.2	97	670	73.97	295.9	77.16%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.188	8.074	8.301	7.9	8.3	0.01695	0.1356	1.66%	0
100		8	8.113	8.059	8.166	8	8.2	0.008013	0.0641	0.79%	0
Overall		16	8.15	8.092	8.208	7.9	8.3	0.02739	0.1095	1.34%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.03	23.97	24.08	24	24.2	0.008836	0.07069	0.29%	0
Overall		16	24.01	23.99	24.04	24	24.2	0.0125	0.05	0.21%	0 (0%)

CHAIN OF CUSTODY FORM

$MPED\ C.F. = +0.5^{\circ}C$   
 $Temp.\ deg.\ C = 3.2^{\circ}C$   
 $MPED\ C.F. = \text{SAMPLE RECEIVING}$   
 $Fibritine\ (mg/L) = 201$   
 $WH3\ (mg/L) = 201$

Client Name/Address:		Project:		ANALYSIS REQUIRED												Comments													
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year OUTFALL 009 COMPOSITE		Total Recoverable Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, As, Ba, Br, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Tl TCDD (and all congeners) (E1613B) Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E300); Perchlorate (E314.0) TDS (SM2540C/E (60.1) TSS (160.2 (SM2540D)) Total Dissolved Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Tl Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0) Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013) ABC Labs in Ventura, CA Ammonia-N (350.2) Cyanide (SM4500-CN-E / E335.2) Priority Pollutants-Pesticides+PCBs (E608) Week Labs in Hacienda Heights, CA LL Mercury (163.1) Total Recoverable LL Mercury (163.1) Total Dissolved												Comments 48 hours Holding Time NO3 & NO2 Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA Filter and preserve w/in 24hrs of receipt at lab. Filter and preserve w/in 24hrs of receipt at lab. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Hold Hold Hold													
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																											
Sampler:		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	T	R	A	R	A	R	A	R	R	R	A	R	R								
Outfall 009	Outfall009_20240123_Comp	1/23/2024	WM	500 mL Poly	1	HNO3	85	Yes	X																				
			WM	1 L Glass Amber	2	None	110					X																	
			WM	500 mL Poly	1	None	125						X																
			WM	500 mL Poly	1	None	155						X																
			WM	500 mL Poly	1	H2SO4	160													X									
			WM	1L Poly	1	None	165						X																
			WM	250 mL Poly	1	NaOH	220														X								
			WM	2.5 Gal Cube	1	None	225																						
			WM	1 L Glass Amber	1	None	230																						
			WM	1 Gal Cube	5	None	235																						
	Outfall009_20240123_Comp_F	1/23/2024	WM	1L Poly	1	None	195	Yes																					
WM			250mL Glass, double bagged	1	None	999																							
	Outfall009_20240123_Comp_Extra	1/23/2024	WM	1 L Glass Amber	2	None	110																						
WM			300 mL Poly	2	None	125																							
WM			1 L Glass Amber	4	None	250																							

\* Hand-delivered to ABC with this copy of CoC

Relinquished By		Date/Time	Company	Received By		Date/Time	Company	Turn-around time: (Check)	
[Signature]		1-23-24/1305	ABC	[Signature]		1-23-24/1307	ABC	24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____	
Relinquished By		Date/Time	Company	Received By		Date/Time	Company	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X	





**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



## CHRONIC CERIODAPHNIA SURVIVAL AND REPRODUCTION BIOASSAY

DATE: 5 January - 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 10.00 ug/l

EC25 = 17.14 ug/l

EC50 = 24.29 ug/l

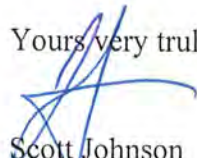
ENDPOINT: REPRODUCTION

NOEC = 10.00 ug/l

IC25 = 15.36 ug/l

IC50 = 20.73 ug/l

Yours very truly,

  
Mr. Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-5328-3144	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	✓ 10	30	17.32	---	1
11-1237-1648	Reproduction	Dunnett Multiple Comparison Test	✓ 10	30	17.32	13.6%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
07-0692-8548	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	14.29	13.33	17.5	1
			EC20	15.71	14.44	20	
			EC25	17.14	15.56	22.5	
			EC40	21.43	18.89	30	
			EC50	24.29	21.11	33.33	
07-9708-4589	Reproduction	Linear Interpolation (ICPIN)	✓ IC15	13.22	12.3	13.48	1
			✓ IC20	14.29	13.4	14.65	
			✓ IC25	15.36	14.51	15.81	
			✓ IC40	18.58	17.81	19.29	
			✓ IC50	20.73	19.98	21.62	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
07-0692-8548	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-5328-3144	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
07-9708-4589	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria	
11-1237-1648	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria	
11-1237-1648	Reproduction	PMSD	0.1365	0.13	0.47	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
30		10	0.3000	-0.0456	0.6456	0.0000	1.0000	0.1528	0.4830	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	24.8	23.42	26.18	22	28	0.611	1.932	7.79%	0.00%
3		10	27	24.62	29.38	23	32	1.054	3.333	12.35%	-8.87%
5		10	26.6	23.82	29.38	21	32	1.231	3.893	14.64%	-7.26%
10		10	27.6	24.56	30.64	23	34	1.343	4.248	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	8	0.9978	3.155	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: AE52350A46AC30A172F710E040BB92B1

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**Reproduction Detail**

MD5: D30251365D8B1138125925092AE28FAC

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	10	30	17.32	---	3.385	13.65%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		3	18	-1.444	2.222	3.385	CDF	0.9939	Non-Significant Effect
		5	18	-1.182	2.222	3.385	CDF	0.9865	Non-Significant Effect
		10	18	-1.838	2.222	3.385	CDF	0.9984	Non-Significant Effect
		30*	18	15.1	2.222	3.385	CDF	<1.0E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	24.8	15	<<	Yes	Passes Criteria
PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4924.32	1231.08	4	106.1	<1.0E-05	Significant Effect
Error	522	11.6	45			
Total	5446.32		49			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	5.346	13.28	0.2536	Equal Variances
	Levene Equality of Variance Test	2.283	3.767	0.0750	Equal Variances
	Mod Levene Equality of Variance Test	1.757	3.767	0.1542	Equal Variances
Distribution	Anderson-Darling A2 Test	0.792	3.878	0.0398	Normal Distribution
	D'Agostino Kurtosis Test	2.111	2.576	0.0347	Normal Distribution
	D'Agostino Skewness Test	0.9295	2.576	0.3526	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.322	9.21	0.0699	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1494	0.1453	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9541	0.9367	0.0502	Normal Distribution

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	24.8	23.42	26.18	24.33	22	28	0.611	7.79%	0.00%
3		10	27	24.62	29.38	27.5	23	32	1.054	12.35%	-8.87%
5		10	26.6	23.82	29.38	27	21	32	1.231	14.64%	-7.26%
10		10	27.6	24.56	30.64	27	23	34	1.343	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	0	8	0.9978	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

# CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

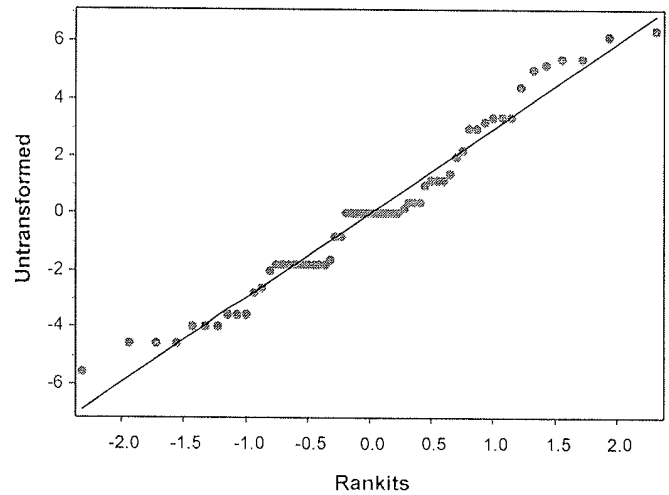
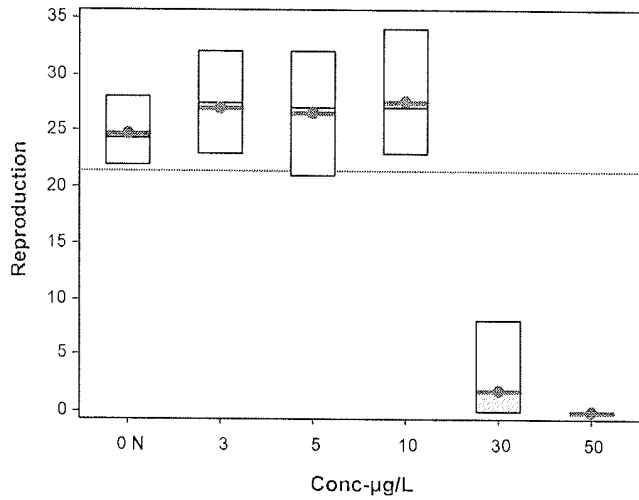
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: D30251365D8B1138125925092AE28FAC      Editor ID: 006-853-889-6

### Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

### Graphics



# CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 1 of 4)

Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	14.29	13.33	17.5
EC20	15.71	14.44	20
EC25	17.14	15.56	22.5
EC40	21.43	18.89	30
EC50	24.29	21.11	33.33

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
30		10	0.3000	0.0000	0.0000	1.0000	161.02%	70.00%	3/10	0.3000	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	---	100.00%	0/10	0.0000	100.00%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

# CETIS Analytical Report

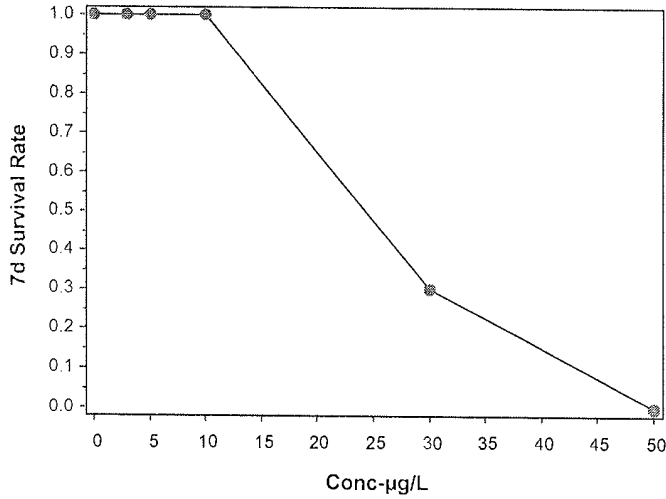
Report Date: 26 Jan-24 13:02 (p 2 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6

### Graphics



# CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 3 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	992278	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.8	15	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	13.22	12.3	13.48
IC20	14.29	13.4	14.65
IC25	15.36	14.51	15.81
IC40	18.58	17.81	19.29
IC50	20.73	19.98	21.62

### Reproduction Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	10	24.8	24.33	22	28	7.79%	0.00%	26.5	0.00%
3		10	27	27.5	23	32	12.35%	-8.87%	26.5	0.00%
5		10	26.6	27	21	32	14.64%	-7.26%	26.5	0.00%
10		10	27.6	27	23	34	15.39%	-11.29%	26.5	0.00%
30		10	1.8	0	0	8	175.29%	92.74%	1.8	93.21%
50		10	0	0	0	0	---	100.00%	0	100.00%

### Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0



# CETIS Analytical Report

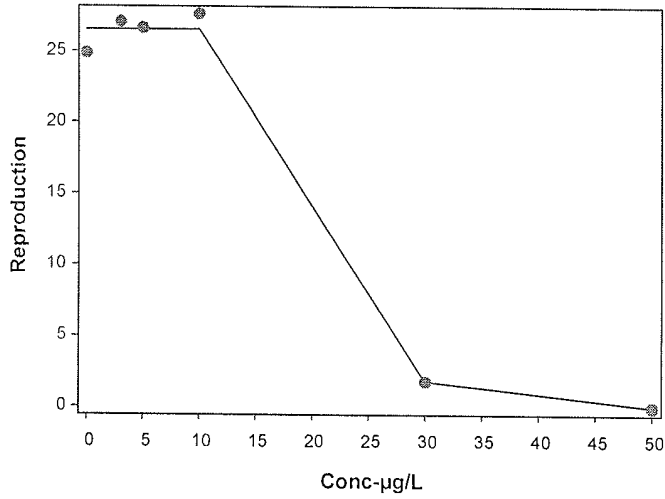
Report Date: 26 Jan-24 13:02 (p 4 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

### Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: STP 2xK Contingency Tables	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units
Untransformed	C > T	10	30	17.32	---

**Fisher Exact/Bonferroni-Holm Test**

Control	vs	Conc-µg/L	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		3	1.0000	Exact	1.0000	Non-Significant Effect
		5	1.0000	Exact	1.0000	Non-Significant Effect
		10	1.0000	Exact	1.0000	Non-Significant Effect
		30*	0.0015	Exact	0.0062	Significant Effect
		50*	0.0000	Exact	2.7E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**7d Survival Rate Frequencies**

Conc-µg/L	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	10	0	10	1.0000	0.0000	0.00%
3		10	0	10	1.0000	0.0000	0.00%
5		10	0	10	1.0000	0.0000	0.00%
10		10	0	10	1.0000	0.0000	0.00%
30		3	7	10	0.3000	0.7000	70.00%
50		0	10	10	0.0000	1.0000	100.00%

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
30		10	0.3000	0.0000	0.6456	0.0000	0.0000	1.0000	0.1528	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

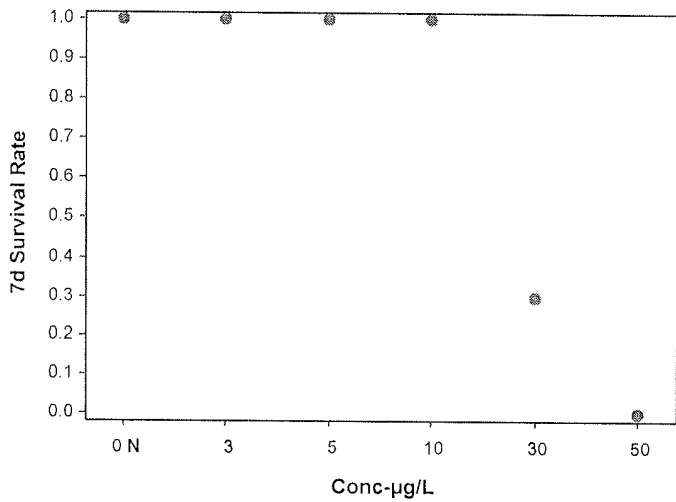
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: AE52350A46AC30A172F710E040BB92B1      Editor ID: 006-853-889-6

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**Graphics**



# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	67	63.54	70.46	62	70	0.5175	4.14	6.18%	0
50		6	60	60	60	60	60	0	0	0.00%	0
Overall		14	64	61.28	66.72	60	70	1.258	4.707	7.35%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	376.8	384.2	373	387	0.551	4.408	1.16%	0
3		8	371	369.2	372.8	369	375	0.2673	2.138	0.58%	0
5		8	368.4	361.9	374.9	352	376	0.9727	7.782	2.11%	0
10		8	372.1	367.8	376.5	364	379	0.6493	5.194	1.40%	0
30		8	373.9	367	380.8	356	380	1.032	8.254	2.21%	0
50		6	377.8	372.5	383.2	370	383	0.8526	5.115	1.35%	0
Overall		46	373.8	371.7	375.8	352	387	1.023	6.938	1.86%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.025	7.817	8.233	7.6	8.4	0.03116	0.2493	3.11%	0
3		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
5		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
10		8	7.938	7.738	8.137	7.4	8.2	0.02983	0.2387	3.01%	0
30		8	7.95	7.745	8.155	7.4	8.2	0.03062	0.2449	3.08%	0
50		5	8.02	7.916	8.124	7.9	8.1	0.01673	0.08367	1.04%	0
Overall		45	7.969	7.904	8.034	7.4	8.4	0.03223	0.2162	2.71%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
50		6	93	93	93	93	93	0	0	0.00%	0
Overall		14	97	94.92	99.08	93	100	0.9608	3.595	3.71%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
3		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
5		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
10		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
30		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
50		5	8.06	7.992	8.128	8	8.1	0.01096	0.05479	0.68%	0
Overall		45	8.073	8.054	8.093	8	8.2	0.009744	0.06537	0.81%	0 (0%)

# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

### Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
3		8	24	24	24	24	24	0	0	0.00%	0
5		8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
30		8	24	24	24	24	24	0	0	0.00%	0
50		5	24	24	24	24	24	0	0	0.00%	0
Overall		45	24	24	24	24	24	0	0	0.00%	0 (0%)



Ceriodaphnia 7-d Survival and Reproduction Test

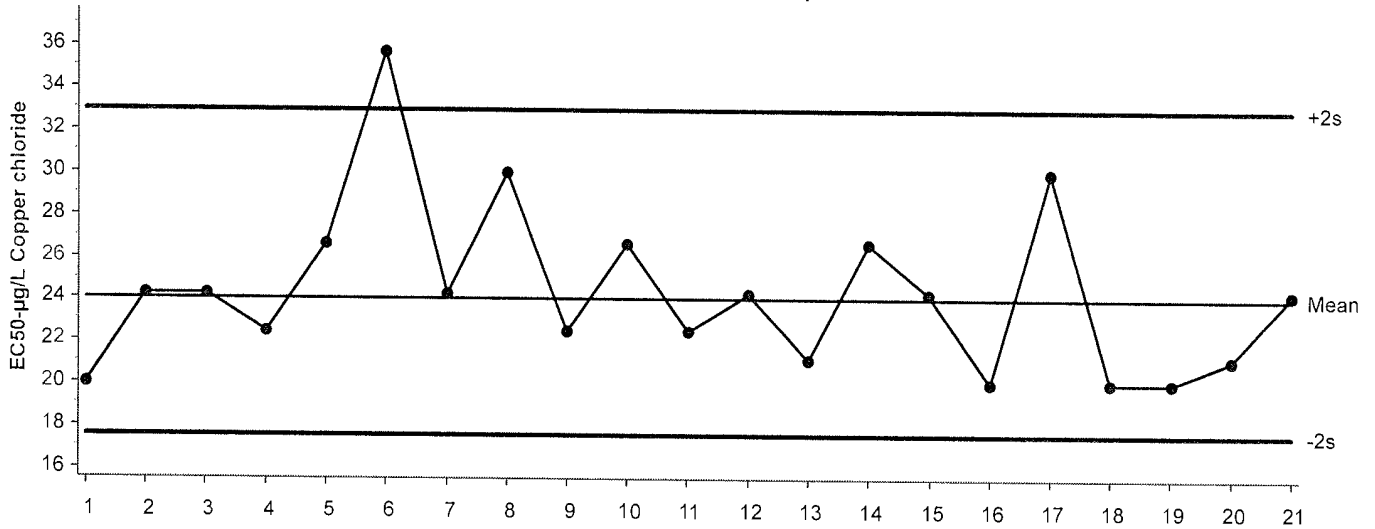
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
 Endpoint: 7d Survival Rate

Material: Copper chloride  
 Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
 7d Survival Rate Endpoint



Mean: 24.05      Count: 20      -2s Action Limit: 17.6  
 Sigma: NA      CV: 15.80%      +2s Action Limit: 32.9

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	20	-4.047	-1.171			15-9267-6325	13-8039-3389
2		Apr	5	13:40	24.29	0.239	0.06286			00-4985-0500	19-4921-0131
3		May	2	14:30	24.29	0.239	0.06286			11-3222-0627	00-2601-8684
4		Jun	6	14:00	22.5	-1.547	-0.4227			08-5473-2211	11-7704-8711
5			7	14:12	26.67	2.62	0.6574			02-3608-9426	17-9182-9169
6			15	15:40	35.71	11.67	2.515	(+)		10-4793-1547	20-4446-4479
7			27	14:40	24.29	0.239	0.06286			16-7344-0663	11-8484-0936
8			29	12:02	30	5.953	1.406			07-2471-0095	15-4161-4480
9		Jul	11	13:52	22.5	-1.547	-0.4227			12-8943-1800	03-0634-2447
10		Aug	8	14:23	26.67	2.62	0.6574			01-9164-3770	13-2486-3042
11			29	14:28	22.5	-1.547	-0.4227			06-3274-6762	20-0784-0120
12		Sep	5	13:20	24.29	0.239	0.06286			14-4921-5003	00-1422-5185
13		Oct	5	13:45	21.11	-2.936	-0.8277			20-2874-3873	04-2467-5752
14			24	13:59	26.67	2.62	0.6574			09-6061-9503	10-9205-4597
15		Nov	7	14:59	24.29	0.239	0.06286			16-2379-1831	01-6526-0546
16			9	16:30	20	-4.047	-1.171			11-1637-2324	18-2560-8953
17			17	12:00	30	5.953	1.406			06-0962-9936	07-2500-6920
18		Dec	5	15:04	20	-4.047	-1.171			06-9736-2705	01-6044-5215
19			13	14:03	20	-4.047	-1.171			01-9164-8741	10-2776-8004
20			22	14:00	21.11	-2.936	-0.8277			12-5671-2450	03-9575-0504
21	2024	Jan	5	12:00	24.29	0.239	0.06286			03-8898-9993	07-0692-8548

Ceriodaphnia 7-d Survival and Reproduction Test

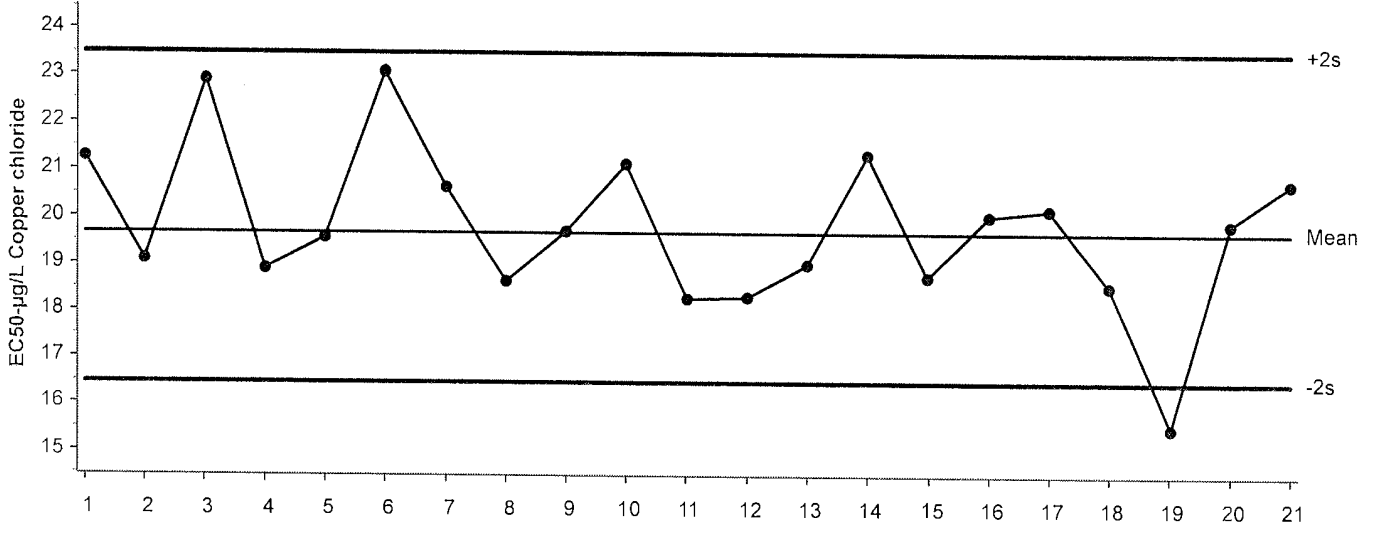
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
 Endpoint: Reproduction

Material: Copper chloride  
 Source: Reference Toxicant-REF

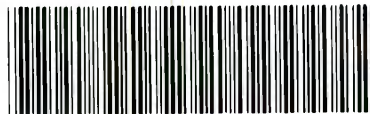
Ceriodaphnia 7-d Survival and Reproduction Test  
 Reproduction Endpoint



Mean: 19.67      Count: 20      -2s Action Limit: 16.5  
 Sigma: NA      CV: 8.90%      +2s Action Limit: 23.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	21.26	1.593	0.8771			15-9267-6325	08-1059-6139
2		Apr	5	13:40	19.09	-0.5735	-0.3333			00-4985-0500	20-3935-2169
3		May	2	14:30	22.9	3.235	1.715			11-3222-0627	01-3728-6873
4		Jun	6	14:00	18.9	-0.7652	-0.447			08-5473-2211	04-5604-9640
5			7	14:12	19.58	-0.0887	-0.05091			02-3608-9426	14-9315-1462
6			15	15:40	23.07	3.399	1.795			10-4793-1547	11-8238-5156
7			27	14:40	20.64	0.9694	0.5419			16-7344-0663	17-6169-0419
8			29	12:02	18.63	-1.042	-0.613			07-2471-0095	11-6621-4104
9		Jul	11	13:52	19.71	0.03976	0.02275			12-8943-1800	06-3315-7505
10		Aug	8	14:23	21.14	1.473	0.8136			01-9164-3770	20-6159-4836
11			29	14:28	18.27	-1.395	-0.8289			06-3274-6762	03-6041-2149
12		Sep	5	13:20	18.28	-1.387	-0.824			14-4921-5003	12-3765-4725
13		Oct	5	13:45	18.99	-0.6762	-0.3941			20-2874-3873	13-5584-5541
14			24	13:59	21.35	1.677	0.9219			09-6061-9503	18-0766-3120
15		Nov	7	14:59	18.72	-0.9434	-0.5537			16-2379-1831	19-1623-7086
16			9	16:30	20.03	0.3645	0.2069			11-1637-2324	10-9594-7716
17			17	12:00	20.15	0.4851	0.2745			06-0962-9936	06-2076-7044
18		Dec	5	15:04	18.53	-1.137	-0.6705			06-9736-2705	06-2601-7564
19			13	14:03	15.51	-4.159	-2.676		(-)	01-9164-8741	04-3685-1503
20			22	14:00	19.87	0.2047	0.1166			12-5671-2450	18-1358-8860
21	2024	Jan	5	12:00	20.73	1.061	0.5916			03-8898-9993	07-9708-4589



570-169112 Chain of Custody

CHAIN OF CUSTODY FORM



Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit <b>Annual Sampling &amp; 1st &amp; 2nd Event of the First Year OUTFALL 009 COMPOSITE</b>				ANALYSIS REQUIRED																		
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Recoverable Metals: (E200.7), B, Harsness as CaCO3 (E200.8), Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Ti TCDD (and all congeners) (E1613B) Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E300), Perchlorate (E314.0) TDS (SM2540C/E160.1) TSS (160.2 (SM2540D)) Total Dissolved Metals: (E200.7), B, Harsness as CaCO3 (E200.8), Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Ti Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Thium [H-3] (E906.0) Chronic Toxicity - Carcinogenicity (EPA-821-R-02-013) ABC Labs in Ventura, CA Ammonia-N (350.2) Cyanide (SM450-CN-E / E335.2) Priority Pollutants-Pesticides+PCBs (E608) West Labs in Hacienda Heights, CA LL Mercury (1631) Total Recoverable LL Mercury (1631) Total Dissolved																		
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreements #2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				Comments																		
Sampler:																										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7), B, Harsness as CaCO3 (E200.8), Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Orthophosphate [PO4], Fluoride [F-], Chloride [Cl-], Sulfate [SO4], Nitrate-N, Nitrite-N, NO3+NO2-N (E300), Perchlorate (E314.0)	TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals: (E200.7), B, Harsness as CaCO3 (E200.8), Al, As, Ba, Be, Co, Cr, Fe, Mn, Ni, V, Zn, Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Thium [H-3] (E906.0)	Chronic Toxicity - Carcinogenicity (EPA-821-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (350.2)	Cyanide (SM450-CN-E / E335.2)	Priority Pollutants-Pesticides+PCBs (E608) West Labs in Hacienda Heights, CA	LL Mercury (1631) Total Recoverable	LL Mercury (1631) Total Dissolved	Comments				
Outfall 009	Outfall009_20240123_Comp	1/23/2024 1000	WM	500 mL Poly	1	HNO3	85	Yes	X																	
			WM	1 L Glass Amber	2	None	110				X															
			WM	500 mL Poly	1	None	125					X													48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None	155						X													
			WM	500 mL Poly	1	H2SO4	160												X							
			WM	1L Poly	1	None	185							X												
			WM	250 mL Poly	1	NaOH	220													X						
			WM	2.5 Gal Cube	1	None	225											X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230												X							Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 Gal Cube	5	None	235																			
Outfall 009	Outfall009_20240123_Comp_F	1/23/2024 1000	WM	1 L Glass Amber	4	None	250													X						
			WM	250mL Glass, double bagged	1	HCL	998															X				
Outfall 009	Outfall009_20240123_Comp_Extra	1/23/2024 1000	WM	1L Poly	1	None	195	Yes						X									Filter and preserve w/in 24hrs of receipt at lab.			
			WM	250mL Glass, double bagged	1	None	999															X		Filter and preserve w/in 24hrs of receipt at lab. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
			WM	1 L Glass Amber	2	None	110				H												Hold			
			WM	500 mL Poly	2	None	125					H												Hold		
			WM	1 L Glass Amber	4	None	250												H					Hold		

Legend: R = Routine, A = Annual

Relinquished By: <i>Michelle Dellelah</i> Date/Time: 1/23/24 12:30 Company: H&A	Received By: <i>WJA</i> Date/Time: 1-23-24 1230 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>WJA</i> Date/Time: 1-23-24 1736 Company:	Received By: <i>WJA</i> Date/Time: 1-23-24 1736 Company:	Sample integrity: (Check) Intact: _____ On Ice: _____
Relinquished By:	Received By:	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

1.6/1.6, 1.9/1.9, 2.0/2.0, 1.4/1.4, 1.7/1.7, 2.1/2.1  
1.8/1.8, SC12



CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year OUTFALL 009 COMPOSITE								ANALYSIS REQUIRED																			
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)								Comments																			
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																											
Sampler:																													
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Priority Pollutants-SVOCs (E625)	Cr (VI), Total Recoverable (E218.6)	Asbestos (EPA100.2)	Chlorpyrifos, Diazinon (E525.2) Weck Labs in Hacienda Heights, CA	Surfactants (MBAS) (SM5540C/E425.1)	Cr (VI), Total Dissolved (E218.6)															
Outfall 009	Outfall009_20240123_Comp	1/23/2024 1000	WM	1 L Glass Amber	2	None	175		X																				
			WM	250 mL Poly	1	None	280			X																			
			WM	1L Poly	1	None	270					X																	
			WM	1 L Glass Amber	2	None	275						X												Extract within 24-Hours of sampling. Deliver to Weck Labs in Hacienda Heights, CA.				
			WM	500 mL Poly	2	None	120							X															
		Outfall009_20240123_Comp_Extra	1/23/2024 1000	WM	1 L Glass Amber	2	None	175		H															Hold				
			WM	1 L Glass Amber	2	None	275				H													Hold					
	Outfall009_20240123_Comp_F	1/23/2024 1000	WM	250 mL Poly	1	None	280						X											Filter and preserve win 24hrs of receipt at lab.					
Legend: A = Annual																													
Relinquished By: <i>Michelle Dallalala</i> Date/Time: 1/23/24 12:30 Company: H&A									Received By: <i>MKL</i> Date/Time: 1-23-24 1230 EC									Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____											
Relinquished By: <i>MKL</i> Date/Time: 1-23-24 1734									Received By: <i>MKL</i> Date/Time: 1-23-24 1736									Sample Integrity: (Check) Intact: _____ On Ice: _____											
Relinquished By: _____ Date/Time: _____ Company: _____									Received By: _____ Date/Time: _____									Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____											

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108			Project: Boeing-SSFL NPDES 2023 Permit Annual Sampling & 1st & 2nd Event of the First Year OUTFALL 009 COMPOSITE					ANALYSIS REQUIRED												
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187			Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)					SRAM list -E8330A	SRAM list -Energetic Constituents, Terphenyls (E625)	SRAM list -PAHs (E625.1SIM)	SRAM list -SVOCs (E625.1SIM / 8270C)	SRAM list -Glycols (E8321B): Diethylene Glycol, Triethylene glycol	SRAM list -Herbicides, MCPA (8151A)	SRAM list -Pesticides/PCBs (E608)	SRAM list -PCBs (1666C)	SRAM list -Methyl Mercury (1630 (Mod))	Comments			
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.			Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)																	
Sampler:			Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																	
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list -E8330A	SRAM list -Energetic Constituents, Terphenyls (E625)	SRAM list -PAHs (E625.1SIM)	SRAM list -SVOCs (E625.1SIM / 8270C)	SRAM list -Glycols (E8321B): Diethylene Glycol, Triethylene glycol	SRAM list -Herbicides, MCPA (8151A)	SRAM list -Pesticides/PCBs (E608)	SRAM list -PCBs (1666C)	SRAM list -Methyl Mercury (1630 (Mod))	Comments			
Outfall 009	Outfall009_20240123_Comp	1/23/2024 1000	WM	1 L Glass Amber	2	None	No	X												
			WM	1 L Glass Amber	2	None	No		X											
			WM	1 L Glass Amber	2	None	No			X										
			WM	1 L Glass Amber	2	None	No				X									
			WM	1 L Glass Amber	2	None	No					X								
			WM	1 L Glass Amber	4	None	No							X						
			WM	1 L Glass Amber	4	None	No								X					
			WM	1 L Glass Amber	4	None	No									H				Put on HOLD
			WM	1 L Glass Amber	2	None	No											X		
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																				
Relinquished By: <i>Michelle Dallalah</i> Date/Time: 1/23/24 12:30 Company: H&A			Received By: <i>MKL</i> Date/Time: 1-23-24 1230			Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____														
Relinquished By: <i>[Signature]</i> Date/Time: 1-23-24 1736 Company:			Received By: <i>[Signature]</i> Date/Time: 1-23-24 1736			Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>														
Relinquished By: _____ Date/Time: _____ Company:			Received By: _____ Date/Time: _____			Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>														

# CHAIN OF CUSTODY FORM

- 1
- 2
- 3
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<b>Client Name/Address:</b> Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108			<b>Project:</b> Boeing-SSFL NPDES 2023 Permit <b>Annual Sampling &amp;                  1st &amp; 2nd Event of the First Year                  OUTFALL 009                  COMPOSITE</b>						<b>ANALYSIS REQUIRED</b>										
<b>Eurofins Calscience Project Manager: Virendra Patel</b> 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187			<b>Project Manager: Katherine Miller</b> 520.289.8606, 520.904.6944 (cell)						SRAM list - Total Dissolved Metals (E200.6 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW6015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW6015B)	SRAM list - TPH: Oil Range Organics, ORO (SW6015B)	SRAM list - Formaldehyde (6315A)					<b>Comments</b>
<b>Eurofins Calscience's services under this CoC shall be performed in accordance with the T&amp;Cs within Blanket Service Agreements 2022-24-Eurofins by and between Haley &amp; Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.</b>			<b>Field Manager: Mark Dominick</b> 978.234.5033, 818.599.0702 (cell)																
<b>Sampler:</b>																			

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list - Total Dissolved Metals (E200.6 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW6015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW6015B)	SRAM list - TPH: Oil Range Organics, ORO (SW6015B)	SRAM list - Formaldehyde (6315A)	Comments
Outfall 009	Outfall009_20240123_Comp_F	1/23/2024 1000	WM	1 L Poly	1	None	Yes	H						Filter and preserve w/in 24hrs of receipt at lab and then put on HOLD.
			WM	500 mL Poly	1	HNO <sub>3</sub>	Yes		H					Put on HOLD
	Outfall009_20240123_Comp	1/23/2024 1000	WM	1 L Glass Amber	2	None	No			X				
			WM	250mL Glass Amber	1	None	No				X			
			WM	250mL Glass Amber	1	None	No					X		
			WM	125 mL Glass Amber	1	None	No						X	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Michelle Dallalah</i>	Date/Time: 1/23/24 12:30	Company: H&A	Received By: <i>[Signature]</i>	Date/Time: 1-23-24 1230	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i>	Date/Time: 1-23-24 1730	Company:	Received By: <i>[Signature]</i>	Date/Time: 1-23-24 1730	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By:	Date/Time:	Company:	Received By:	Date/Time:	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler	Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-343301 1								
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com	State of Origin: California	Page: Page 1 of 1								
Company: Eurofins Lancaster Laboratories Environm			Accreditations Required (See note): State California; State Program California		Job #: 570-169112-6								
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601		Due Date Requested: 2/6/2024	<b>Analysis Requested</b>			Preservation Codes: A HCL                    M Hexane B NaOH                  N None C Zn Acetate            O AsNaO2 D Nitric Acid            P Na2O4S E NaHSO4                Q Na2SO3 F MeOH                  R Na2S2O3 G Amchlor                S H2SO4 H Ascorbic Acid        T TSP Dodecahydrate I Ice                        U Acetone J DI Water                V MCAA K EDTA                    W pH 4-5 L EDA                      Y Trizma Z other (specify)							
Phone: 717-656-2300(Tel)		TAT Requested (days):											
Email:		PO #:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Sample (Yes or No)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Perform MS/MSD (Yes or No)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">8330B8330_P_SPE</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">8016C_DAL_GLY/8016_DAL_Prep (MOD) Custom</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Analysis Lab</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">826_T_PREP/826_Prep_LVI 826.1 Diphenyl</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Ether/Perylene (TIC)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of Containers</td> </tr> </table>			Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8330B8330_P_SPE	8016C_DAL_GLY/8016_DAL_Prep (MOD) Custom	Analysis Lab	826_T_PREP/826_Prep_LVI 826.1 Diphenyl	Ether/Perylene (TIC)	Total Number of Containers
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8330B8330_P_SPE				8016C_DAL_GLY/8016_DAL_Prep (MOD) Custom	Analysis Lab	826_T_PREP/826_Prep_LVI 826.1 Diphenyl	Ether/Perylene (TIC)	Total Number of Containers			
Project Name: Boeing NPDES SSFL Outfall 009 Comp		Project #: 57013187											
Site:		SSOW#:											
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, AA=Air)</b>	<b>Preservation Code:</b>	<b>Special Instructions/Note:</b>						
Outfall009_20240123_Comp (570-169112-1)		1/23/24	10:00 Pacific		Water		X	X	X	6			
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.													
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>								
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I II III, IV Other (specify)					Primary Deliverable Rank: 2		Special Instructions/QC Requirements:						
Empty Kit Relinquished by:			Date:	Time:	Method of Shipment:								
Relinquished by:			Date/Time: 1/29/24 1440	Company:	Received by:		Date/Time:	Company:					
Relinquished by:			Date/Time:	Company:	Received by:		Date/Time:	Company:					
Relinquished by:			Date/Time:	Company:	Received by:		Date/Time:	Company:					
Custody Seals Intact: △ Yes △ No		Custody Seal No.			Cooler Temperature(s) °C and Other Remarks:								





ICOC No.  
570-343961

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

**Subcontract Method Instructions**

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100.2 - "Wastewater" matrix)/ Asbestos 100.2	Level IV package needed Screen as Wastewater matrix





- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

**Do not lift using this tag**



570-169112 Waybill

ORIGIN ID: DTHA (849) 261--1022  
 ARASH AHMADIAN  
 EUROFINS CALSCIENCE  
 2841 DOW AVE  
 SUITE 100  
 TUSTIN, CA 927807211  
 UNITED STATES US

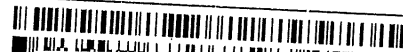
SHIP DATE: 29JAN24  
 ACTWGT: 50.10 LB  
 CAD: 0343492/CAFE3755

BILL SENDER

**TO SHIPPING/RECEIVING**  
**EUROFINS ENVIRONMENT TESTING NORTHE**  
**301 ALPHA DRIVE**  
**RIDC PARK**  
**PITTSBURGH PA 15238**

(412) 963-7058  
 PO: YES

REF: 8570-93953



Uncorrected temp \_\_\_\_\_ °C  
 Thermometer ID 3.1 20

CF 0.8 Initials RS

PT-WI-SR-001 effective 11/8/18

**FedEx**  
Express



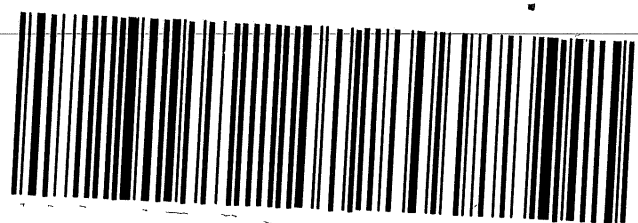
J233023051201 0V

TRK# 0201 7256 7307 6190

**TUE - 30 JAN 10:30A**  
**PRIORITY OVERNIGHT**

**XN AGCA**

**15238**  
PA-US **PIT**



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-169112-5

**Login Number: 169112**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	







# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/1/2024 6:21:10 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - Comp

## JOB NUMBER

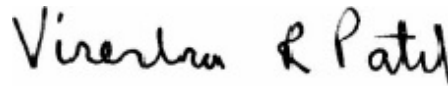
570-170759-7

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



Generated  
3/1/2024 6:21:10 PM

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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-170759-7

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-170759-7

**Job ID: 570-170759-7**

**Eurofins Calscience**

## Job Narrative 570-170759-7

### Receipt

The samples were received on 2/2/2024 7:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.9° C, 2.3° C, 2.4° C and 3.4° C.

### Receipt Exceptions

The number of containers for the following sample did not match the information listed on the Chain-of-Custody (COC): Outfall009\_20240202\_Comp (570-170759-1). Received only 52 containers, while the COC lists 62 Containers.

Laboratory did not receive 6 Vials 40ml HCL for requested analysis.

The clients office was contacted with the above sample receipt anomalies. The laboratory was provided written direction on how to proceed, please refer to the COC section of the report for further details.

The number of containers for the following samples did not match the information listed on the Chain-of-Custody (COC): Outfall009\_20240202\_Comp\_Extra (570-170759-3). Received only 1 Container, while the COC lists 11 Containers.

Outfall009\_20240202\_Comp\_Extra (570-170759-3)

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Fathead Minnow: This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

Eurofins Calscience

# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-170759-7

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 009 - Comp

Job ID: 570-170759-7

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-170759-1	Outfall009_20240202_Comp	Water	02/02/24 08:35	02/02/24 19:00

1

2

3

4

5

6

7

8

9



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



February 27, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* ” Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 009\_20240202\_Comp  
 DATE RECEIVED: 2 Feb - 2024  
 ABC LAB. NO.: CSE0224.022

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS % EFFECT = 0.00 %

GROWTH = PASS % EFFECT = -1.23 %

Yours very truly,

Scott Johnson  
 Laboratory Director



# CETIS Summary Report

Report Date: 22 Feb-24 16:30 (p 1 of 1)  
 Test Code/ID: CSE0224.022fml / 02-1375-6051

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 16-7802-4888	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:12	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:39	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 18-9481-3513	<b>Code:</b> CSE0224.022fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 08:35	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 009
<b>Sample Age:</b> 7h (5.3 °C)	<b>Client:</b> Eurofins Calscience	

### Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
19-4583-9631	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
15-4932-0925	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
19-4583-9631	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
15-4932-0925	Mean Dry Biomass-mg	Control Resp	0.3462	0.25	<<	Yes	Passes Criteria

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3462	0.3397	0.3528	0.3373	0.3633	0.002789	0.007888	2.28%	0.00%
100		8	0.3505	0.3418	0.3592	0.3387	0.3687	0.003681	0.01041	2.97%	-1.23%

### 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Mean Dry Biomass-mg Detail

MD5: BE5636923E06ADB63710968E2697CF71

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3633	0.3447	0.344	0.3373	0.346	0.3507	0.3427	0.3413
100		0.344	0.3387	0.3687	0.3587	0.3527	0.346	0.356	0.3393

### 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 22 Feb-24 16:30 (p 1 of 4)  
 Test Code/ID: CSE0224.022fml / 02-1375-6051

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-4583-9631      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:25      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 22 Feb-24 16:25      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

Batch ID: 16-7802-4888      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 02 Feb-24 15:12      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 09 Feb-24 14:39      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 6d 23h      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 18-9481-3513      Code: CSE0224.022fml      Project: Boeing-SSFL NPDES 2023 PERMIT  
 Sample Date: 02 Feb-24 08:35      Material: Sample Water      Source: Bioassay Report  
 Receipt Date: 02 Feb-24 13:55      CAS (PC):      Station: Outfall 009  
 Sample Age: 7h (5.3 °C)      Client: Eurofins Calscience

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

### TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

### 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

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

### Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

### 7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

Fathead Minnow 7-d Larval Survival and Growth Test

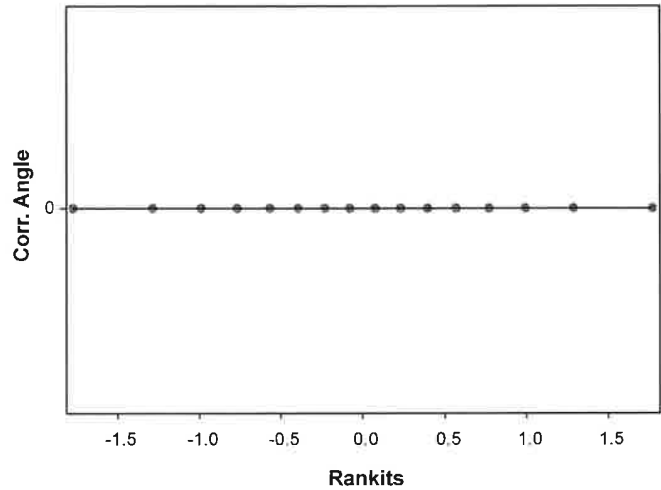
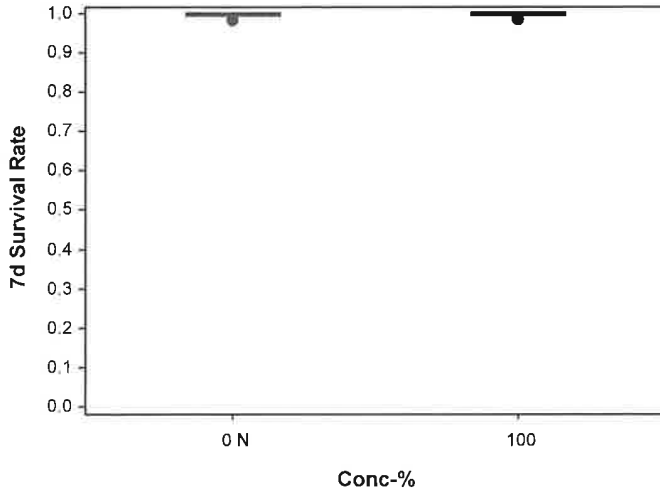
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-4583-9631      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:25      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 22 Feb-24 16:25      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Graphics



# CETIS Analytical Report

Report Date: 22 Feb-24 16:30 (p 3 of 4)  
 Test Code/ID: CSE0224.022fml / 02-1375-6051

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 15-4932-0925	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:25	<b>Analysis:</b> Parametric Bioequivalence-Two Sample	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:25	<b>MD5 Hash:</b> BE5636923E06ADB63710968E2697CF71	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 16-7802-4888	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:12	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:39	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 18-9481-3513	<b>Code:</b> CSE0224.022fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 08:35	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 009
<b>Sample Age:</b> 7h (5.3 °C)	<b>Client:</b> Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

### TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	11	21.45	0.6974	CDF	<1.0E-05	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3462	0.25	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	7.225E-05	7.225E-05	1	0.8469	0.3730	Non-Significant Effect
Error	0.0011944	8.531E-05	14			
Total	0.0012666		15			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	1.419	8.862	0.2533	Equal Variances
	Mod Levene Equality of Variance Test	1.552	8.862	0.2333	Equal Variances
	Variance Ratio F Test	1.743	8.885	0.4810	Equal Variances
Distribution	Anderson-Darling A2 Test	0.443	3.878	0.2912	Normal Distribution
	D'Agostino Skewness Test	1.449	2.576	0.1474	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1362	0.2471	0.6391	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9301	0.8408	0.2451	Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3462	0.3397	0.3528	0.3443	0.3373	0.3633	0.002789	2.28%	0.00%
100		8	0.3505	0.3418	0.3592	0.3493	0.3387	0.3687	0.003681	2.97%	-1.23%

### Mean Dry Biomass-mg Detail

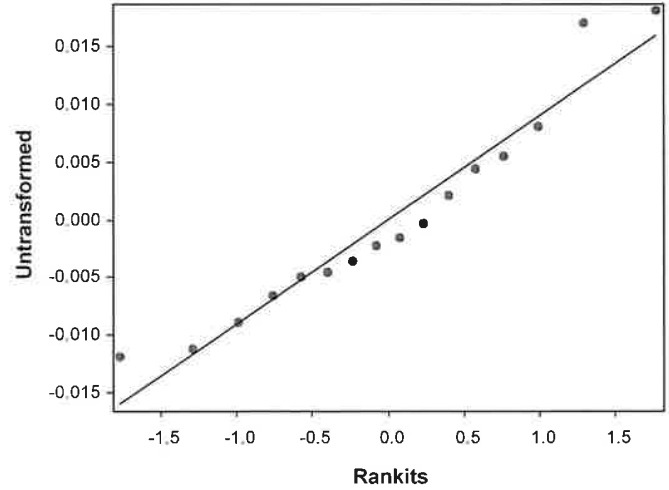
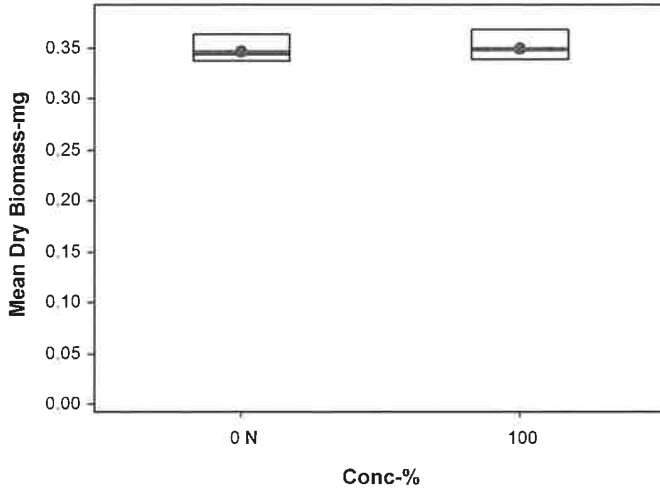
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3633	0.3447	0.344	0.3373	0.346	0.3507	0.3427	0.3413
100		0.344	0.3387	0.3687	0.3587	0.3527	0.346	0.356	0.3393

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 15-4932-0925	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:25	<b>Analysis:</b> Parametric Bioequivalence-Two Sample	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:25	<b>MD5 Hash:</b> BE5636923E06ADB63710968E2697CF71	<b>Editor ID:</b> 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 22 Feb-24 16:30 (p 1 of 1)  
 Test Code/ID: CSE0224.022fml / 02-1375-6051

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 16-7802-4888	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 15:12	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:39	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 23h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 18-9481-3513	<b>Code:</b> CSE0224.022fml	<b>Project:</b> Boeing-SSFL NPDES 2023 PERMIT
<b>Sample Date:</b> 02 Feb-24 08:35	<b>Material:</b> Sample Water	<b>Source:</b> Bioassay Report
<b>Receipt Date:</b> 02 Feb-24 13:55	<b>CAS (PC):</b>	<b>Station:</b> Outfall 009
<b>Sample Age:</b> 7h (5.3 °C)	<b>Client:</b> Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	16	16	16	16	16	0	0	0.00%	0
Overall		16	39	26.34	51.66	16	62	5.939	23.75	60.91%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	379	375.1	382.9	372	386	0.5825	4.66	1.23%	0
100		8	76.88	75.01	78.74	72	79	0.279	2.232	2.90%	0
Overall		16	227.9	144.8	311.1	72	386	39.01	156.1	68.46%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.963	7.854	8.071	7.8	8.2	0.01628	0.1302	1.64%	0
100		8	8.125	7.858	8.392	7.9	8.9	0.03995	0.3196	3.93%	0
Overall		16	8.044	7.91	8.177	7.8	8.9	0.06256	0.2502	3.11%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98.5	97.16	99.84	97	100	0.2004	1.604	1.63%	0
100		8	26	26	26	26	26	0	0	0.00%	0
Overall		16	62.25	42.29	82.21	26	100	9.364	37.45	60.17%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.137	8.038	8.237	7.9	8.2	0.01485	0.1188	1.46%	0
100		8	8.05	7.987	8.113	8	8.2	0.00945	0.0756	0.94%	0
Overall		16	8.094	8.037	8.15	7.9	8.2	0.02657	0.1063	1.31%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.01	23.98	24.04	24	24.1	0.004414	0.03531	0.15%	0
Overall		16	24.01	23.99	24.02	24	24.1	0.00625	0.025	0.10%	0 (0%)

CHAIN OF CUSTODY FORM

*Handwritten:* Temp. deg. C = 5.3°C  
 Chlorine (mg/L) = 20.1  
 NH<sub>3</sub> (mg/L) = 20.1

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year OUTFALL 009 COMPOSITE		ANALYSIS REQUIRED																						
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Recoverable Metals: (E2008) Al, As, Cd, Cu, Pb, Zn TCDD (and all congeners) (E16139) Orthophosphate [PO <sub>4</sub> ], Fluoride [F <sup>-</sup> ], Chloride [Cl <sup>-</sup> ], Sulfate [SO <sub>4</sub> ], Nitrate-N, Nitrite-N, Bromide (E300), Perchlorate (3140) TDS (SM2540C/E1601) TSS (1602 (SM2540D)) Total Dissolved Metals: (E2008) Al, As, Cd, Cu, Pb, Zn Gross Alpha & Beta (E9000); K-40; CS-137 (E9017); Uranium (HASL-300 U-02 or A-01-R); Total Combined Radium 226 & 228; Sr-90 (E903, E904, E905); Tritium (H-3) (E9060) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA Ammonia-N (3502) Cyanide (SM4500-CN-E / E9352) Routine Pesticides+PCBs - only 4'-DDE (E9008) Weck Labs in Hacienda Heights, CA LL Mercury - Total Recoverable (E1631) LL Mercury - Total Dissolved (E1631E)																						
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Comments																						
Sampler: Adrien Mobeka																										
Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E2008) Al, As, Cd, Cu, Pb, Zn	TCDD (and all congeners) (E16139)	Orthophosphate [PO <sub>4</sub> ], Fluoride [F <sup>-</sup> ], Chloride [Cl <sup>-</sup> ], Sulfate [SO <sub>4</sub> ], Nitrate-N, Nitrite-N, Bromide (E300), Perchlorate (3140)	TDS (SM2540C/E1601)	TSS (1602 (SM2540D))	Total Dissolved Metals: (E2008) Al, As, Cd, Cu, Pb, Zn	Gross Alpha & Beta (E9000); K-40; CS-137 (E9017); Uranium (HASL-300 U-02 or A-01-R); Total Combined Radium 226 & 228; Sr-90 (E903, E904, E905); Tritium (H-3) (E9060)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA	Ammonia-N (3502)	Cyanide (SM4500-CN-E / E9352)	Routine Pesticides+PCBs - only 4'-DDE (E9008) Weck Labs in Hacienda Heights, CA	LL Mercury - Total Recoverable (E1631)	LL Mercury - Total Dissolved (E1631E)	Comments				
Outfall 009	Outfall009_20240202_Comp	2/2/2024 10935	WM	500 mL Poly	1	HNO <sub>3</sub>	85	Yes	X																	
			WM	1 L Glass Amber	2	None	110				X															
			WM	500 mL Poly	1	None	125					X													48 hours Holding Time NO <sub>3</sub> & NO <sub>2</sub>	
			WM	500 mL Poly	1	None	155						X													
			WM	500 mL Poly	1	H <sub>2</sub> SO <sub>4</sub>	160								X											
			WM	1L Poly	1	None	185									X										
			WM	250 mL Poly	1	NaOH	220														X					
			WM	2.5 Gal Cube	1	None	225											X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder, Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230																			
			WM	1 Gal Cube	5	None	235												X							Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	1 L Glass Amber	4	None	250															X				Deliver to Weck Labs in Hacienda Heights, CA
			Outfall 009	Outfall009_20240202_Comp_F	2/2/2024 10935	WM	250mL Glass, double bagged	1	HCL	998													X			
WM	1L Poly	1				None	195	Yes							X									Filler and preserve w/in 24hrs of receipt at lab		
WM	250mL Glass, double bagged	1				None	999															X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filler and preserve w/in 24hrs of receipt at lab	
Outfall 009	Outfall009_20240202_Comp_Extra	2/2/2024 10935	WM	1 L Glass Amber	2	None	110				H													Hold		
			WM	500 mL Poly	1	None	125																			Hold
			WM	1 L Glass Amber	4	None	250																			

\* Hand-delivered to ABC with this copy of the CoC

Legend: R = Routine, Sm = SRAM

Relinquished By: <i>Mark Dominick</i> Date/Time: 2.2.24/1355 Company: MIA	Received By: <i>A. Pan</i> Date/Time: 2/2/24 1355	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months Data Requirements (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

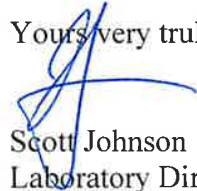


### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 2 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 19.00 ug/l  
EC25 = 45.85 ug/l  
EC50 = 62.67 ug/l

ENDPOINT: GROWTH  
NOEC = 19.00 ug/l  
IC25 = 38.87 ug/l  
IC50 = 57.13 ug/l

Yours very truly,

  
✓ Scott Johnson  
Laboratory Director



# CETIS Summary Report

Report Date: 28 Feb-24 11:19 (p 1 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
06-8378-3644	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 19	38	26.87	5.23%	1
08-8523-0494	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	✓ 19	38	26.87	13.3%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
09-6073-8693	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	39.12	32.26	42.55	1
			EC20	42.48	39.01	45.76	
			EC25	45.85	42.54	48.96	
			EC40	55.94	53.14	58.58	
			EC50	62.67	59.76	64.99	
07-7973-9309	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	28	17.65	44.15	1
			✓ IC20	33.68	22.96	45.87	
			✓ IC25	38.87	26.38	47.57	
			✓ IC40	49.83	38.69	58.03	
			✓ IC50	57.13	48.62	65.22	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
06-8378-3644	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-6073-8693	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
07-7973-9309	Mean Dry Biomass-mg	Control Resp	0.3465	0.25	<<	Yes	Passes Criteria	
08-8523-0494	Mean Dry Biomass-mg	Control Resp	0.3465	0.25	<<	Yes	Passes Criteria	
08-8523-0494	Mean Dry Biomass-mg	PMSD	0.1334	0.12	0.3	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	0.9833	0.9303	1.0360	0.9333	1.0000	0.0167	0.0333	3.39%	1.67%
19		4	0.9500	0.8970	1.0030	0.9333	1.0000	0.0167	0.0333	3.51%	5.00%
38		4	0.8667	0.7801	0.9533	0.8000	0.9333	0.0272	0.0544	6.28%	13.33%
75		4	0.3167	0.2636	0.3697	0.2667	0.3333	0.0167	0.0333	10.53%	68.33%
150		4	0.0167	-0.0364	0.0697	0.0000	0.0667	0.0167	0.0333	200.00%	98.33%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3465	0.3357	0.3573	0.34	0.356	0.003403	0.006807	1.96%	0.00%
10		4	0.3397	0.3278	0.3515	0.3293	0.346	0.003717	0.007434	2.19%	1.97%
19		4	0.322	0.2853	0.3587	0.298	0.3467	0.01153	0.02306	7.16%	7.07%
38		4	0.264	0.2015	0.3265	0.2093	0.3027	0.01965	0.0393	14.89%	23.81%
75		4	0.0885	0.02436	0.1526	0.038	0.1367	0.02016	0.04031	45.55%	74.46%
150		4	0.0125	-0.02728	0.05228	0	0.05	0.0125	0.025	200.00%	96.39%

# CETIS Summary Report

Report Date: 28 Feb-24 11:19 (p 2 of 2)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 8A5A24FE371BD34EBBA55AE0620ED60B

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: B4A8AFD716D4543A3E3A812D513D64AD

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

**CETIS Analytical Report**

Report Date: 28 Feb-24 11:19 (p 1 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

**Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID: 06-8378-3644      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

Batch ID: 12-1869-3585      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 02 Feb-24 14:20      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 09 Feb-24 14:00      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 10-4352-0612      Code: FML020224      Project: REF TOX  
 Sample Date: 02 Feb-24 14:20      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	19	38	26.87	---	0.05227	5.23%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	16	10	1	CDF	0.6105	Non-Significant Effect
		19	6	12	10	1	CDF	0.1424	Non-Significant Effect
		38*	6	10	10	0	CDF	0.0417	Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.51927	1.10385	5	312.2	<1.0E-05	Significant Effect
Error	0.0636342	0.0035352	18			
Total	5.5829		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	1.578	4.248	0.2165	Equal Variances
	Mod Levene Equality of Variance Test	0.394	4.248	0.8464	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7299	3.878	0.0568	Normal Distribution
	D'Agostino Kurtosis Test	0.6599	2.576	0.5093	Normal Distribution
	D'Agostino Skewness Test	0.77	2.576	0.4413	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.028	9.21	0.5980	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1407	0.2056	0.2494	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9342	0.884	0.1213	Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	0.9833	0.9303	1.0000	1.0000	0.9333	1.0000	0.0167	3.39%	1.67%
19		4	0.9500	0.8970	1.0000	0.9333	0.9333	1.0000	0.0167	3.51%	5.00%
38		4	0.8667	0.7801	0.9533	0.8667	0.8000	0.9333	0.0272	6.28%	13.33%
75		4	0.3167	0.2636	0.3697	0.3333	0.2667	0.3333	0.0167	10.53%	68.33%
150		4	0.0167	0.0000	0.0697	0.0000	0.0000	0.0667	0.0167	200.00%	98.33%

# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 2 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-8378-3644      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B      Editor ID: 009-702-627-3

### Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4080	1.3040	1.5130	1.4410	1.3100	1.4410	0.0329	4.68%	2.28%
19		4	1.3430	1.2380	1.4470	1.3100	1.3100	1.4410	0.0329	4.90%	6.85%
38		4	1.2030	1.0710	1.3350	1.1970	1.1070	1.3100	0.0415	6.90%	16.56%
75		4	0.5973	0.5393	0.6552	0.6155	0.5426	0.6155	0.0182	6.10%	58.56%
150		4	0.1624	0.0576	0.2672	0.1295	0.1295	0.2612	0.0329	40.55%	88.73%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

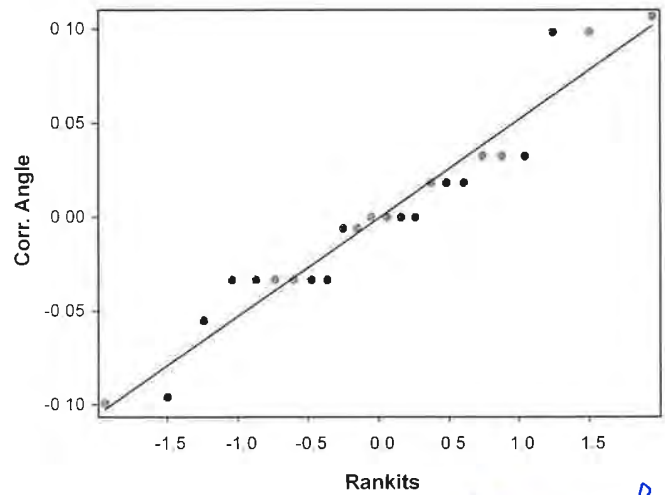
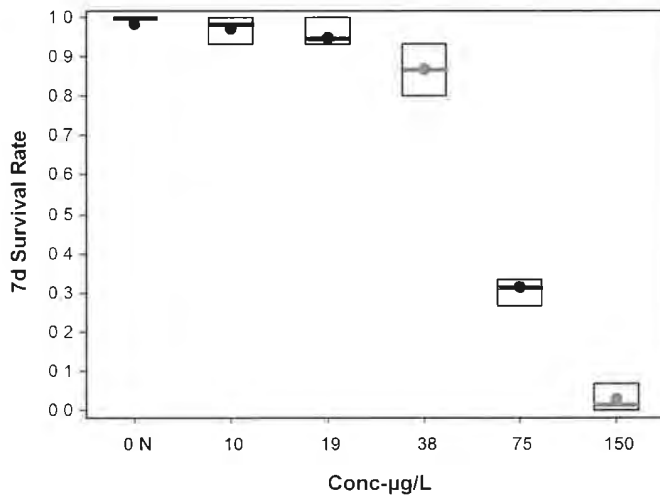
### Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.3100	1.4410	1.4410	1.4410
19		1.3100	1.3100	1.4410	1.3100
38		1.1070	1.1970	1.3100	1.1970
75		0.5426	0.6155	0.6155	0.6155
150		0.2612	0.1295	0.1295	0.1295

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

### Graphics



# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 3 of 3)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-8523-0494	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 22 Feb-24 16:09	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 22 Feb-24 16:08	MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD	Editor ID: 009-702-627-3
Batch ID: 12-1869-3585	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 02 Feb-24 14:20	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 09 Feb-24 14:00	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 10-4352-0612	Code: FML020224	Project: REF TOX
Sample Date: 02 Feb-24 14:20	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	19	38	26.87	---	0.04624	13.34%

### Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	0.3557	2.407	0.04624	CDF	0.7081	Non-Significant Effect
		19	6	1.275	2.407	0.04624	CDF	0.3074	Non-Significant Effect
		38*	6	4.295	2.407	0.04624	CDF	0.0010	Significant Effect
		75*	6	13.43	2.407	0.04624	CDF	2.7E-05	Significant Effect
		150*	6	17.39	2.407	0.04624	CDF	2.7E-05	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3465	0.25	<<	Yes	Passes Criteria
PMSD	0.1334	0.12	0.3	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.410159	0.0820318	5	111.2	<1.0E-05	Significant Effect
Error	0.0132841	0.0007380	18			
Total	0.423443		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	11.49	15.09	0.0425	Equal Variances
	Levene Equality of Variance Test	1.456	4.248	0.2526	Equal Variances
	Mod Levene Equality of Variance Test	0.9075	4.248	0.4979	Equal Variances
Distribution	Anderson-Darling A2 Test	0.6354	3.878	0.0982	Normal Distribution
	D'Agostino Kurtosis Test	1.139	2.576	0.2546	Normal Distribution
	D'Agostino Skewness Test	0.5625	2.576	0.5738	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	1.614	9.21	0.4461	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1458	0.2056	0.2047	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9467	0.884	0.2299	Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3465	0.3357	0.3573	0.345	0.34	0.356	0.003403	1.96%	0.00%
10		4	0.3397	0.3278	0.3515	0.3417	0.3293	0.346	0.003717	2.19%	1.97%
19		4	0.322	0.2853	0.3587	0.3217	0.298	0.3467	0.01153	7.16%	7.07%
38		4	0.264	0.2015	0.3265	0.272	0.2093	0.3027	0.01965	14.89%	23.81%
75		4	0.0885	0.02436	0.1526	0.08967	0.038	0.1367	0.02016	45.55%	74.46%
150		4	0.0125	-0.02728	0.05228	0	0	0.05	0.0125	200.00%	96.39%

Fathead Minnow 7-d Larval Survival and Growth Test

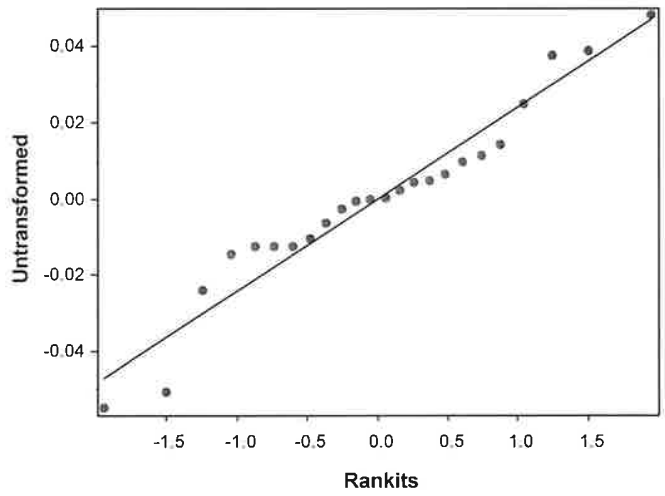
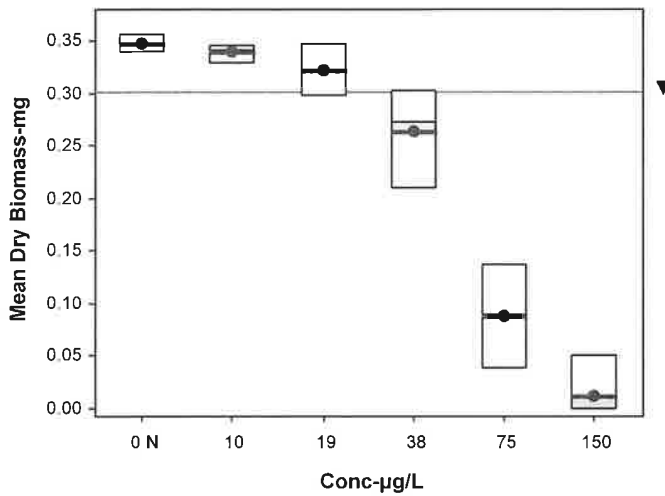
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-8523-0494      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 22 Feb-24 16:09      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 22 Feb-24 16:08      MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

Graphics



# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 1 of 4)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 09-6073-8693	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:09	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:08	<b>MD5 Hash:</b> 8A5A24FE371BD34EBBA55AE0620ED60B	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	39.12	32.26	42.55
EC20	42.48	39.01	45.76
EC25	45.85	42.54	48.96
EC40	55.94	53.14	58.58
EC50	62.67	59.76	64.99

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	0.9833	1.0000	0.9333	1.0000	3.39%	1.67%	59/60	0.9833	1.67%
19		4	0.9500	0.9333	0.9333	1.0000	3.51%	5.00%	57/60	0.9500	5.00%
38		4	0.8667	0.8667	0.8000	0.9333	6.28%	13.33%	52/60	0.8667	13.33%
75		4	0.3167	0.3333	0.2667	0.3333	10.53%	68.33%	19/60	0.3167	68.33%
150		4	0.0167	0.0000	0.0000	0.0667	200.00%	98.33%	1/60	0.0167	98.33%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		0.9333	1.0000	1.0000	1.0000
19		0.9333	0.9333	1.0000	0.9333
38		0.8000	0.8667	0.9333	0.8667
75		0.2667	0.3333	0.3333	0.3333
150		0.0667	0.0000	0.0000	0.0000

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		14/15	15/15	15/15	15/15
19		14/15	14/15	15/15	14/15
38		12/15	13/15	14/15	13/15
75		4/15	5/15	5/15	5/15
150		1/15	0/15	0/15	0/15

# CETIS Analytical Report

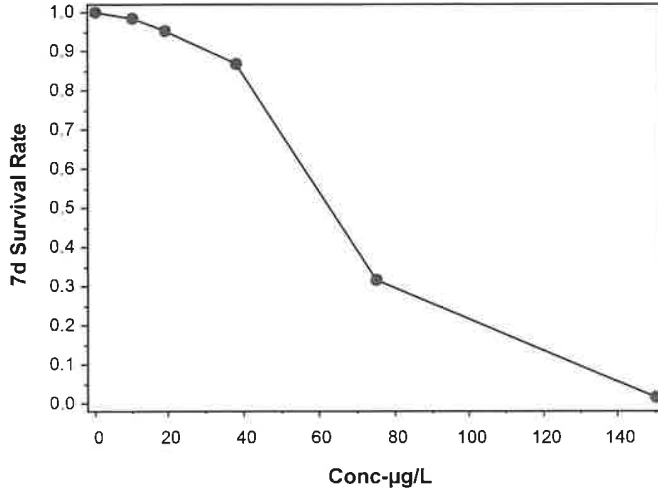
Report Date: 28 Feb-24 11:19 (p 2 of 4)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-6073-8693	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 22 Feb-24 16:09	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 22 Feb-24 16:08	MD5 Hash: 8A5A24FE371BD34EBBA55AE0620ED60B	Editor ID: 009-702-627-3

### Graphics





# CETIS Analytical Report

Report Date: 28 Feb-24 11:19 (p 3 of 4)  
 Test Code/ID: FML020224 / 05-5157-4005

**Fathead Minnow 7-d Larval Survival and Growth Test** **Aquatic Bioassay & Consulting Labs, Inc.**

<b>Analysis ID:</b> 07-7973-9309	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv2.1.4
<b>Analyzed:</b> 22 Feb-24 16:09	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 22 Feb-24 16:08	<b>MD5 Hash:</b> B4A8AFD716D4543A3E3A812D513D64AD	<b>Editor ID:</b> 009-702-627-3
<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	738144	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3465	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	28	17.65	44.15
IC20	33.68	22.96	45.87
IC25	38.87	26.38	47.57
IC40	49.83	38.69	58.03
IC50	57.13	48.62	65.22

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3465	0.345	0.34	0.356	1.96%	0.00%	0.3465	0.00%
10		4	0.3397	0.3417	0.3293	0.346	2.19%	1.97%	0.3397	1.96%
19		4	0.322	0.3217	0.298	0.3467	7.16%	7.07%	0.322	7.07%
38		4	0.264	0.272	0.2093	0.3027	14.89%	23.81%	0.264	23.81%
75		4	0.0885	0.08967	0.038	0.1367	45.55%	74.46%	0.0885	74.46%
150		4	0.0125	0	0	0.05	200.00%	96.39%	0.0125	96.39%

**Mean Dry Biomass-mg Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.356	0.34	0.346	0.344
10		0.3293	0.346	0.3393	0.344
19		0.298	0.3073	0.3467	0.336
38		0.2093	0.2687	0.2753	0.3027
75		0.09067	0.1367	0.08867	0.038
150		0.05	0	0	0

# CETIS Analytical Report

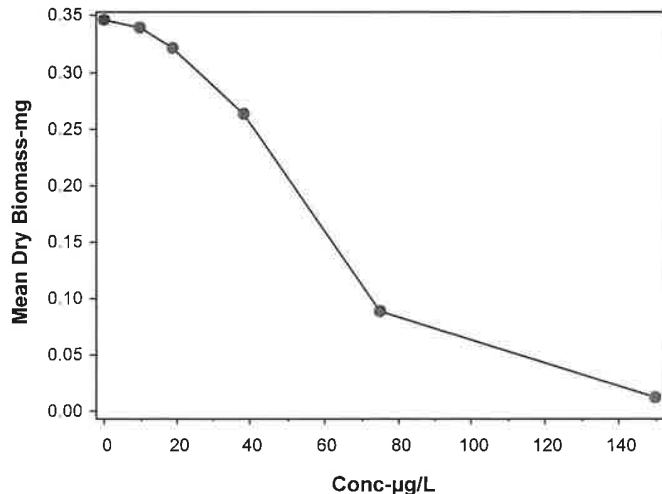
Report Date: 28 Feb-24 11:19 (p 4 of 4)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-7973-9309	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 22 Feb-24 16:09	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 22 Feb-24 16:08	MD5 Hash: B4A8AFD716D4543A3E3A812D513D64AD	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 28 Feb-24 11:19 (p 1 of 2)  
 Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

<b>Batch ID:</b> 12-1869-3585	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 02 Feb-24 14:20	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Laboratory Water
<b>Ending Date:</b> 09 Feb-24 14:00	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 7d	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatic Biosystems, CO <b>Age:</b>
<b>Sample ID:</b> 10-4352-0612	<b>Code:</b> FML020224	<b>Project:</b> REF TOX
<b>Sample Date:</b> 02 Feb-24 14:20	<b>Material:</b> Copper chloride	<b>Source:</b> Reference Toxicant
<b>Receipt Date:</b>	<b>CAS (PC):</b>	<b>Station:</b> REF TOX
<b>Sample Age:</b> ---	<b>Client:</b> ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	63	63	63	63	63	0	0	0.00%	0
Overall		16	62.5	62.22	62.78	62	63	0.1291	0.5164	0.83%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	379	375.1	382.9	372	386	0.5825	4.66	1.23%	0
10		8	377	374.2	379.8	372	384	0.4226	3.381	0.90%	0
19		8	378.4	373.2	383.6	374	393	0.7761	6.209	1.64%	0
38		8	379.4	375.6	383.2	376	390	0.5667	4.534	1.20%	0
75		8	381.1	376.2	386.1	377	395	0.7423	5.939	1.56%	0
150		8	385	380.4	389.6	380	395	0.6911	5.529	1.44%	0
Overall		48	380	378.4	381.6	372	395	0.7936	5.499	1.45%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.963	7.854	8.071	7.8	8.2	0.01628	0.1302	1.64%	0
10		8	7.925	7.818	8.032	7.8	8.1	0.01602	0.1282	1.62%	0
19		8	7.913	7.818	8.007	7.8	8.1	0.01408	0.1126	1.42%	0
38		8	7.913	7.808	8.017	7.7	8.1	0.01558	0.1246	1.58%	0
75		8	7.9	7.791	8.009	7.7	8.1	0.01637	0.1309	1.66%	0
150		8	7.913	7.818	8.007	7.8	8.1	0.01408	0.1126	1.42%	0
Overall		48	7.921	7.886	7.955	7.7	8.2	0.01709	0.1184	1.50%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	98.5	97.16	99.84	97	100	0.2004	1.604	1.63%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	99.25	98.54	99.96	97	100	0.3354	1.342	1.35%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.137	8.038	8.237	7.9	8.2	0.01485	0.1188	1.46%	0
10		8	8.088	7.993	8.182	7.9	8.2	0.01408	0.1126	1.39%	0
19		8	8.088	7.993	8.182	7.9	8.2	0.01408	0.1126	1.39%	0
38		8	8.088	8.018	8.157	8	8.2	0.01043	0.08346	1.03%	0
75		8	8.113	8.043	8.182	8	8.2	0.01043	0.08346	1.03%	0
150		8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
Overall		48	8.102	8.074	8.13	7.9	8.2	0.01412	0.09783	1.21%	0 (0%)

# CETIS Measurement Report

Report Date: 28 Feb-24 11:19 (p 2 of 2)  
Test Code/ID: FML020224 / 05-5157-4005

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

Aquatic Bioassay & Consulting Labs, Inc.

### Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

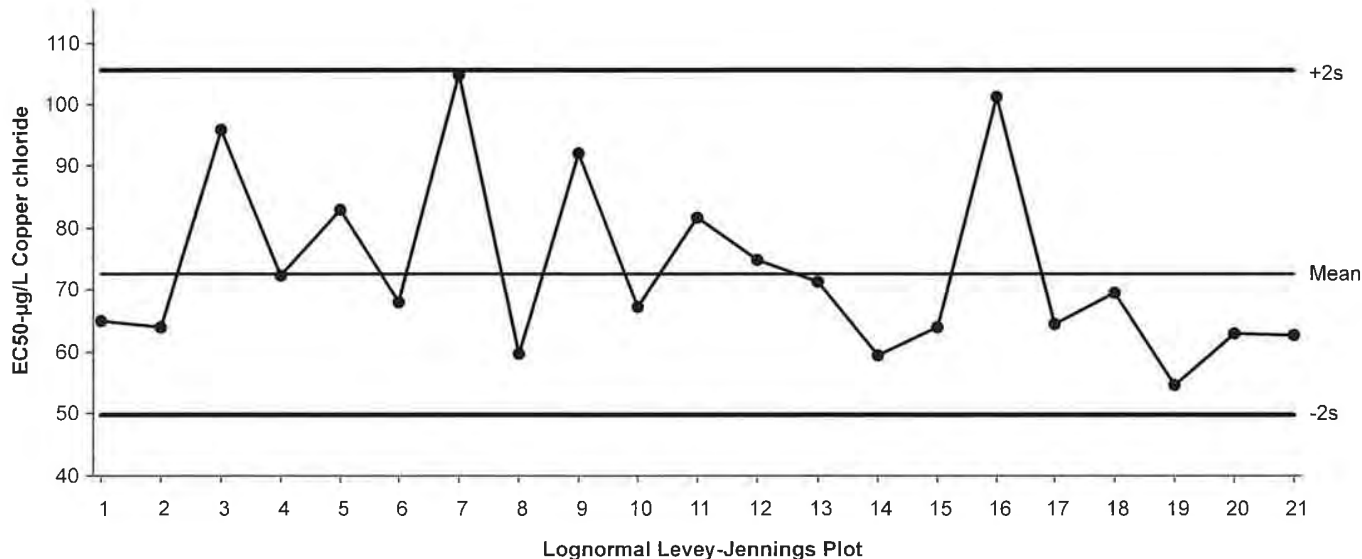
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



Mean: 72.53      Count: 20      -2s Action Limit: 49.9  
 Sigma: NA      CV: 18.90%      +2s Action Limit: 105

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	5	13:15	64.91	-7.621	-0.593			07-7980-5469	03-0584-6653
2			6	14:45	63.9	-8.63	-0.6767			18-8099-7551	11-3195-6885
3			10	14:30	95.83	23.3	1.488			00-9395-0169	09-6776-4624
4			17	14:45	72.45	-0.08171	-0.00602			10-4602-8256	00-4017-6619
5			24	13:40	83.04	10.51	0.7226			01-7885-2189	13-0007-2758
6			25	12:16	67.98	-4.553	-0.3463			11-1982-8946	16-3131-2159
7			31	15:30	104.9	32.39	1.972			07-7265-5981	14-1873-8638
8		Nov	7	15:10	59.58	-12.95	-1.05			19-2888-5334	07-9547-8315
9			14	15:30	92.05	19.52	1.273			18-8754-0700	05-2558-7597
10			17	14:01	67.38	-5.148	-0.3933			17-0726-1937	14-0961-0371
11			28	14:49	81.82	9.288	0.6437			10-1970-7599	00-2724-7341
12		Dec	5	13:45	75	2.47	0.1789			19-1204-9208	03-6141-0747
13			12	13:30	71.3	-1.23	-0.09137			03-7560-9108	05-6885-8439
14			13	12:15	59.42	-13.11	-1.065			14-7892-5887	04-9254-9827
15			21	13:29	64	-8.53	-0.6684			06-6036-2868	13-4891-1637
16			22	14:30	101.4	28.82	1.787			00-5720-1635	14-1952-0593
17	2024	Jan	3	14:00	64.43	-8.101	-0.6327			04-0866-8727	01-4746-8383
18			4	14:05	69.52	-3.011	-0.2265			15-6608-9784	08-1717-2208
19			9	13:20	54.55	-17.98	-1.522			14-8299-7228	00-5651-6529
20			23	14:00	63	-9.53	-0.7525			12-1922-4773	10-8689-4329
21		Feb	2	14:20	62.67	-9.863	-0.7808			05-5157-4005	09-6073-8693

Fathead Minnow 7-d Larval Survival and Growth Test

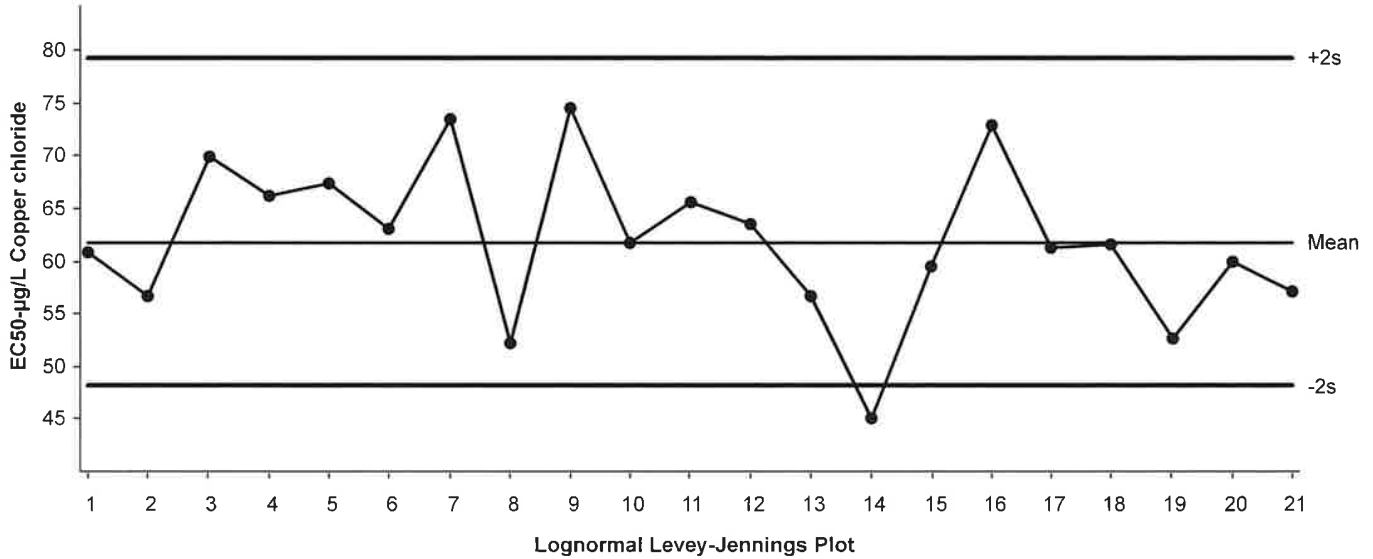
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Pimephales promelas  
 Endpoint: Mean Dry Biomass-mg

Material: Copper chloride  
 Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
 Mean Dry Biomass-mg Endpoint



Mean: 61.81      Count: 20      -2s Action Limit: 48.1  
 Sigma: NA      CV: 12.50%      +2s Action Limit: 79.3

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	5	13:15	60.85	-0.953	-0.1244			07-7980-5469	07-5020-1148
2			6	14:45	56.73	-5.073	-0.6857			18-8099-7551	15-1441-4720
3			10	14:30	69.86	8.052	0.9805			00-9395-0169	18-9888-9667
4			17	14:45	66.23	4.42	0.553			10-4602-8256	13-8119-0525
5			24	13:40	67.38	5.578	0.6918			01-7885-2189	06-8805-4487
6			25	12:16	63.01	1.204	0.1544			11-1982-8946	04-1492-8778
7			31	15:30	73.46	11.65	1.383			07-7265-5981	21-3432-7293
8		Nov	7	15:10	52.21	-9.593	-1.35			19-2888-5334	11-0119-4879
9			14	15:30	74.52	12.72	1.498			18-8754-0700	03-4458-8213
10			17	14:01	61.66	-0.1449	-0.0188			17-0726-1937	06-0317-0204
11			28	14:49	65.63	3.828	0.4811			10-1970-7599	09-5836-2004
12		Dec	5	13:45	63.46	1.652	0.2111			19-1204-9208	02-5721-3294
13			12	13:30	56.61	-5.194	-0.7028			03-7560-9108	19-0990-5343
14			13	12:15	45.01	-16.79	-2.539		(-)	14-7892-5887	19-1033-5713
15			21	13:29	59.44	-2.365	-0.3124			06-6036-2868	01-3251-7777
16			22	14:30	72.95	11.14	1.327			00-5720-1635	06-1309-8628
17	2024	Jan	3	14:00	61.34	-0.469	-0.06098			04-0866-8727	03-7640-5638
18			4	14:05	61.64	-0.1647	-0.02137			15-6608-9784	18-2508-7781
19			9	13:20	52.68	-9.128	-1.279			14-8299-7228	08-4892-6835
20			23	14:00	59.92	-1.886	-0.2482			12-1922-4773	11-2137-3210
21		Feb	2	14:20	57.13	-4.673	-0.6295			05-5157-4005	07-7973-9309



CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Sampling & 1st & 2nd Event of the First Year OUTFALL 009 COMPOSITE						ANALYSIS REQUIRED															
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)						Comments															
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																					
Sampler: Adrien Mobeka																							
	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD															
Outfall 009	Outfall009_20240202_Comp	2/2/2024 /0835	WM	1 L Glass Amber	2	None	175		X														
			WM	500 mL Poly	2	None	120				X												
	Outfall009_20240202_Comp_Extra	2/2/2024 /0835	WM	1 L Glass Amber	2	None	175			H													Hold
			WM	500 mL Poly	2	None	120					H											Hold
Legend: R = Routine, Sm = SRAM																							
Relinquished By: <i>Michelle Dellalah</i> Date/Time: 2/2/24 4pm Company: <i>HEPA</i>						Received By: <i>MKA</i> Date/Time: 2/2/24 4pm						Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____											
Relinquished By: <i>MKA</i> Date/Time: 2/2/24 1900 Company:						Received By: <i>M Patel</i> Date/Time: 2/2/24 1900						Sample Integrity: (Check) Intact: _____ On Ice: _____											
Relinquished By:						Received By:						Store samples for 6 months Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____											





CHAIN OF CUSTODY FORM

Client Name/Address: <b>Haley &amp; Aldrich</b> 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing - SSFL Routine Sampling & 1st & 2nd Event of the First Year <b>OUTFALL 009</b> COMPOSITE				ANALYSIS REQUIRED												
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Comments												
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																
Sampler: Adrien Mobeka																				
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	SRAM list- Cr (VI), Total Recoverable (E218.6)	SRAM list- E6330A/B	SRAM list- Energetic Constituents, Terphenyls (E625/6270C)	SRAM list- PAHs (E625.1SIM)	SRAM list- SVOCs (E625.1SIM / 6270C)	SRAM list- Glycols (E8321B): Diethylene Glycol, Triethylene glycol	SRAM list- Herbicides (8151A)	SRAM list- Pesticides/PCBs (E608)	SRAM list- PCBs (1668C)	SRAM list- Methyl Mercury (1630 (Mod))			
Outfall 009	Outfall009_20240202_Comp	2/2/2024 / 0835	WM	250mL Poly	1	None	No	X												
			WM	1 L Glass Amber	2	None	No		X											
			WM	1 L Glass Amber	2	None	No			X										
			WM	1 L Glass Amber	2	None	No				X									
			WM	1 L Glass Amber	2	None	No					X								
			WM	1 L Glass Amber	2	None	No						X							
			WM	1 L Glass Amber	2	None	No							X						
			WM	1 L Glass Amber	4	None	No								X					
			WM	1 L Glass Amber	4	None	No										X			
			WM	1 L Glass Amber	2	None	No												X	
Put on HOLD																				

Legend: R = Routine, Sm = SRAM

Relinquished By: <i>Michelle Dallalah</i> Date/Time: <i>2/2/24 4pm</i> Company: <i>H&amp;A</i>	Received By: <i>[Signature]</i> Date/Time: <i>2/2/24 4pm</i>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: <i>2/2/24 1900</i> Company: _____	Received By: <i>[Signature]</i> Date/Time: <i>2/2/24 1900</i>	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months.
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing - SSFL Routine Sampling & 1st & 2nd Event of the First Year OUTFALL 009 COMPOSITE						ANALYSIS REQUIRED																
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)						SRAM list - Total Dissolved Metals (E200.8 & E200.7)	SRAM list - Total Recoverable Metals (E200.8 & E200.7)	SRAM list - 1,4-Dioxane (E624 (SW8280M_SIM))	SRAM list - TPH: diesel/jet fuel, DRO C13-C28 (SW8015B)	SRAM list - TPH: Kerosene Range Organics, KRO (SW8015B)	SRAM list - TPH: Oil Range Organics, ORO (SW8015B)	SRAM list - VOCs (E624.1 / 8280B)	SRAM list - Formaldehyde (8351A)	SRAM list - Cr (VI), Total Dissolved (E218.6)	SRAM List - MMH, Hydrazine, 1,1-Dimethylhydrazine (SW6315MDV-WC-0077) Weck Labs in Hacienda Heights, CA	Comments
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement 3022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.								Field Manager: Mark Dominick 878.234.5033, 818.599.0702 (cell)																
Sampler: Adrien Mobeka																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	MS/MSD	H																
2 Outfall 009	Outfall009_20240202_Comp_F	2/2/2024 10835	WM	1 L Poly	1	None	Yes											Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.						
			WM	250mL Poly	1	None	No								X				Put on HOLD					
	Outfall009_20240202_Comp	2/2/2024 10835	WM	500 mL Poly	1	HNO <sub>3</sub>	Yes		H															
			WM	40 mL VOA	3	HCl	No			X														
			WM	1 L Glass Amber	2	None	No				X													
			WM	250mL Glass Amber	1	None	No					X												
			WM	250mL Glass Amber	1	None	No						X											
			WM	40 mL VOA	3	HCl	No							X										
			WM	125mL Glass Amber	1	None	No								X									
WM	1 L Glass Amber	1	None	No										X			Deliver to Weck Labs in Hacienda Heights, CA							

Legend: R = Routine, Sm = SRAM

Relinquished By: <i>Michelle D. Dolorah</i>	Date/Time: 2/2/24 4pm	Company: H&A	Received By: <i>MKT</i>	Date/Time: 2/2/24 4pm	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>MKT</i>	Date/Time: 2/2/24 1900	Company:	Received By: <i>V. Patel</i>	Date/Time: 2/2/24 1900	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By:	Date/Time:	Company:	Received By:	Date/Time:	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler	Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-345931 1											
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1											
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note): State California; State Program California			Job #: 570-170759-9											
Address: 13715 Rider Trail North,		Due Date Requested: 2/14/2024		<b>Analysis Requested</b>				<b>Preservation Codes:</b>										
City: Earth City		TAT Requested (days):																
State, Zip: MO, 63045		PO #:		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cas/Fill_Geo_0 K-40 and Caesium-137	Total Number of Containers	A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O4 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)				
Project Name: Boeing NPDES SSFL Outfall 009 - Comp		Project #: 57013187																
Site:		SSOW#:																
Sample Identification Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/voil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905_Sr90/PrecSep_7 Strontium-90	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	A01R_U/ExtChrom_Actin Total Uranium	901.1_Cas/Fill_Geo_0 K-40 and Caesium-137	Total Number of Containers	Special Instructions/Note:		
Outfall009_20240202_Comp (570-170759-1)		2/2/24	08:35 Pacific	Water	Water	X	X	X	X	X	X	X	X	2	Boeing SSFL, DO NOT FILTER; use prep date from preservation. Ok to Preserve			
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.																		
<b>Possible Hazard Identification</b> Unconfirmed										<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III IV Other (specify)					Primary Deliverable Rank: 2					Special Instructions/QC Requirements:								
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:									
Relinquished by:			Date/Time: 2/6/24 1257			Company:			Received by:			Date/Time:			Company:			
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:			
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:														

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3/1/2024





ICOC No:  
570-345940

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
2	Amber Glass 1 liter - unpreserved	None
1	Mercury-LL Method 1631 Sample Kit	None







**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler	Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-345987 1																																																		
Client Contact Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com	State of Origin: California	Page: Page 1 of 1																																																		
Company: Eurofins Environment Testing North Centr			Accreditations Required (See note): State California; State Program California		Job #: 570-170759-6																																																		
Address: 180 S. Van Buren Avenue, City: Barberton State, Zip: OH, 44203 Phone: 330-497-9396(Tel) 330-497-0772(Fax) Email:		Due Date Requested: 2/15/2024 TAT Requested (days):	<table border="1"> <thead> <tr> <th colspan="12">Analysis Requested</th> <th rowspan="2">Total Number of Containers</th> </tr> <tr> <th colspan="12"></th> </tr> </thead> <tbody> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td colspan="10"></td> <td rowspan="2">2</td> </tr> <tr> <td>8270E0610C 8270E</td> <td>2-Butoxyethanol</td> <td colspan="10"></td> </tr> </tbody> </table>			Analysis Requested												Total Number of Containers													Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)											2	8270E0610C 8270E	2-Butoxyethanol										
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8270E0610C 8270E	2-Butoxyethanol																																																						
Project Name: Boeing NPDES SSFL Outfall 009 Comp Site:		Project #: 57013187 SSOW#:	<b>Preservation Codes:</b> A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)  Other																																																				
<b>Sample Identification Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	<b>Special Instructions/Note:</b>																																																	
Outfall009_20240202_Comp (570-170759-1)		2/2/24	08:35 Pacific		Water																																																		
<b>Possible Hazard Identification</b>		<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																																																					
Unconfirmed		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																																					
Deliverable Requested: I II III, IV Other (specify)		Primary Deliverable Rank: 2			Special Instructions/QC Requirements:																																																		
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:																																																			
Relinquished by: <i>[Signature]</i>		Date/Time: 02/06/24 13:44	Company: <i>[Signature]</i>	Received by: _____ Date/Time: _____ Company: _____																																																			
Relinquished by:		Date/Time:	Company:	Received by: _____ Date/Time: _____ Company: _____																																																			
Relinquished by:		Date/Time:	Company:	Received by: _____ Date/Time: _____ Company: _____																																																			
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:																																																					

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3/1/2024





**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler	Lab PM: Patel, Virendra		Carrier Tracking No(s):	COC No: 570-345957 1																																													
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California	Page: Page 1 of 1																																													
Company: Eurofins Lancaster Laboratories Environm			Accreditations Required (See note): State California; State Program - California			Job #: 570-170759-4																																													
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601		Due Date Requested: 2/16/2024	<table border="1"> <thead> <tr> <th colspan="10">Analysis Requested</th> </tr> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>8330B8330_P_SPE</th> <th>8016C_DAL_GL718016_DAL_Prep (MOD) Custom Analyte List</th> <th>625.1_PREC/626_Prep_LVI 625.1 Diphenyl Ether/Perylene (TIC)</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Analysis Requested										Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8330B8330_P_SPE	8016C_DAL_GL718016_DAL_Prep (MOD) Custom Analyte List	625.1_PREC/626_Prep_LVI 625.1 Diphenyl Ether/Perylene (TIC)							X	X	X																				Preservation Codes: A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)	
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X	X	X																																																	
Project Name: Boeing NPDES SSFL Outfall 009 Comp		Project #: 57013187	Project Name: Boeing NPDES SSFL Outfall 009 Comp		Project #: 57013187		Project Name: Boeing NPDES SSFL Outfall 009 Comp																																												
Site:		SSOW#:	Site:		SSOW#:		Site:																																												
Sample Identification Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Special Instructions/Note:																																													
Outfall009_20240202_Comp (570-170759-1)		2/2/24	08:35 Pacific	Water		0																																													

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

<b>Possible Hazard Identification</b>		<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>	
Unconfirmed		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For            Months	
Deliverable Requested: I, II, III IV Other (specify)		Special Instructions/QC Requirements:	

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by: <i>[Signature]</i>		Date/Time: 02/01/24 13:20	Company: <i>[Signature]</i>	Received by:	Date/Time:
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:
Custody Seals Intact:	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:			
Δ Yes Δ No					

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3/1/2024



**FedEx**



570-170759 Waybill

RT 19  
FZ 197

A  
730  
02.07

ORIGIN ID: DTHA  
ARASH AHMADIAN  
EUROFINS CALSCIENCE  
2841 DOW AVE  
SUITE 100  
TUSTIN, CA 927807211  
UNITED STATES US

SHIP DATE: 06FEB24  
ACTWT: 50.00 LB MAN  
CAD: 0343492/CAFE3755

BILL SENDER

TO SHIPPING/RECEIVING  
EUROFINS ENVIRONMENT TESTING NORTHE  
301 ALPHA DRIVE  
RIDC PARK  
PITTSBURGH PA 15238

(412) 983-7068  
PO: YES

REF: 8570-94799

Uncorrected temp  
Thermometer ID 3.6 °C

CF-0.7 Initials PB

PT-WI-SR-001 effective 11/8/18



**FedEx**  
Express



423302305120114

TRK# 7286 4125 3730  
0201

WED - 07 FEB 10:30A  
PRIORITY OVERNIGHT

**XN AGCA**

15238  
PA-US PIT



Part # 159493-434 MTW EXP 10/24

SBS/EC/RED7

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-170759-7

**Login Number: 170759**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/16/2024 1:27:48 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 011 - Comp

## JOB NUMBER

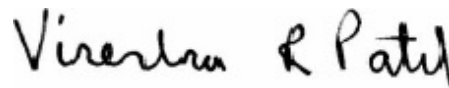
570-171239-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



Generated  
3/16/2024 1:27:48 PM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-171239-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-171239-4

**Job ID: 570-171239-4**

**Eurofins Calscience**

## Job Narrative 570-171239-4

### Receipt

The samples were received on 2/6/2024 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.2° C, 2.3° C and 2.8° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.





# Detection Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-171239-4

**Client Sample ID: Outfall011\_20240206\_Comp**

**Lab Sample ID: 570-171239-1**

No Detections.

1

2

3

4

5

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7

8

9

10

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-171239-4

---

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

---

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-171239-4

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-171239-1	Outfall011_20240206_Comp	Water	02/06/24 07:50	02/06/24 16:30





**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 1, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 011\_20240206\_Comp\_F  
 DATE RECEIVED: 6 Feb - 2024  
 ABC LAB. NO.: CSE0224.049

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

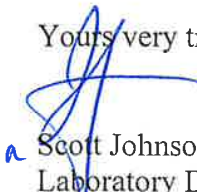
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS      % EFFECT = 0.00 %

GROWTH = PASS      % EFFECT = 1.67 %

Yours very truly,

  
 Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 12:12 (p 1 of 1)  
 Test Code/ID: CSE0224.049fml / 21-4640-2756

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-7190-6840	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 13:34	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:17	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:

Sample ID: 12-7726-5909	Code: CSE0224.049fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 07:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 011
Sample Age: 54h (2.3 °C)	Client: Calscience Environmental Laboratories, Inc	

## Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
02-1217-7753	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
05-1781-3935	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
02-1217-7753	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
05-1781-3935	Mean Dry Biomass-mg	Control Resp	0.359	0.25	<<	Yes	Passes Criteria

## 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

## Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.359	0.3505	0.3675	0.342	0.372	0.003583	0.01014	2.82%	0.00%
100		8	0.353	0.345	0.361	0.338	0.368	0.003364	0.009515	2.70%	1.67%

## 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

## Mean Dry Biomass-mg Detail

MD5: D10257A37E8868D25DE8CA0FBA388399

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3613	0.3607	0.372	0.372	0.342	0.3507	0.358	0.3553
100		0.368	0.354	0.3493	0.3613	0.3507	0.3447	0.358	0.338

## 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 01 Mar-24 12:12 (p 1 of 4)  
 Test Code/ID: CSE0224.049fml / 21-4640-2756

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-1217-7753	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:11	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:11	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3
Batch ID: 20-7190-6840	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 13:34	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:17	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 12-7726-5909	Code: CSE0224.049fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 07:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 011
Sample Age: 54h (2.3 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

**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

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

**Angular (Corrected) Transformed Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Angular (Corrected) Transformed Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

Fathead Minnow 7-d Larval Survival and Growth Test

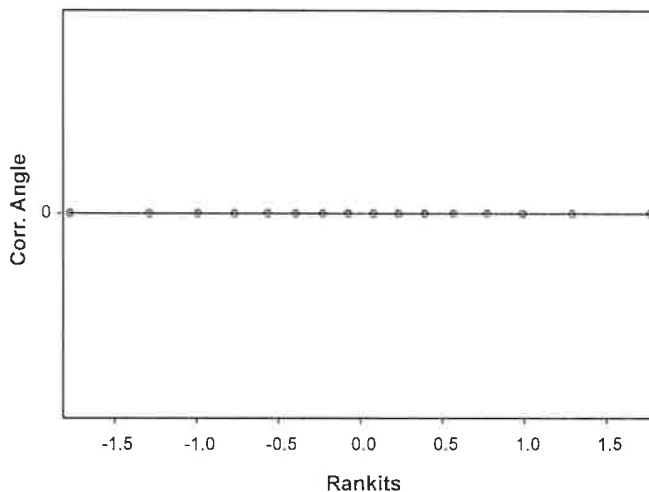
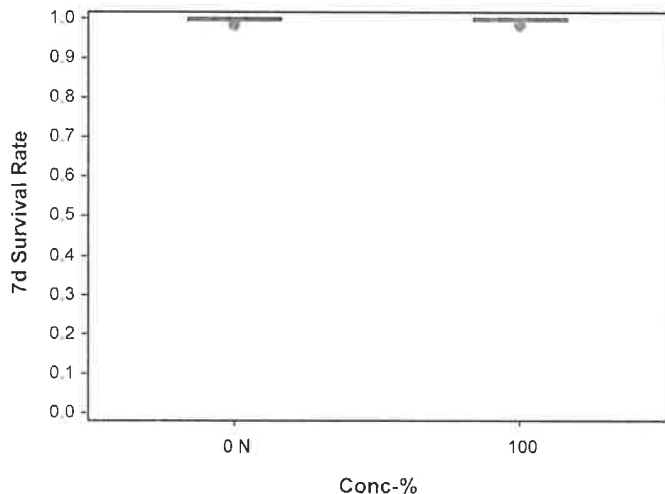
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-1217-7753      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:11      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:11      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

Graphics



# CETIS Analytical Report

Report Date: 01 Mar-24 12:12 (p 3 of 4)  
 Test Code/ID: CSE0224.049fml / 21-4640-2756

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1781-3935	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:11	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:11	MD5 Hash: D10257A37E8868D25DE8CA0FBA388399	Editor ID: 009-702-627-3

Batch ID: 20-7190-6840	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 13:34	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:17	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:

Sample ID: 12-7726-5909	Code: CSE0224.049fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 07:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 011
Sample Age: 54h (2.3 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	13	19.45	0.6938	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.359	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.000144	0.000144	1	1.49	0.2424	Non-Significant Effect
Error	0.0013529	9.664E-05	14			
Total	0.0014969		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.003291	8.862	0.9551	Equal Variances
	Mod Levene Equality of Variance Test	0.00326	8.862	0.9553	Equal Variances
	Variance Ratio F Test	1.135	8.885	0.8719	Equal Variances
Distribution	Anderson-Darling A2 Test	0.233	3.878	0.8274	Normal Distribution
	D'Agostino Skewness Test	0.178	2.576	0.8587	Normal Distribution
	Kolmogorov-Smirnov D Test	0.102	0.2471	1.0000	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9652	0.8408	0.7554	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.359	0.3505	0.3675	0.3593	0.342	0.372	0.003583	2.82%	0.00%
100		8	0.353	0.345	0.361	0.3523	0.338	0.368	0.003364	2.70%	1.67%

**Mean Dry Biomass-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3613	0.3607	0.372	0.372	0.342	0.3507	0.358	0.3553
100		0.368	0.354	0.3493	0.3613	0.3507	0.3447	0.358	0.338

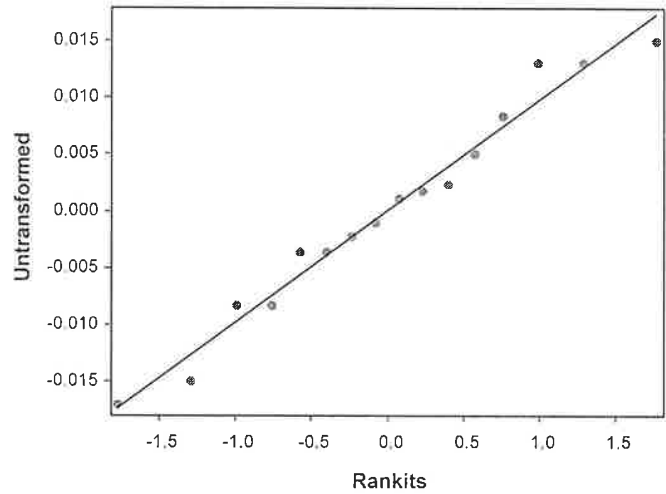
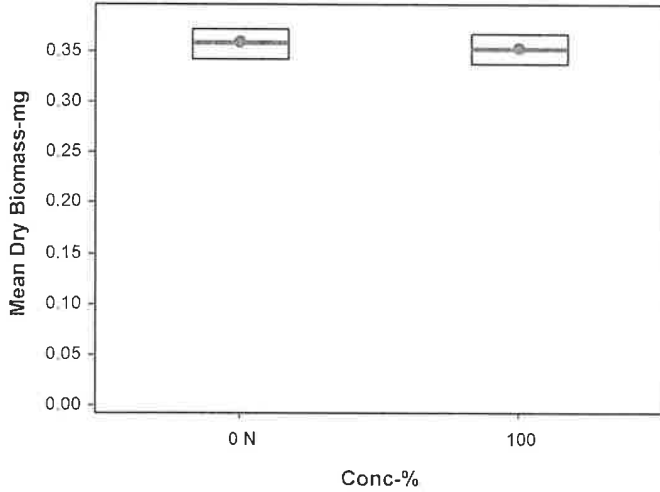


Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1781-3935      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 01 Mar-24 12:11      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 01 Mar-24 12:11      MD5 Hash: D10257A37E8868D25DE8CA0FBA388399      Editor ID: 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 01 Mar-24 12:12 (p 1 of 1)  
 Test Code/ID: CSE0224.049fml / 21-4640-2756

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-7190-6840	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 08 Feb-24 13:34	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 15 Feb-24 14:17	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 12-7726-5909	Code: CSE0224.049fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 06 Feb-24 07:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 06 Feb-24 13:46	CAS (PC):	Station: Outfall 011
Sample Age: 54h (2.3 °C)	Client: Calscience Environmental Laboratories, Inc	

### Alkalinity (CaCO3)-mg/L

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	24	24	24	24	24	0	0	0.00%	0
Overall		16	43	32.54	53.46	24	62	4.906	19.62	45.64%	0 (0%)

### Conductivity-µmhos

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	382.2	378.4	386.1	376	388	0.5738	4.59	1.20%	0
100		8	84.12	82.26	85.99	80	87	0.279	2.232	2.65%	0
Overall		16	233.2	151.1	315.2	80	388	38.5	154	66.04%	0 (0%)

### Dissolved Oxygen-mg/L

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.888	7.671	8.104	7.3	8.2	0.03235	0.2588	3.28%	0
100		8	7.888	7.758	8.017	7.6	8.1	0.01941	0.1553	1.97%	0
Overall		16	7.888	7.778	7.997	7.3	8.2	0.05154	0.2062	2.61%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	25	25	25	25	25	0	0	0.00%	0
Overall		16	62.5	41.86	83.14	25	100	9.682	38.73	61.97%	0 (0%)

### pH-Units

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.125	8.038	8.212	7.9	8.2	0.01294	0.1035	1.27%	0
100		8	7.75	7.673	7.827	7.6	7.9	0.01157	0.09258	1.19%	0
Overall		16	7.938	7.823	8.052	7.6	8.2	0.05391	0.2156	2.72%	0 (0%)

### Temperature-°C

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24	24	24	24	24	0	0	0.00%	0
Overall		16	24	24	24	24	24	0	0	0.00%	0 (0%)

CHAIN OF CUSTODY FORM

ADDED CF = +0.3°C  
 Temp. deg. C = 23  
 Chlorine (mg/L) = 1.2  
 = 2.3  
 = SAMPLE RECEIVING

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018]		ANALYSIS REQUIRED Total Dissolved Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn Cr (VI), Total Dissolved (E218.6) Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA 1,4-Dioxane (E624 (SM6260M_SIM)) Total Organic Carbon (415.2 (SM 5310B)) Monomethyl hydrazine (SM6315M/DV-WC-0077) Weck Labs in Hacienda Heights, CA LL Mercury (E1631E) - Total Dissolved Cyanide (SM4500-CN-E / E335)									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Comments = 1.0									
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement #2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)											
Sampler: Adrien Mobeka													

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals	Cr (VI), Total Dissolved	Gross Alpha, Gross Beta	Chronic Toxicity - Fathead Minnow	1,4-Dioxane	Total Organic Carbon	Monomethyl hydrazine	LL Mercury	Cyanide	Comments			
Outfall 011	Outfall011_20240206_Comp_F	2/6/2024 / 10750	WM	1 L Poly	1	None		Yes	X									Filter and preserve w/in 24hrs of receipt at lab.			
			WM	250 mL Poly	1	None				X									Filter w/in 24hrs of receipt at lab.		
			WM	250mL Clear Glass, double bagged	1	None											X			Filter and preserve w/in 24hrs of receipt at lab. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
Outfall 011	Outfall011_20240206_Comp	2/6/2024 / 10750	WM	250 mL Poly	1	NaOH											X				
			WM	2.5 Gal Cube	1	None						X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	
			WM	1 L Glass Amber	1	None															
			WM	1 Gal Cube	5	None							X								Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA
			WM	40 mL VOA	3	HCl									X						
			WM	1 L Glass Amber	1	HCl										X					
			WM	1 L Glass Amber	1	None											X				

Hand-delivered to ABC Labs with this copy of the COC  
 Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>[Signature]</i> Date/Time: 2-6-24 / 1345 Company: HIA	Received By: <i>[Signature]</i> Date/Time: 2-6-24 1346	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: Date/Time: Company:	Received By: Date/Time:	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>
Relinquished By: Date/Time: Company:	Received By: Date/Time:	



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.



### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 6 February 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 38.00 ug/l

EC25 = 57.82 ug/l

EC50 = 80.77 ug/l

ENDPOINT: GROWTH

NOEC = 38.00 ug/l

IC25 = 54.21 ug/l

IC50 = 70.57 ug/l

Yours very truly,

Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-3188-9121	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	9.34%	1
12-8541-5621	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test	✓ 38	75	53.39	14.1%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
10-6161-5529	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	49.89	46.53	55.08	1
			EC20	53.86	49.38	60.78	
			EC25	57.82	52.22	66.47	
			EC40	69.71	60.76	85.23	
			EC50	80.77	64.57	102.5	
00-3964-3519	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	47.66	43.59	52.13	1
			✓ IC20	50.94	46.01	56.81	
			✓ IC25	54.21	48.39	61.7	
			✓ IC40	64.03	55.49	76.19	
			✓ IC50	70.57	60.02	93.7	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
10-6161-5529	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-3188-9121	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
00-3964-3519	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	PMSD	0.1406	0.12	0.3	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.4000	0.6667	0.0609	0.1217	22.82%	46.67%
150		4	0.1000	-0.1525	0.3525	0.0000	0.3333	0.0794	0.1587	158.70%	90.00%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.342	0.364	0.004842	0.009684	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3413	0.366	0.005384	0.01077	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3413	0.3547	0.002944	0.005888	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.3407	0.3607	0.004131	0.008262	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.07933	0.216	0.02887	0.05773	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0	0.07867	0.01856	0.03713	146.55%	92.77%

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 28ECB5E5C36E53EA44D50952ED449010

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: F76AD684C03403B4619D68D6F5A6FE41

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 1 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.09338	9.34%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.79478	0.958956	5	84.71	<1.0E-05	Significant Effect
Error	0.203761	0.01132	18			
Total	4.99854		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	7.038	4.248	0.0008	Unequal Variances
	Mod Levene Equality of Variance Test	3.38	4.248	0.0251	Equal Variances
Distribution	Anderson-Darling A2 Test	3.628	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.308	2.576	0.0009	Non-Normal Distribution
	D'Agostino Skewness Test	3.098	2.576	0.0019	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	20.54	9.21	3.5E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7022	0.884	1.1E-05	Non-Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.5333	0.4000	0.6667	0.0609	22.82%	46.67%
150		4	0.1000	0.0000	0.3525	0.0222	0.0000	0.3333	0.0794	158.70%	90.00%

**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 2 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010      Editor ID: 009-702-627-3

**Angular (Corrected) Transformed Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.8195	0.6234	1.0160	0.8191	0.6847	0.9553	0.0616	15.04%	43.14%
150		4	0.2839	-0.0815	0.6493	0.1734	0.1295	0.6155	0.1148	80.88%	80.30%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

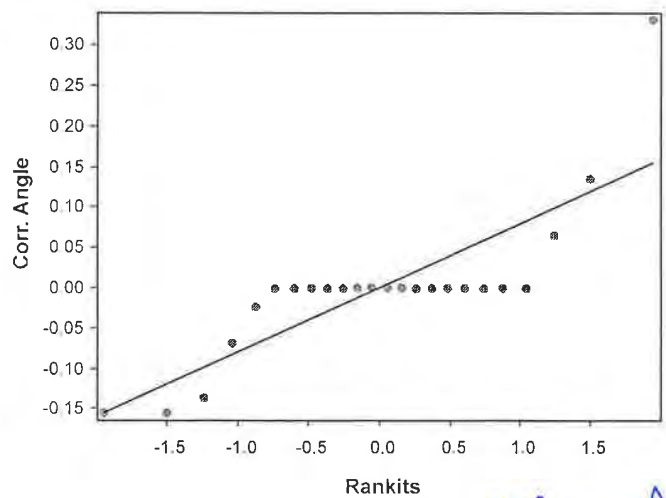
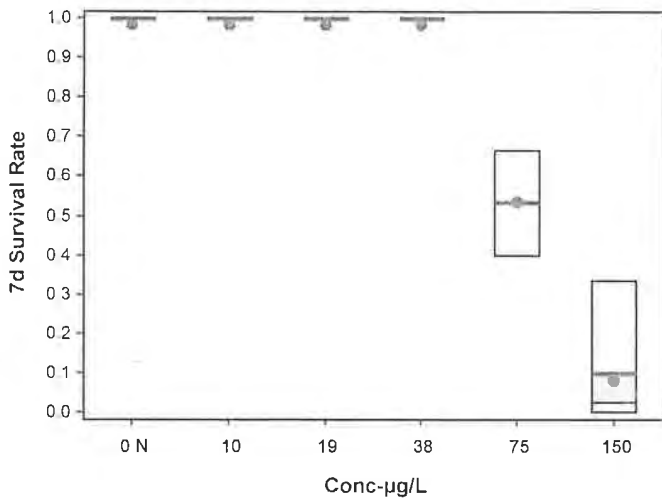
**Angular (Corrected) Transformed Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.8861	0.7520	0.6847
150		0.6155	0.2612	0.1295	0.1295

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

**Graphics**





# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 3 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

Batch ID: 14-9989-8515      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 06 Feb-24 13:40      Protocol: EPA/821/R-02-013 (2002)      Diluent: Laboratory Water  
 Ending Date: 13 Feb-24 14:12      Species: Pimephales promelas      Brine: Not Applicable  
 Test Length: 7d 1h      Taxon: Actinopterygii      Source: Aquatic Biosystems, CO      Age:

Sample ID: 06-0345-7989      Code: FML020624      Project: REF TOX  
 Sample Date: 06 Feb-24 13:40      Material: Copper chloride      Source: Reference Toxicant  
 Receipt Date:      CAS (PC):      Station: REF TOX  
 Sample Age: ---      Client: ABC Labs

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.04925	14.06%

### Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	0	CDF	0.8333	Non-Significant Effect
		19	6	18	10	0	CDF	0.8333	Non-Significant Effect
		38	6	17.5	10	1	CDF	0.7867	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
PMSD	0.1406	0.12	0.3	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.396777	0.0793554	5	94.77	<1.0E-05	Significant Effect
Error	0.0150717	0.0008373	18			
Total	0.411849		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	21.19	15.09	0.0007	Unequal Variances
	Levene Equality of Variance Test	4.158	4.248	0.0110	Equal Variances
	Mod Levene Equality of Variance Test	3.182	4.248	0.0312	Equal Variances
Distribution	Anderson-Darling A2 Test	1.52	3.878	0.0001	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.511	2.576	0.0120	Normal Distribution
	D'Agostino Skewness Test	0.1499	2.576	0.8808	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	6.326	9.21	0.0423	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1935	0.2056	0.0206	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8702	0.884	0.0053	Non-Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.3477	0.342	0.364	0.004842	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3473	0.3413	0.366	0.005384	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3507	0.3413	0.3547	0.002944	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.349	0.3407	0.3607	0.004131	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.1553	0.07933	0.216	0.02887	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0.007556	0	0.07867	0.01856	146.55%	92.77%

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 4 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

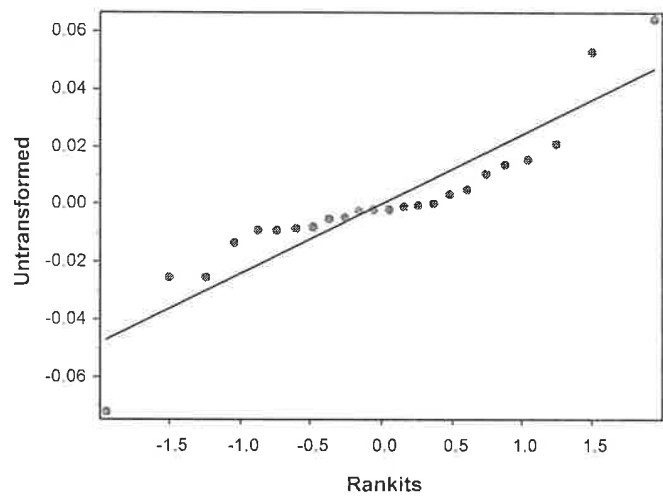
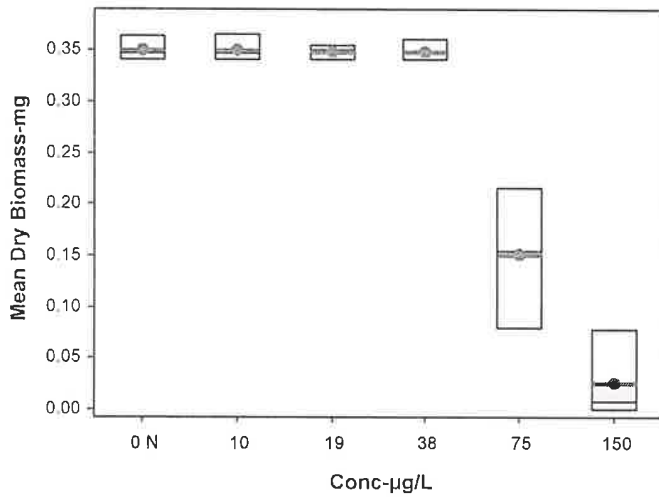
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### Graphics



**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 1 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	49.89	46.53	55.08
EC20	53.86	49.38	60.78
EC25	57.82	52.22	66.47
EC40	69.71	60.76	85.23
EC50	80.77	64.57	102.5

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.5333	0.5333	0.4000	0.6667	22.82%	46.67%	32/60	0.5333	46.67%
150		4	0.1000	0.0222	0.0000	0.3333	158.70%	90.00%	6/60	0.1000	90.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

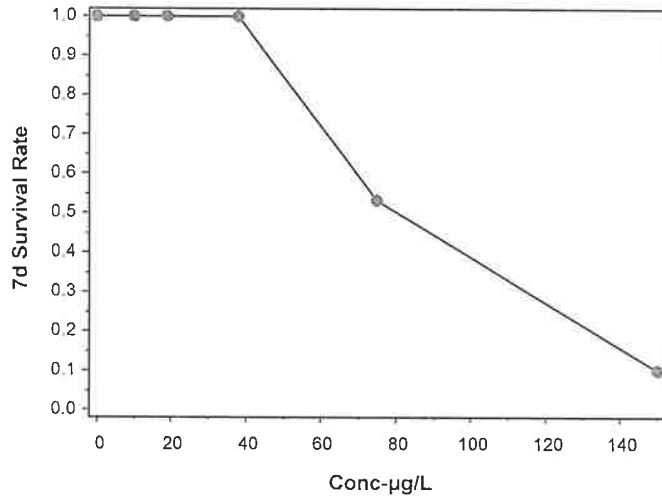
Report Date: 01 Mar-24 13:17 (p 2 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

### Graphics



# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 3 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	419376	280	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria

### Point Estimates

Level	µg/L	95% LCL	95% UCL
IC15	47.66	43.59	52.13
IC20	50.94	46.01	56.81
IC25	54.21	48.39	61.7
IC40	64.03	55.49	76.19
IC50	70.57	60.02	93.7

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3503	0.3477	0.342	0.364	2.76%	0.00%	0.3504	0.00%
10		4	0.3505	0.3473	0.3413	0.366	3.07%	-0.05%	0.3504	0.00%
19		4	0.3493	0.3507	0.3413	0.3547	1.69%	0.29%	0.3496	0.23%
38		4	0.3498	0.349	0.3407	0.3607	2.36%	0.14%	0.3496	0.23%
75		4	0.1515	0.1553	0.07933	0.216	38.11%	56.76%	0.1515	56.76%
150		4	0.02533	0.007556	0	0.07867	146.55%	92.77%	0.02533	92.77%

### Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

# CETIS Analytical Report

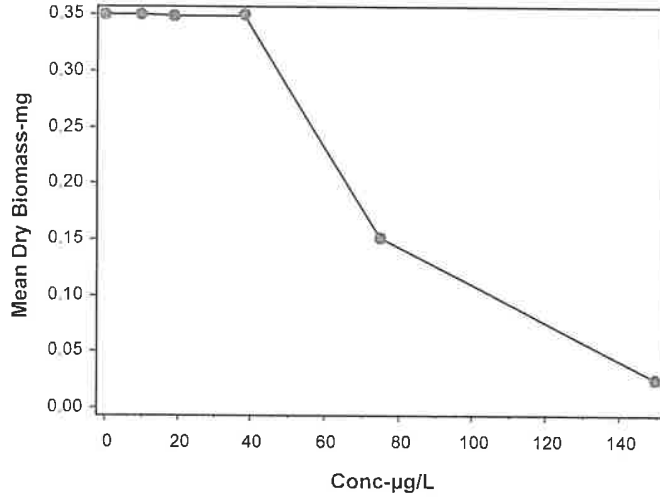
Report Date: 01 Mar-24 13:17 (p 4 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	61	61	61	61	61	0	0	0.00%	0
Overall		16	61.5	61.22	61.78	61	62	0.1291	0.5164	0.84%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
10		8	378	376.9	379.1	376	380	0.1637	1.309	0.35%	0
19		8	377.8	376.2	379.3	375	380	0.2386	1.909	0.51%	0
38		8	378.4	377	379.7	376	380	0.1997	1.598	0.42%	0
75		8	379.1	378	380.3	377	380	0.1695	1.356	0.36%	0
150		8	380.6	379.9	381.4	380	382	0.1145	0.9161	0.24%	0
Overall		48	379.7	378.9	380.5	375	388	0.4106	2.845	0.75%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
10		8	7.85	7.554	8.146	7	8.1	0.04432	0.3546	4.52%	0
19		8	7.825	7.536	8.114	7	8.1	0.04317	0.3454	4.41%	0
38		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
75		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
150		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
Overall		48	7.829	7.733	7.925	7	8.2	0.04782	0.3313	4.23%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
10		8	8.125	8.066	8.184	8	8.2	0.00884	0.07072	0.87%	0
19		8	8.1	8.055	8.145	8	8.2	0.006684	0.05347	0.66%	0
38		8	8.088	8.058	8.117	8	8.1	0.004423	0.03538	0.44%	0
75		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
150		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
Overall		48	8.106	8.087	8.126	8	8.2	0.009605	0.06654	0.82%	0 (0%)

# CETIS Measurement Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

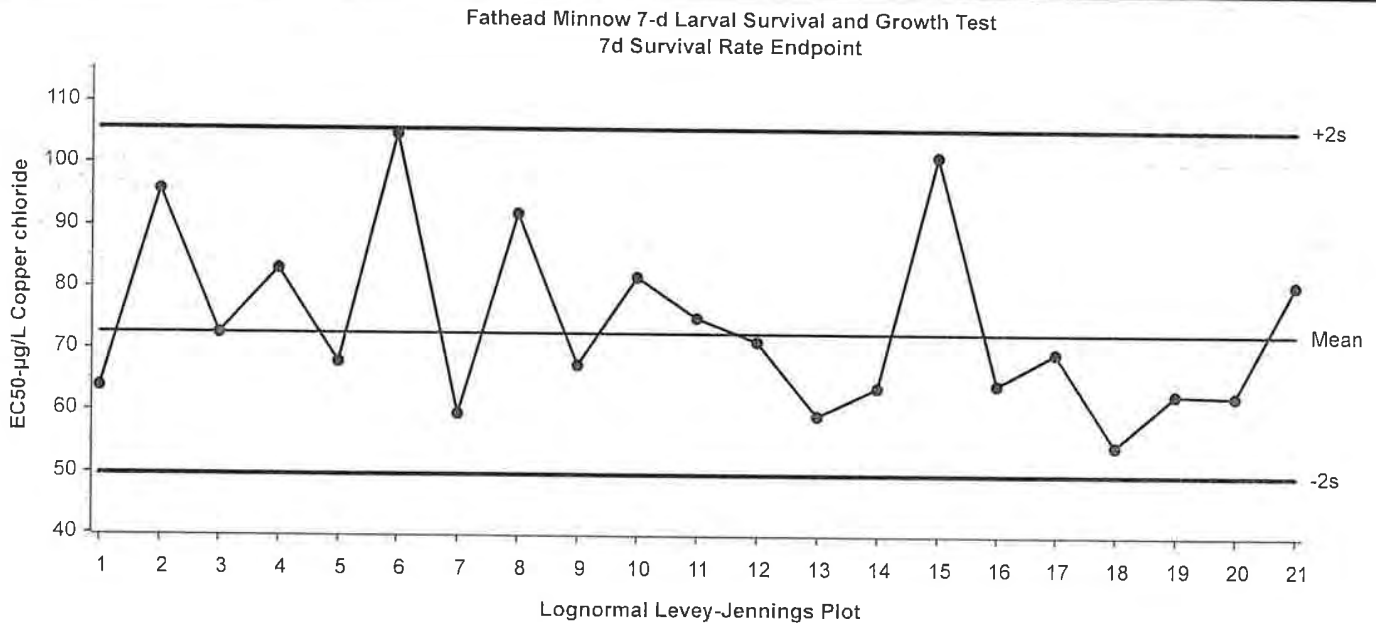
### Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)





Fathead Minnow 7-d Larval Survival and Growth Test		Aquatic Bioassay & Consulting Labs, Inc.	
Test Type: Growth-Survival (7d)	Organism: Pimephales promelas	Material: Copper chloride	
Protocol: EPA/821/R-02-013 (2002)	Endpoint: 7d Survival Rate	Source: Reference Toxicant-REF	



Mean: 72.46      Count: 20      -2s Action Limit: 49.7  
 Sigma: NA      CV: 19.00%      +2s Action Limit: 106

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	63.9	-8.557	-0.6667			18-8099-7551	11-3195-6885
2			10	14:30	95.83	23.38	1.483			00-9395-0169	09-6776-4624
3			17	14:45	72.45	-0.00922	-0.00067			10-4602-8256	00-4017-6619
4			24	13:40	83.04	10.58	0.7229			01-7885-2189	13-0007-2758
5			25	12:16	67.98	-4.481	-0.3386			11-1982-8946	16-3131-2159
6			31	15:30	104.9	32.47	1.964			07-7265-5981	14-1873-8638
7		Nov	7	15:10	59.58	-12.87	-1.038			19-2888-5334	07-9547-8315
8			14	15:30	92.05	19.59	1.269			18-8754-0700	05-2558-7597
9			17	14:01	67.38	-5.075	-0.3852			17-0726-1937	14-0961-0371
10			28	14:49	81.82	9.361	0.6446			10-1970-7599	00-2724-7341
11		Dec	5	13:45	75	2.543	0.183			19-1204-9208	03-6141-0747
12			12	13:30	71.3	-1.157	-0.08543			03-7560-9108	05-6885-8439
13			13	12:15	59.42	-13.04	-1.052			14-7892-5887	04-9254-9827
14			21	13:29	64	-8.457	-0.6584			06-6036-2868	13-4891-1637
15			22	14:30	101.4	28.89	1.78			00-5720-1635	14-1952-0593
16	2024	Jan	3	14:00	64.43	-8.029	-0.623			04-0866-8727	01-4746-8383
17			4	14:05	69.52	-2.939	-0.2197			15-6608-9784	08-1717-2208
18			9	13:20	54.55	-17.9	-1.506			14-8299-7228	00-5651-6529
19			23	14:00	63	-9.457	-0.742			12-1922-4773	10-8689-4329
20		Feb	2	14:20	62.67	-9.791	-0.7701			05-5157-4005	09-6073-8693
21			6	13:40	80.77	8.312	0.5761			04-6220-8945	10-6161-5529

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

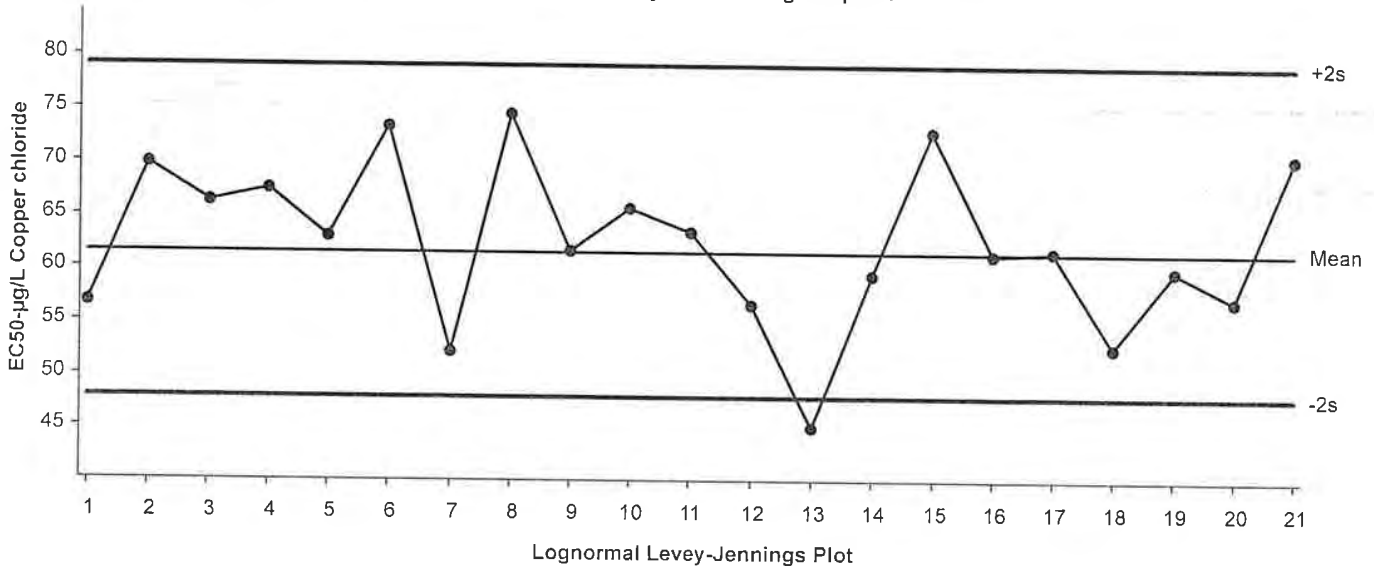
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 61.56      Count: 20      -2s Action Limit: 47.8  
 Sigma: NA      CV: 12.70%      +2s Action Limit: 79.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	56.73	-4.827	-0.6475			18-8099-7551	15-1441-4720
2			10	14:30	69.86	8.298	1.003			00-9395-0169	18-9888-9667
3			17	14:45	66.23	4.667	0.5795			10-4602-8256	13-8119-0525
4			24	13:40	67.38	5.825	0.7169			01-7885-2189	06-8805-4487
5			25	12:16	63.01	1.45	0.1847			11-1982-8946	04-1492-8778
6			31	15:30	73.46	11.9	1.401			07-7265-5981	21-3432-7293
7		Nov	7	15:10	52.21	-9.347	-1.306			19-2888-5334	11-0119-4879
8			14	15:30	74.52	12.96	1.515			18-8754-0700	03-4458-8213
9			17	14:01	61.66	0.1018	0.0131			17-0726-1937	06-0317-0204
10			28	14:49	65.63	4.075	0.5083			10-1970-7599	09-5836-2004
11		Dec	5	13:45	63.46	1.898	0.2409			19-1204-9208	02-5721-3294
12			12	13:30	56.61	-4.947	-0.6644			03-7560-9108	19-0990-5343
13			13	12:15	45.01	-16.55	-2.483		(-)	14-7892-5887	19-1033-5713
14			21	13:29	59.44	-2.118	-0.2777			06-6036-2868	01-3251-7777
15			22	14:30	72.95	11.39	1.346			00-5720-1635	06-1309-8628
16	2024	Jan	3	14:00	61.34	-0.2222	-0.02868			04-0866-8727	03-7640-5638
17			4	14:05	61.64	0.08199	0.01056			15-6608-9784	18-2508-7781
18			9	13:20	52.68	-8.881	-1.236			14-8299-7228	08-4892-6835
19			23	14:00	59.92	-1.64	-0.2141			12-1922-4773	11-2137-3210
20		Feb	2	14:20	57.13	-4.427	-0.5918			05-5157-4005	07-7973-9309
21			6	13:40	70.57	9.012	1.083			04-6220-8945	00-3964-3519

CHAIN OF CUSTODY FORM

Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018]  
Outfall 011 COMPOSITE

Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)  
Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)

Client Name/Address: Haley & Aldrich, 5333 Mission Center Rd Suite 300, San Diego, CA 92108  
Eurofins Calscience Project Manager: Virendra Patel, 2841 Dow Avenue, Suite #100, Tustin, CA 92780, Tel: 714-895-5494, ECI Project #67013187  
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2023-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.  
Sampler: Adrien Mobeka

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.7); B. Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	TODD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1 (SM5210B_BODCalc))	LL Mercury (E1631E) -- Total Recoverable	Fluoride (F-), Chloride (Cl-), Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E300); Peroxide (E314.0)	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2 (SM2540D))	Priority Pollutants-Pesticides+PCBs (E608)	Weck Labs In Hacienda Heights, CA	Priority Pollutants-SVOCs (E625)	Ammonia-N (E350.2)	PCBs (1668C)	Detergents (MBAS) (SM5540C/E425.1)	Cr (VI), Total Recoverable (E218.6)	Comments			
Outfall 011	Outfall011_20240206_Comp	2/6/2024 0750	WM	1 L Poly	1	HNO3		Yes	X																	
			WM	1 L Glass Amber	2	None						X														
			WM	1 L Poly	1	None							X													
			WM	250mL Clear Glass, double bagged	1	HCL								X											Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
			WM	500 mL Poly	1	None										X									48 hours Holding Time NO3 & NO2	
			WM	500 mL Poly	1	None											X								48 hour holding time for turbidity	
			WM	1 L Poly	1	None												X								Deliver to Weck Labs in Hacienda Heights, CA
			WM	1 L Glass Amber	4	None													X							
			WM	1 L Glass Amber	6	None				Yes											X					
			WM	500 mL Poly	1	H2SO4																X				
			WM	1 L Glass Amber	4	None																	X			
			WM	500 mL Poly	2	None																		X		
			WM	250 mL Poly	1	None																			X	

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

570-171239 Chain of Custody

Relinquished By: <u>Michelle Dallalah</u> Date/Time: <u>2/6/2024 1300</u> Company: <u>H&amp;A</u>	Received By: <u>[Signature]</u> Date/Time: <u>2/6/24 1300</u> Company: <u>EC</u>	148 Hour: _____ Day: _____ Normal: _____
Relinquished By: <u>[Signature]</u> Date/Time: <u>2/6/24 1630</u> Company: <u>EC</u>	Received By: <u>[Signature]</u> Date/Time: <u>2/6/24 1630</u> Company: <u>[Signature]</u>	Sample Integrity: (Check) Intact _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

2.1|2.3 1.0|1.2 2.6/2.8 SC14

CHAIN OF CUSTODY FORM

Client Name/Address:		Project:		ANALYSIS REQUIRED																								
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018]		Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.6): Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn Cr (VI), Total Dissolved (E218.6) Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA 1,4-Dioxane (E624 (SM6260M_SIM)) Total Organic Carbon (415.2 (SM 5310B)) Monomethyl hydrazine (SM6315M/DV-INC-0077) West Labs in Hacienda Heights, CA LL Mercury (E1631E) - Total Dissolved Cyanide (SM4500-CN-E / E335.2)																								
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #67013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Comments																								
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																										
Sampler: Adrian Mobeka																												
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																				
2 Outfall 011	Outfall011_20240206_Comp_F	2/6/2024 0750	WM	1 L Poly	1	None		Yes	X													Filter and preserve w/in 24hrs of receipt at lab.						
			WM	250 mL Poly	1	None					X													Filter w/in 24hrs of receipt at lab.				
			WM	250mL Clear Glass, double bagged	1	None																	X		Filter and preserve w/in 24hrs of receipt at lab. Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.			
	Outfall011_20240206_Comp	2/6/2024 0750	WM	250 mL Poly	1	NaOH																	X					
			WM	2.5 Gal Cube	1	None																				Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.		
			WM	1 L Glass Amber	1	None																						
			WM	1 Gal Cube	5	None																		X		Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA		
			WM	40 mL VOA	3	HCl																						
			WM	1 L Glass Amber	1	HCl																						
			WM	1 L Glass Amber	1	None																						
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																												
Relinquished By: Michelle Dallalah, Date/Time: 2/6/2024 1300, Company: H&A						Received By: [Signature], Date/Time: 2/6/24 1300, Company: EC						Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> _____ 48 Hour: _____ 5 Day: _____ Normal: _____																
Relinquished By: [Signature], Date/Time: 2/6/24 1630, Company: EC						Received By: [Signature], Date/Time: 2/6/24 1630, Company: EC						Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> _____																

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-171239-4

**Login Number: 171239**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 4/7/2024 11:53:11 AM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 011 - Comp

## JOB NUMBER

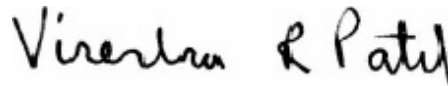
570-173243-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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4/7/2024 11:53:11 AM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-173243-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-173243-4

**Job ID: 570-173243-4**

**Eurofins Calscience**

## Job Narrative 570-173243-4

### Receipt

The samples were received on 2/21/2024 6:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.5° C and 2.3° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathed Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-173243-4

---

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

---

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 011 - Comp

Job ID: 570-173243-4

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-173243-1	Outfall011_20240221_Comp	Water	02/21/24 06:50	02/21/24 18:20

1

2

3

4

5

6

7

8

9



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 22, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall011\_20240221\_Comp\_F  
 DATE RECEIVED: 21 Feb - 2024  
 ABC LAB. NO.: CSE0224.175

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

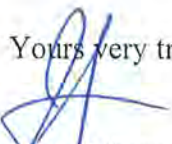
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

GROWTH = PASS    % EFFECT = -0.40 %

Yours very truly,

  
 Scott Johnson  
 Laboratory Director

# CETIS Summary Report

Report Date: 20 Mar-24 14:46 (p 1 of 1)  
 Test Code/ID: CSE0224.175fml / 09-6730-4085

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-7571-9258	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:42	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 06-3052-3808	Code: CSE0224.175fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 21 Feb-24 06:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 21 Feb-24 12:40	CAS (PC):	Station: Oulfall 011
Sample Age: 8h (4.3 °C)	Client: Eurofins Calscience	

## Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
01-2046-7632	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
04-2611-4193	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
01-2046-7632	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
04-2611-4193	Mean Dry Biomass-mg	Control Resp	0.3556	0.25	<<	Yes	Passes Criteria

## 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

## Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3556	0.3365	0.3747	0.344	0.4113	0.00809	0.02288	6.43%	0.00%
100		8	0.357	0.3435	0.3705	0.3387	0.382	0.005725	0.01619	4.54%	-0.40%

## 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

## Mean Dry Biomass-mg Detail

MD5: 78701F652A6A8DF6AB137C4668E2A9BC

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.344	0.344	0.4113	0.344	0.3473	0.3513	0.3473	0.3553
100		0.3733	0.3447	0.372	0.3387	0.346	0.3507	0.3487	0.382

## 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 20 Mar-24 14:46 (p 1 of 4)  
 Test Code/ID: CSE0224.175fml / 09-6730-4085

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 01-2046-7632	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 14:45	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Mar-24 14:44	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3
Batch ID: 19-7571-9258	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:42	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 06-3052-3808	Code: CSE0224.175fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 21 Feb-24 06:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 21 Feb-24 12:40	CAS (PC):	Station: Oulfall 011
Sample Age: 8h (4.3 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

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

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410





**CETIS Analytical Report**

Report Date: 20 Mar-24 14:46 (p 3 of 4)  
 Test Code/ID: CSE0224.175fml / 09-6730-4085

<b>Fathead Minnow 7-d Larval Survival and Growth Test</b>			<b>Aquatic Bioassay &amp; Consulting Labs, Inc.</b>		
Analysis ID: 04-2611-4193	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4			
Analyzed: 20 Mar-24 14:45	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1			
Edit Date: 20 Mar-24 14:44	MD5 Hash: 78701F652A6A8DF6AB137C4668E2A9BC	Editor ID: 009-702-627-3			
Batch ID: 19-7571-9258	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 21 Feb-24 14:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 28 Feb-24 13:42	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24			
Sample ID: 06-3052-3808	Code: CSE0224.175fml	Project: Boeing-SSFL NPDES 2023 PERMIT			
Sample Date: 21 Feb-24 06:50	Material: Sample Water	Source: Bioassay Report			
Receipt Date: 21 Feb-24 12:40	CAS (PC):	Station: Oulfall 011			
Sample Age: 8h (4.3 °C)	Client: Eurofins Calscience				

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

**TST-Welch's t Test**

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	13	10.83	0.6938	CDF	<1.0E-05	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3556	0.25	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	8.028E-06	8.028E-06	1	0.02043	0.8884	Non-Significant Effect
Error	0.0055004	0.0003929	14			
Total	0.0055084		15			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	0.000505	8.862	0.9824	Equal Variances
	Mod Levene Equality of Variance Test	0.03988	8.862	0.8446	Equal Variances
	Variance Ratio F Test	1.997	8.885	0.3819	Equal Variances
Distribution	Anderson-Darling A2 Test	1.824	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Skewness Test	3.09	2.576	0.0020	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.2753	0.2471	0.0021	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7533	0.8408	0.0007	Non-Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3556	0.3365	0.3747	0.3473	0.344	0.4113	0.00809	6.43%	0.00%
100		8	0.357	0.3435	0.3705	0.3497	0.3387	0.382	0.005725	4.54%	-0.40%

**Mean Dry Biomass-mg Detail**

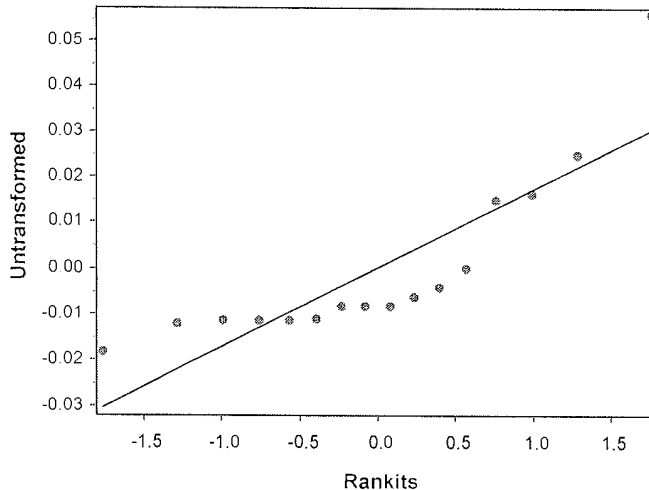
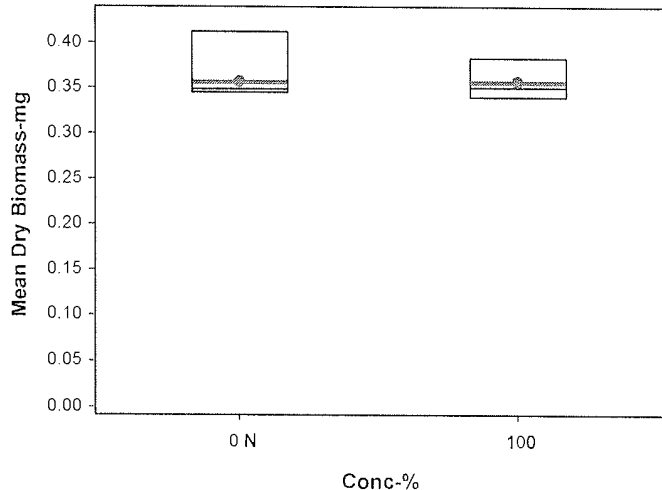
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.344	0.344	0.4113	0.344	0.3473	0.3513	0.3473	0.3553
100		0.3733	0.3447	0.372	0.3387	0.346	0.3507	0.3487	0.382

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-2611-4193      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 20 Mar-24 14:45      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 20 Mar-24 14:44      MD5 Hash: 78701F652A6A8DF6AB137C4668E2A9BC      Editor ID: 009-702-627-3

Graphics



# CETIS Measurement Report

Report Date: 20 Mar-24 14:46 (p 1 of 1)  
 Test Code/ID: CSE0224.175fml / 09-6730-4085

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-7571-9258	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:42	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 06-3052-3808	Code: CSE0224.175fml	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 21 Feb-24 06:50	Material: Sample Water	Source: Bioassay Report
Receipt Date: 21 Feb-24 12:40	CAS (PC):	Station: Oulfall 011
Sample Age: 8h (4.3 °C)	Client: Eurofins Calscience	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	63.75	63.36	64.14	63	64	0.05786	0.4629	0.73%	0
100		8	36	36	36	36	36	0	0	0.00%	0
Overall		16	49.88	42.24	57.51	36	64	3.583	14.33	28.74%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	376	372	380	367	382	0.605	4.84	1.29%	0
100		8	285.2	282.4	288.1	280	290	0.4213	3.37	1.18%	0
Overall		16	330.6	305.6	355.7	280	382	11.76	47.04	14.23%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.9	7.521	8.279	6.8	8.2	0.05669	0.4536	5.74%	0
100		8	7.975	7.568	8.382	6.8	8.3	0.06078	0.4862	6.10%	0
Overall		16	7.938	7.695	8.18	6.8	8.3	0.114	0.4559	5.74%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	63	63	63	63	63	0	0	0.00%	0
Overall		16	81.5	71.32	91.68	63	100	4.777	19.11	23.44%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.162	8.074	8.251	8	8.3	0.01326	0.1061	1.30%	0
100		8	7.863	7.8	7.925	7.7	7.9	0.009299	0.07439	0.95%	0
Overall		16	8.012	7.917	8.108	7.7	8.3	0.0446	0.1784	2.23%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.06	23.97	24.15	24	24.3	0.01326	0.1061	0.44%	0
Overall		16	24.03	23.99	24.07	24	24.3	0.01983	0.07932	0.33%	0 (0%)

CHAIN OF CUSTODY FORM

added C.F. =  $\uparrow 0.3^{\circ}\text{C}$   
 Temp. deg. C =  $4.3^{\circ}\text{C}$   
 Methanometer = Sample Reading  
 Chlorine (mg/L) = 20.1

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018]					R R R R R R R R ANALYSIS REQUIRED N/A (mg/L) = 20.1 Comments 175										
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187				Outfall 011 COMPOSITE					Total Dissolved Metals: (E200.0): Al, Cd, Cu, Pb, Se, Zn Cyanide (SM4500-CN-E / E335.2) Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E905.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1) Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA LL Mercury (1631) Total Dissolved Monomethyl hydrazine (SW8316/MDV-WC-0077) Weck Labs In Hacienda Heights, CA 1,4-Dioxane (E924 (SW8260M_SIN)) Bis-2-ethylhexylphthalate by EG&S										
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Merk Dominick 978.234.5033, 818.599.0702 (cell)															
Sampler: Adrien Mobeka																			
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.0): Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E905.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs in Ventura, CA	LL Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8316/MDV-WC-0077) Weck Labs In Hacienda Heights, CA	1,4-Dioxane (E924 (SW8260M_SIN))	Bis-2-ethylhexylphthalate by EG&S	Comments		
Outfall 011	Outfall011_20240221_Comp_F	2/21/2024 0650	WM	1L Poly	1	None	200	Yes	H								Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
			WM	250mL Glass, double bagged	1	None	999						X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
	Outfall011_20240221_Comp	2/21/2024 0650	WM	250 mL Poly	1	NaOH	220			X									
			WM	2.5 Gal Cube	1	None	225					X						Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.	
			WM	1 L Glass Amber	1	None	230												
			WM	1 Gal Cube	5	None	235						X					Only test if first or second discharge events of the year. Deliver to ABC Labs in Ventura, CA.	
			WM	1 L Glass Amber	1	None								X					
WM	40 mL VOA	3	HCl										X						
QA/QC	FB-Outfall011-20240221	2/21/24 0650	WG	1L Glass Amber	1	None													

\* Hand-delivered to ABC Labs with this copy of the CoC

Relinquished By <b>Michelle Dallalah</b>	Date/Time: 2/21/24 / 1246	Company: H&A	Received By <b>Elizabeth Medina</b>	Date/Time: 2-21-24 / 1240	Company: ABC Labs
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Company:
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Company:



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

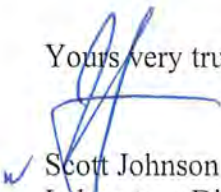
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### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 21 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 19.00 ug/l  
EC25 = 48.09 ug/l  
EC50 = 64.91 ug/l

ENDPOINT: GROWTH  
NOEC = 38.00 ug/l  
IC25 = 40.83 ug/l  
IC50 = 57.55 ug/l

Yours very truly,

  
Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 20 Mar-24 14:39 (p 1 of 2)  
 Test Code/ID: FML022124 / 16-3813-0758

Fathead Minnow 7-d Larval Survival and Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Batch ID: 12-6176-5424	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 21 Feb-24 14:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 28 Feb-24 13:39	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age:		
Sample ID: 12-9997-7974	Code: FML022124	Project: REF TOX			
Sample Date: 21 Feb-24 14:55	Material: Copper chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: ABC Labs				

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
18-8772-4203	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 19	38	26.87	11.2%	1
15-2573-3936	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	38	75	53.39	17.8%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
06-3888-1346	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	41.36	38.26	46.43	1
			EC20	44.73	41.14	52.46	
			EC25	48.09	43.5	61.55	
			EC40	58.18	50.11	88.52	
			EC50	64.91	54.15	105.1	
03-1908-6745	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	29.6	15.74	47.37	1
			✓ IC20	36.89	22.44	47.37	
			✓ IC25	40.83	28.96	50.18	
			✓ IC40	50.86	43.06	61.43	
			✓ IC50	57.55	50.4	68.79	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Decision
				Lower	Upper	Overlap	
06-3888-1346	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
18-8772-4203	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
03-1908-6745	Mean Dry Biomass-mg	Control Resp	0.3598	0.25	<<	Yes	Passes Criteria
15-2573-3936	Mean Dry Biomass-mg	Control Resp	0.3598	0.25	<<	Yes	Passes Criteria
15-2573-3936	Mean Dry Biomass-mg	PMSD	0.1784	0.12	0.3	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	0.9833	0.9303	1.0360	0.9333	1.0000	0.0167	0.0333	3.39%	1.67%
38		4	0.9000	0.8388	0.9612	0.8667	0.9333	0.0193	0.0385	4.28%	10.00%
75		4	0.3500	-0.0688	0.7688	0.1333	0.7333	0.1316	0.2632	75.19%	65.00%
150		4	0.0500	-0.0030	0.1030	0.0000	0.0667	0.0167	0.0333	66.67%	95.00%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3598	0.3373	0.3824	0.342	0.3767	0.007094	0.01419	3.94%	0.00%
10		4	0.3948	0.3043	0.4853	0.3387	0.4527	0.02843	0.05686	14.40%	-9.73%
19		4	0.3482	0.3324	0.3639	0.3367	0.3593	0.004954	0.009909	2.85%	3.24%
38		4	0.299	0.2307	0.3673	0.256	0.3567	0.02146	0.04291	14.35%	16.91%
75		4	0.09017	0.002124	0.1782	0.04267	0.17	0.02767	0.05533	61.36%	74.94%
150		4	0.014	-0.00162	0.02961	0	0.022	0.004907	0.009813	70.09%	96.11%

# CETIS Summary Report

Report Date: 20 Mar-24 14:39 (p 2 of 2)  
Test Code/ID: FML022124 / 16-3813-0758

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 469828F04069FC6FEEFE438793EEAF0B

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	0.9333	1.0000	1.0000
38		0.9333	0.8667	0.9333	0.8667
75		0.7333	0.2667	0.1333	0.2667
150		0.0000	0.0667	0.0667	0.0667

### Mean Dry Biomass-mg Detail

MD5: 0525871AA0C486286DACC006B200E70E

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.342	0.3593	0.3767	0.3613
10		0.3387	0.434	0.4527	0.354
19		0.3527	0.344	0.3593	0.3367
38		0.3567	0.3027	0.2807	0.256
75		0.17	0.07	0.04267	0.078
150		0	0.022	0.01467	0.01933

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	14/15	15/15	15/15
38		14/15	13/15	14/15	13/15
75		11/15	4/15	2/15	4/15
150		0/15	1/15	1/15	1/15

**CETIS Analytical Report**

Report Date: 20 Mar-24 14:38 (p 1 of 3)  
 Test Code/ID: FML022124 / 16-3813-0758

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-8772-4203	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 14:37	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 20 Mar-24 14:37	MD5 Hash: 469828F04069FC6FEEFE438793EEAF0B	Editor ID: 009-702-627-3
Batch ID: 12-6176-5424	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:39	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO <span style="float: right;">Age:</span>
Sample ID: 12-9997-7974	Code: FML022124	Project: REF TOX
Sample Date: 21 Feb-24 14:55	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	19	38	26.87	---	0.1118	11.18%

**Steel Many-One Rank Sum Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	16	10	1	CDF	0.6105	Non-Significant Effect
		38*	6	10	10	0	CDF	0.0417	Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	5.333	1.0666	5	69.09	<1.0E-05	Significant Effect
Error	0.27787	0.0154372	18			
Total	5.61086		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	4.994	4.248	0.0048	Unequal Variances
	Mod Levene Equality of Variance Test	1.454	4.248	0.2535	Equal Variances
Distribution	Anderson-Darling A2 Test	2.33	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.688	2.576	0.0002	Non-Normal Distribution
	D'Agostino Skewness Test	3.231	2.576	0.0012	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	24.04	9.21	<1.0E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.2625	0.2056	0.0002	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.747	0.884	4.5E-05	Non-Normal Distribution

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	0.9833	0.9303	1.0000	1.0000	0.9333	1.0000	0.0167	3.39%	1.67%
38		4	0.9000	0.8388	0.9612	0.9000	0.8667	0.9333	0.0193	4.28%	10.00%
75		4	0.3500	0.0000	0.7688	0.2667	0.1333	0.7333	0.1316	75.19%	65.00%
150		4	0.0500	0.0000	0.1030	0.0667	0.0000	0.0667	0.0167	66.67%	95.00%



# CETIS Analytical Report

Report Date: 20 Mar-24 14:38 (p 2 of 3)  
 Test Code/ID: FML022124 / 16-3813-0758

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-8772-4203      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 20 Mar-24 14:37      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 20 Mar-24 14:37      MD5 Hash: 469828F04069FC6FEEFE438793EEAF0B      Editor ID: 009-702-627-3

### Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4080	1.3040	1.5130	1.4410	1.3100	1.4410	0.0329	4.68%	2.28%
38		4	1.2530	1.1500	1.3570	1.2530	1.1970	1.3100	0.0325	5.19%	13.04%
75		4	0.6218	0.1725	1.0710	0.5426	0.3738	1.0280	0.1412	45.41%	56.86%
150		4	0.2282	0.1235	0.3330	0.2612	0.1295	0.2612	0.0329	28.85%	84.17%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	0.9333	1.0000	1.0000
38		0.9333	0.8667	0.9333	0.8667
75		0.7333	0.2667	0.1333	0.2667
150		0.0000	0.0667	0.0667	0.0667

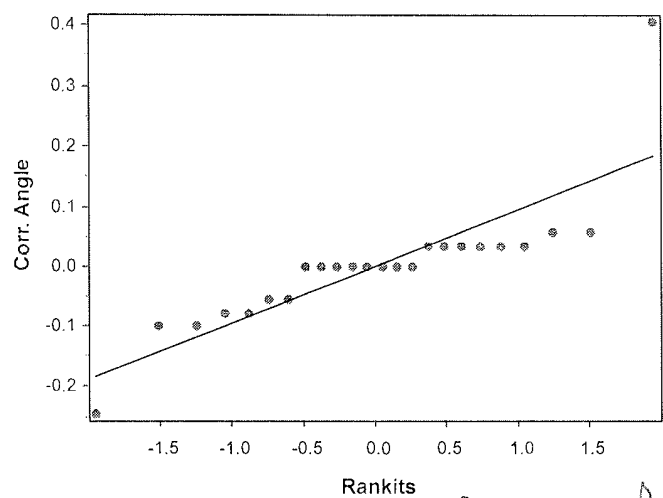
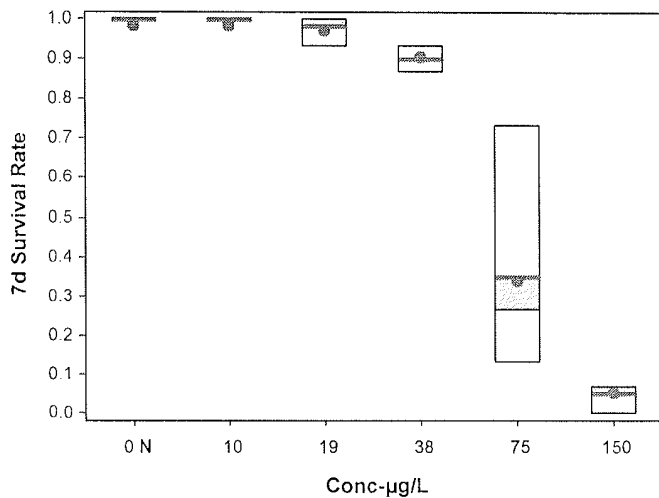
### Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.3100	1.4410	1.4410
38		1.3100	1.1970	1.3100	1.1970
75		1.0280	0.5426	0.3738	0.5426
150		0.1295	0.2612	0.2612	0.2612

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	14/15	15/15	15/15
38		14/15	13/15	14/15	13/15
75		11/15	4/15	2/15	4/15
150		0/15	1/15	1/15	1/15

### Graphics



# CETIS Analytical Report

Report Date: 20 Mar-24 14:38 (p 3 of 3)  
 Test Code/ID: FML022124 / 16-3813-0758

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-2573-3936	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 14:37	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 20 Mar-24 14:37	MD5 Hash: 0525871AA0C486286DACC006B200E70E	Editor ID: 009-702-627-3
Batch ID: 12-6176-5424	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:39	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 12-9997-7974	Code: FML022124	Project: REF TOX
Sample Date: 21 Feb-24 14:55	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.06419	17.84%

### Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	-1.313	2.407	0.06419	CDF	0.9928	Non-Significant Effect
		19	6	0.4375	2.407	0.06419	CDF	0.6743	Non-Significant Effect
		38	6	2.281	2.407	0.06419	CDF	0.0632	Non-Significant Effect
		75*	6	10.11	2.407	0.06419	CDF	2.7E-05	Significant Effect
		150*	6	12.97	2.407	0.06419	CDF	2.7E-05	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	0.3598	0.25	<<	Yes	Passes Criteria
PMSD	0.1784	0.12	0.3	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.505258	0.101052	5	71.06	<1.0E-05	Significant Effect
Error	0.0255964	0.0014220	18			
Total	0.530854		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	14.54	15.09	0.0125	Equal Variances
	Levene Equality of Variance Test	4.554	4.248	0.0074	Unequal Variances
	Mod Levene Equality of Variance Test	2.6	4.248	0.0613	Equal Variances
Distribution	Anderson-Darling A2 Test	0.6806	3.878	0.0756	Normal Distribution
	D'Agostino Kurtosis Test	0.7871	2.576	0.4312	Normal Distribution
	D'Agostino Skewness Test	1.392	2.576	0.1640	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	2.557	9.21	0.2785	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1606	0.2056	0.1101	Normal Distribution
	Shapiro-Wilk W Normality Test	0.9413	0.884	0.1742	Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3598	0.3373	0.3824	0.3603	0.342	0.3767	0.007094	3.94%	0.00%
10		4	0.3948	0.3043	0.4853	0.394	0.3387	0.4527	0.02843	14.40%	-9.73%
19		4	0.3482	0.3324	0.3639	0.3483	0.3367	0.3593	0.004954	2.85%	3.24%
38		4	0.299	0.2307	0.3673	0.2917	0.256	0.3567	0.02146	14.35%	16.91%
75		4	0.09017	0.002124	0.1782	0.074	0.04267	0.17	0.02767	61.36%	74.94%
150		4	0.014	-0.00162	0.02961	0.017	0	0.022	0.004907	70.09%	96.11%

Fathead Minnow 7-d Larval Survival and Growth Test

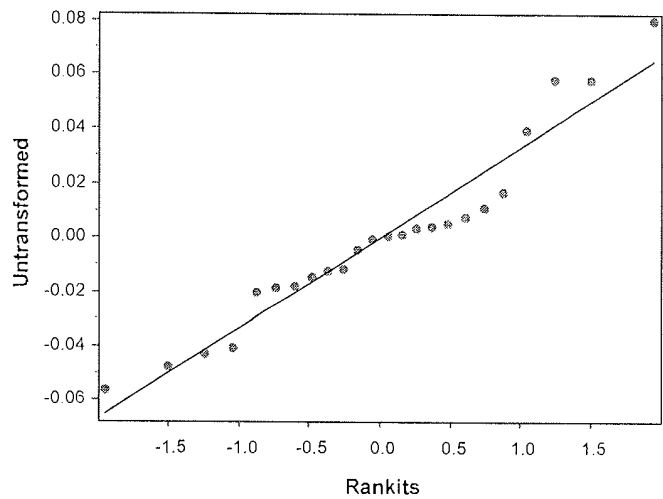
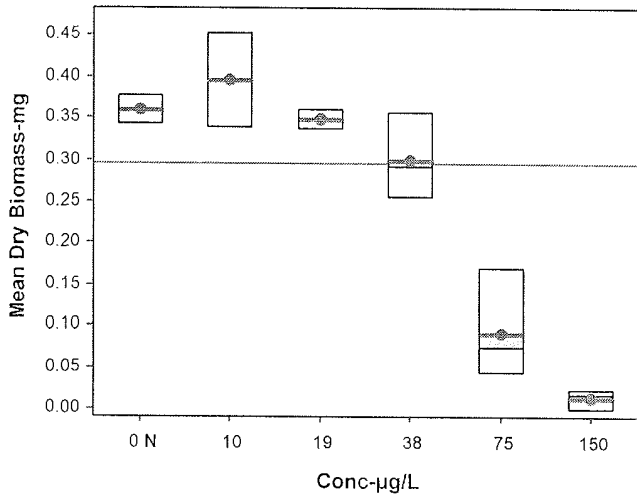
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-2573-3936      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 20 Mar-24 14:37      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 20 Mar-24 14:37      MD5 Hash: 0525871AA0C486286DACC006B200E70E      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.342	0.3593	0.3767	0.3613
10		0.3387	0.434	0.4527	0.354
19		0.3527	0.344	0.3593	0.3367
38		0.3567	0.3027	0.2807	0.256
75		0.17	0.07	0.04267	0.078
150		0	0.022	0.01467	0.01933

Graphics



**CETIS Analytical Report**

Report Date: 20 Mar-24 14:38 (p 1 of 4)  
 Test Code/ID: FML022124 / 16-3813-0758

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-3888-1346	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 14:37	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 20 Mar-24 14:37	MD5 Hash: 469828F04069FC6FEEFE438793EEAF0B	Editor ID: 009-702-627-3
Batch ID: 12-6176-5424	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:39	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 12-9997-7974	Code: FML022124	Project: REF TOX
Sample Date: 21 Feb-24 14:55	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
EC15	41.36	38.26	46.43
EC20	44.73	41.14	52.46
EC25	48.09	43.5	61.55
EC40	58.18	50.11	88.52
EC50	64.91	54.15	105.1

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Calculated Variate(A/B)						Isotonic Variate		
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	0.9833	1.0000	0.9333	1.0000	3.39%	1.67%	59/60	0.9833	1.67%
38		4	0.9000	0.9000	0.8667	0.9333	4.28%	10.00%	54/60	0.9000	10.00%
75		4	0.3500	0.2667	0.1333	0.7333	75.19%	65.00%	21/60	0.3500	65.00%
150		4	0.0500	0.0667	0.0000	0.0667	66.67%	95.00%	3/60	0.0500	95.00%

**7d Survival Rate Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	0.9333	1.0000	1.0000
38		0.9333	0.8667	0.9333	0.8667
75		0.7333	0.2667	0.1333	0.2667
150		0.0000	0.0667	0.0667	0.0667

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	14/15	15/15	15/15
38		14/15	13/15	14/15	13/15
75		11/15	4/15	2/15	4/15
150		0/15	1/15	1/15	1/15

# CETIS Analytical Report

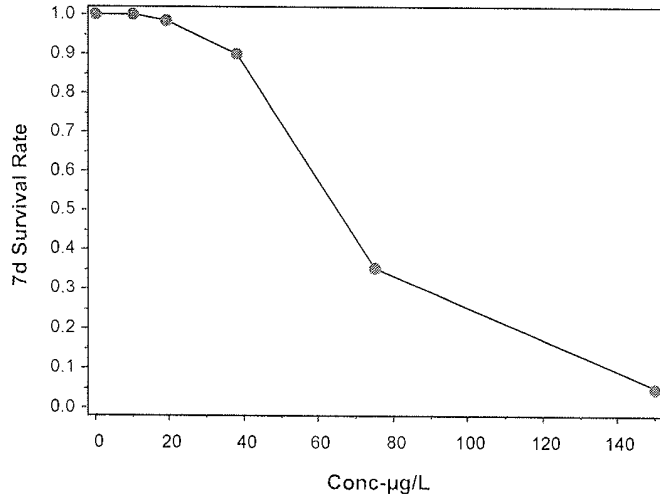
Report Date: 20 Mar-24 14:39 (p 2 of 4)  
Test Code/ID: FML022124 / 16-3813-0758

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-3888-1346	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 14:37	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 20 Mar-24 14:37	MD5 Hash: 469828F04069FC6FEEFE438793EEAF0B	Editor ID: 009-702-627-3

### Graphics



**CETIS Analytical Report**

Report Date: 20 Mar-24 14:39 (p 3 of 4)  
 Test Code/ID: FML022124 / 16-3813-0758

Fathead Minnow 7-d Larval Survival and Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 03-1908-6745	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4			
Analyzed: 20 Mar-24 14:37	Analysis: Linear Interpolation (ICPIN)	Status Level: 1			
Edit Date: 20 Mar-24 14:37	MD5 Hash: 0525871AA0C486286DACC006B200E70E	Editor ID: 009-702-627-3			
Batch ID: 12-6176-5424	Test Type: Growth-Survival (7d)	Analyst:			
Start Date: 21 Feb-24 14:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 28 Feb-24 13:39	Species: Pimephales promelas	Brine: Not Applicable			
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO	Age:		
Sample ID: 12-9997-7974	Code: FML022124	Project: REF TOX			
Sample Date: 21 Feb-24 14:55	Material: Copper chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: ABC Labs				

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	937485	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	0.3598	0.25	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
IC15	29.6	15.74	47.37
IC20	36.89	22.44	47.37
IC25	40.83	28.96	50.18
IC40	50.86	43.06	61.43
IC50	57.55	50.4	68.79

Mean Dry Biomass-mg Summary			Calculated Variate						Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3598	0.3603	0.342	0.3767	3.94%	0.00%	0.3773	0.00%
10		4	0.3948	0.394	0.3387	0.4527	14.40%	-9.73%	0.3773	0.00%
19		4	0.3482	0.3483	0.3367	0.3593	2.85%	3.24%	0.3482	7.71%
38		4	0.299	0.2917	0.256	0.3567	14.35%	16.91%	0.299	20.75%
75		4	0.09017	0.074	0.04267	0.17	61.36%	74.94%	0.09017	76.10%
150		4	0.014	0.017	0	0.022	70.09%	96.11%	0.014	96.29%

Mean Dry Biomass-mg Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.342	0.3593	0.3767	0.3613
10		0.3387	0.434	0.4527	0.354
19		0.3527	0.344	0.3593	0.3367
38		0.3567	0.3027	0.2807	0.256
75		0.17	0.07	0.04267	0.078
150		0	0.022	0.01467	0.01933

# CETIS Analytical Report

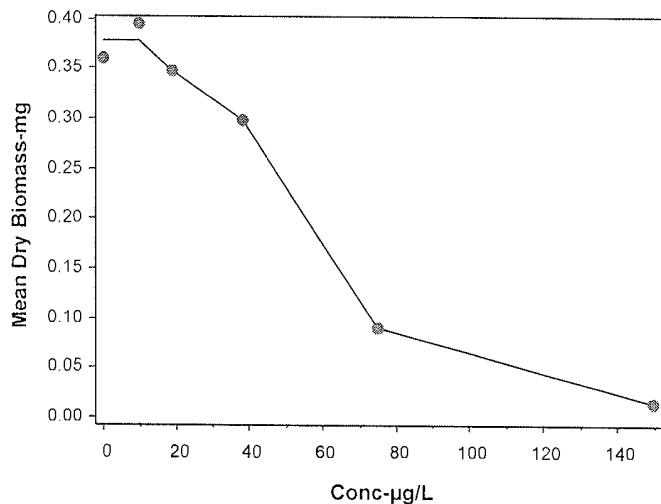
Report Date: 20 Mar-24 14:39 (p 4 of 4)  
Test Code/ID: FML022124 / 16-3813-0758

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-1908-6745	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 20 Mar-24 14:37	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 20 Mar-24 14:37	MD5 Hash: 0525871AA0C486286DACC006B200E70E	Editor ID: 009-702-627-3

### Graphics



# CETIS Measurement Report

Report Date: 20 Mar-24 14:39 (p 1 of 2)  
 Test Code/ID: FML022124 / 16-3813-0758

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 12-6176-5424	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 21 Feb-24 14:55	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 28 Feb-24 13:39	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 12-9997-7974	Code: FML022124	Project: REF TOX
Sample Date: 21 Feb-24 14:55	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	63.75	63.36	64.14	63	64	0.05786	0.4629	0.73%	0
150		8	60	60	60	60	60	0	0	0.00%	0
Overall		16	61.88	60.83	62.92	60	64	0.4905	1.962	3.17%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	376	372	380	367	382	0.605	4.84	1.29%	0
10		8	382.8	372.5	393	370	398	1.535	12.28	3.21%	0
19		8	382.8	373.5	392	373	397	1.382	11.06	2.89%	0
38		8	383.6	375.9	391.3	375	395	1.153	9.226	2.41%	0
75		8	384.9	377.6	392.1	378	396	1.087	8.692	2.26%	0
150		8	385	378.2	391.8	378	395	1.013	8.106	2.11%	0
Overall		48	382.5	379.8	385.2	367	398	1.349	9.344	2.44%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.9	7.521	8.279	6.8	8.2	0.05669	0.4536	5.74%	0
10		8	7.85	7.453	8.247	6.7	8.1	0.05939	0.4751	6.05%	0
19		8	7.838	7.443	8.232	6.7	8.1	0.05899	0.4719	6.02%	0
38		8	7.838	7.443	8.232	6.7	8.1	0.05899	0.4719	6.02%	0
75		8	7.838	7.443	8.232	6.7	8.1	0.05899	0.4719	6.02%	0
150		8	7.838	7.443	8.232	6.7	8.1	0.05899	0.4719	6.02%	0
Overall		48	7.85	7.721	7.979	6.7	8.2	0.06414	0.4443	5.66%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.162	8.074	8.251	8	8.3	0.01326	0.1061	1.30%	0
10		8	8.075	7.959	8.191	7.8	8.2	0.01736	0.1389	1.72%	0
19		8	8.075	7.959	8.191	7.8	8.2	0.01736	0.1389	1.72%	0
38		8	8.05	7.916	8.184	7.8	8.2	0.02004	0.1604	1.99%	0
75		8	8.025	7.865	8.185	7.8	8.2	0.02386	0.1909	2.38%	0
150		8	8.025	7.865	8.185	7.8	8.2	0.02386	0.1909	2.38%	0
Overall		48	8.069	8.023	8.114	7.8	8.3	0.02251	0.156	1.93%	0 (0%)



# CETIS Measurement Report

Report Date: 20 Mar-24 14:39 (p 2 of 2)  
 Test Code/ID: FML022124 / 16-3813-0758

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)



Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

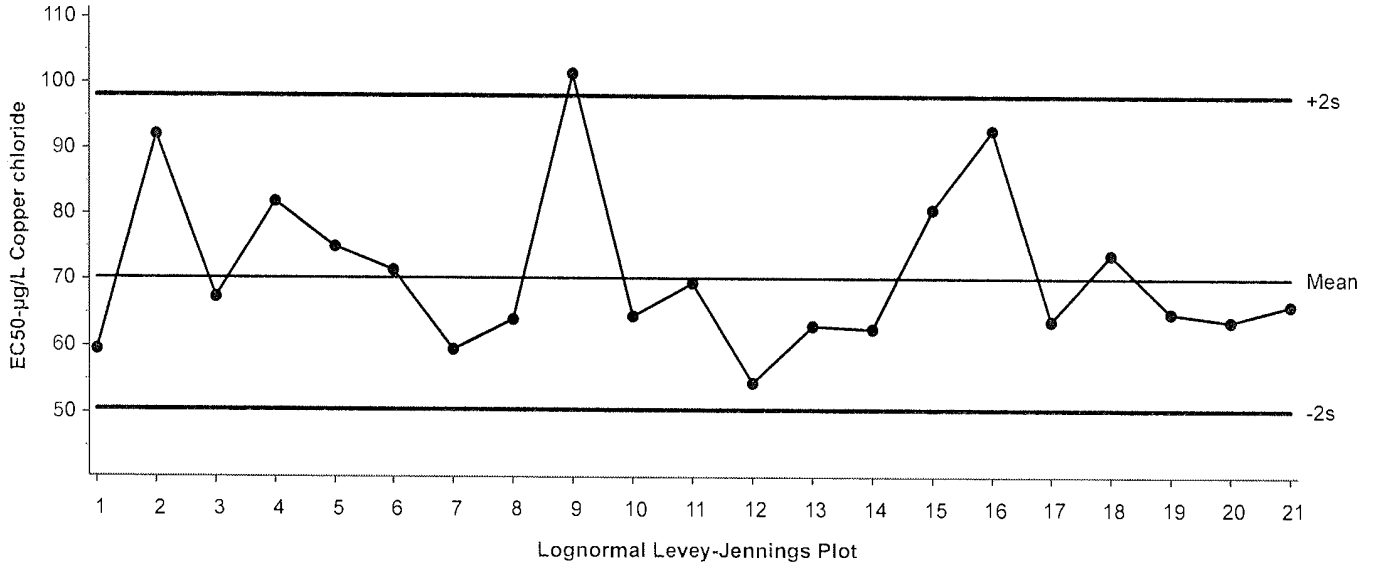
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



Mean: 70.32

Count: 20

-2s Action Limit: 50.5

Sigma: NA

CV: 16.70%

+2s Action Limit: 97.9

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Nov	7	15:10	59.58	-10.73	-0.9995			19-2888-5334	07-9547-8315
2			14	15:30	92.05	21.73	1.625			18-8754-0700	05-2558-7597
3			17	14:01	67.38	-2.934	-0.2572			17-0726-1937	14-0961-0371
4			28	14:49	81.82	11.5	0.9143			10-1970-7599	00-2724-7341
5		Dec	5	13:45	75	4.684	0.3892			19-1204-9208	03-6141-0747
6			12	13:30	71.3	0.984	0.08386			03-7560-9108	05-6885-8439
7			13	12:15	59.42	-10.89	-1.016			14-7892-5887	04-9254-9827
8			21	13:29	64	-6.316	-0.568			06-6036-2868	13-4891-1637
9			22	14:30	101.4	31.04	2.206		(+)	00-5720-1635	14-1952-0593
10	2024	Jan	3	14:00	64.43	-5.887	-0.5277			04-0866-8727	01-4746-8383
11			4	14:05	69.52	-0.7975	-0.06884			15-6608-9784	08-1717-2208
12			9	13:20	54.55	-15.76	-1.532			14-8299-7228	00-5651-6529
13			23	14:00	63	-7.316	-0.663			12-1922-4773	10-8689-4329
14		Feb	2	14:20	62.67	-7.649	-0.6951			05-5157-4005	09-6073-8693
15			6	13:40	80.77	10.45	0.8364			04-6220-8945	10-6161-5529
16			8	14:30	92.76	22.45	1.672			03-7992-6322	19-2866-0483
17			13	13:39	63.81	-6.502	-0.5856			03-2019-4612	14-1051-0807
18			20	14:35	73.81	3.49	0.2924			08-4635-5285	12-7660-0176
19			21	14:55	64.91	-5.407	-0.4829			16-3813-0758	06-3888-1346
20			27	11:15	63.69	-6.622	-0.5969			19-5637-4552	05-7937-9277
21		Mar	5	15:00	66.07	-4.247	-0.376			15-3336-6648	16-9471-0776

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

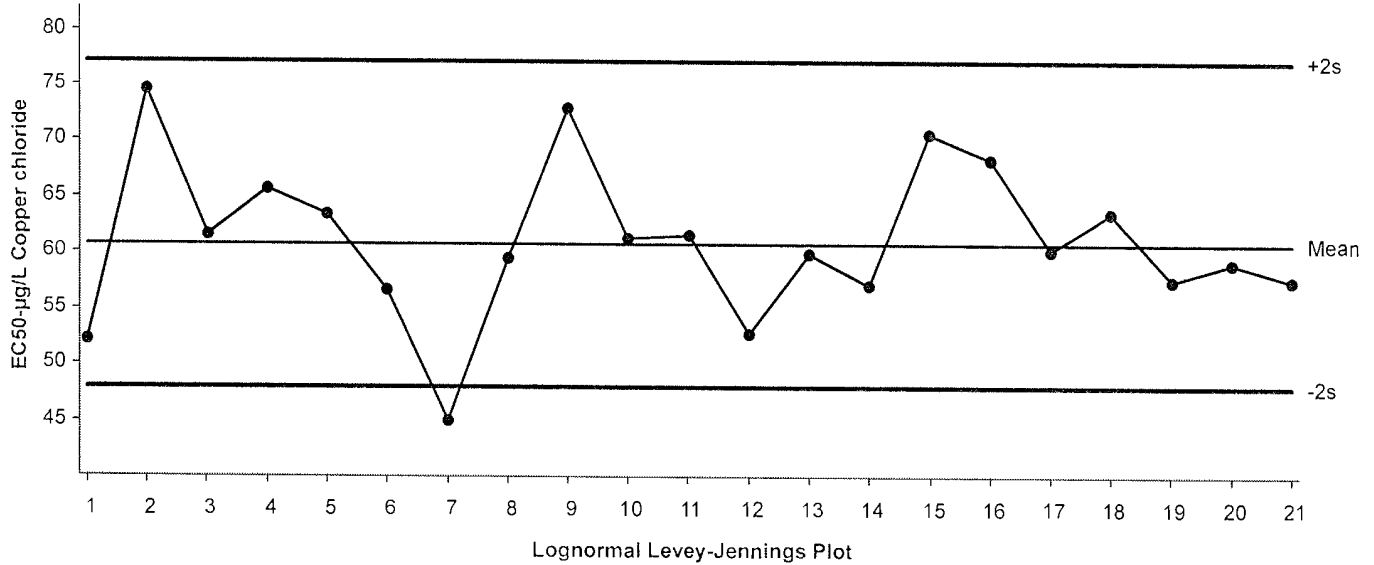
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 60.76

Count: 20

-2s Action Limit: 47.9

Sigma: NA

CV: 11.90%

+2s Action Limit: 77.1

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Nov	7	15:10	52.21	-8.552	-1.277			19-2888-5334	11-0119-4879
2			14	15:30	74.52	13.76	1.718			18-8754-0700	03-4458-8213
3			17	14:01	61.66	0.8969	0.1233			17-0726-1937	06-0317-0204
4			28	14:49	65.63	4.87	0.6489			10-1970-7599	09-5836-2004
5		Dec	5	13:45	63.46	2.693	0.3651			19-1204-9208	02-5721-3294
6			12	13:30	56.61	-4.152	-0.5958			03-7560-9108	19-0990-5343
7			13	12:15	45.01	-15.75	-2.526		(-)	14-7892-5887	19-1033-5713
8			21	13:29	59.44	-1.323	-0.1853			06-6036-2868	01-3251-7777
9			22	14:30	72.95	12.18	1.538			00-5720-1635	06-1309-8628
10	2024	Jan	3	14:00	61.34	0.5729	0.07899			04-0866-8727	03-7640-5638
11			4	14:05	61.64	0.8771	0.1206			15-6608-9784	18-2508-7781
12			9	13:20	52.68	-8.086	-1.202			14-8299-7228	08-4892-6835
13			23	14:00	59.92	-0.8445	-0.1178			12-1922-4773	11-2137-3210
14		Feb	2	14:20	57.13	-3.632	-0.5187			05-5157-4005	07-7973-9309
15			6	13:40	70.57	9.807	1.259			04-6220-8945	00-3964-3519
16			8	14:30	68.31	7.546	0.9853			03-7992-6322	00-8689-1143
17			13	13:39	60.14	-0.6227	-0.08671			03-2019-4612	17-1613-5689
18			20	14:35	63.54	2.777	0.3762			08-4635-5285	06-8568-1699
19			21	14:55	57.55	-3.216	-0.4577			16-3813-0758	03-1908-6745
20			27	11:15	59.08	-1.685	-0.2367			19-5637-4552	04-7521-9748
21		Mar	5	15:00	57.49	-3.272	-0.466			15-3336-6648	12-9818-4247

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

Organism: Pimephales promelas

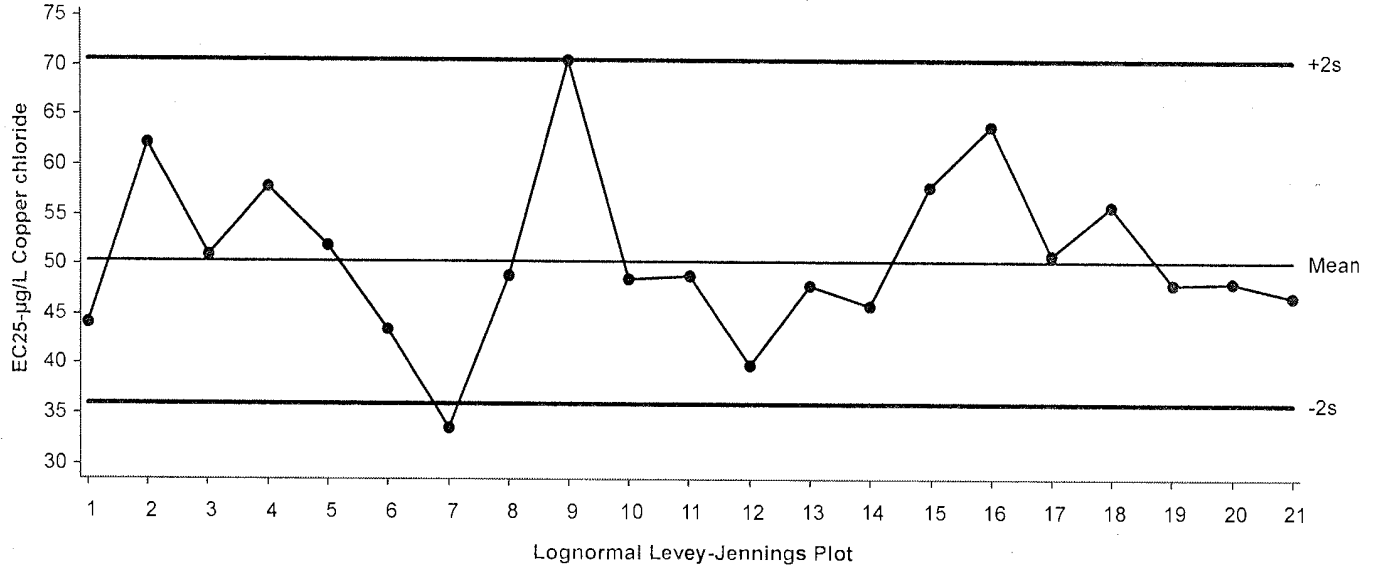
Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: 7d Survival Rate

Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
7d Survival Rate Endpoint



Mean: 50.35      Count: 20      -2s Action Limit: 35.9  
 Sigma: NA      CV: 17.00%      +2s Action Limit: 70.6

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Nov	7	15:10	44.17	-6.183	-0.7762			19-2888-5334	07-9547-8315
2			14	15:30	62.23	11.88	1.255			18-8754-0700	05-2558-7597
3			17	14:01	51.06	0.7088	0.08281			17-0726-1937	14-0961-0371
4			28	14:49	57.82	7.471	0.8197			10-1970-7599	00-2724-7341
5		Dec	5	13:45	51.88	1.525	0.1768			19-1204-9208	03-6141-0747
6			12	13:30	43.55	-6.8	-0.8595			03-7560-9108	05-6885-8439
7			13	12:15	33.53	-16.82	-2.409		(-)	14-7892-5887	04-9254-9827
8			21	13:29	49	-1.35	-0.161			06-6036-2868	13-4891-1637
9			22	14:30	70.65	20.3	2.006		(+)	00-5720-1635	14-1952-0593
10	2024	Jan	3	14:00	48.57	-1.779	-0.2131			04-0866-8727	01-4746-8383
11			4	14:05	48.96	-1.387	-0.1655			15-6608-9784	08-1717-2208
12			9	13:20	39.95	-10.4	-1.371			14-8299-7228	00-5651-6529
13			23	14:00	48	-2.35	-0.2832			12-1922-4773	10-8689-4329
14		Feb	2	14:20	45.85	-4.502	-0.5548			05-5157-4005	09-6073-8693
15			6	13:40	57.82	7.471	0.8197			04-6220-8945	10-6161-5529
16			8	14:30	63.9	13.55	1.412			03-7992-6322	19-2866-0483
17			13	13:39	50.91	0.5569	0.06517			03-2019-4612	14-1051-0807
18			20	14:35	55.9	5.553	0.6198			08-4635-5285	12-7660-0176
19			21	14:55	48.09	-2.259	-0.272			16-3813-0758	06-3888-1346
20			27	11:15	48.28	-2.072	-0.249			19-5637-4552	05-7937-9277
21		Mar	5	15:00	46.93	-3.419	-0.4166			15-3336-6648	16-9471-0776

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)

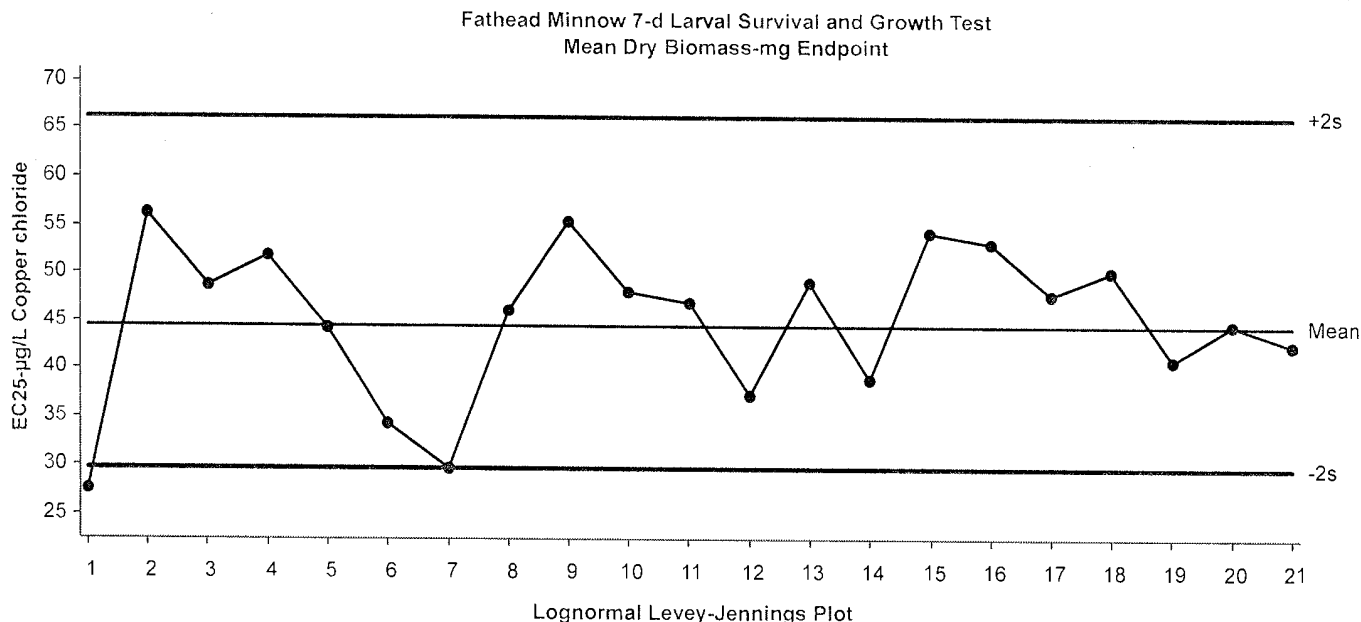
Organism: Pimephales promelas

Material: Copper chloride

Protocol: EPA/821/R-02-013 (2002)

Endpoint: Mean Dry Biomass-mg

Source: Reference Toxicant-REF



Mean: 44.43

Count: 20

-2s Action Limit: 29.8

Sigma: NA

CV: 20.20%

+2s Action Limit: 66.3

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Nov	7	15:10	27.53	-16.9	-2.394		(-)	19-2888-5334	11-0119-4879
2			14	15:30	56.26	11.83	1.18			18-8754-0700	03-4458-8213
3			17	14:01	48.63	4.2	0.4516			17-0726-1937	06-0317-0204
4			28	14:49	51.82	7.383	0.7686			10-1970-7599	09-5836-2004
5		Dec	5	13:45	44.32	-0.1095	-0.01234			19-1204-9208	02-5721-3294
6			12	13:30	34.29	-10.14	-1.295			03-7560-9108	19-0990-5343
7			13	12:15	29.79	-14.64	-1.999			14-7892-5887	19-1033-5713
8			21	13:29	46.06	1.622	0.1793			06-6036-2868	01-3251-7777
9			22	14:30	55.47	11.04	1.109			00-5720-1635	06-1309-8628
10	2024	Jan	3	14:00	47.99	3.551	0.3845			04-0866-8727	03-7640-5638
11			4	14:05	46.88	2.451	0.2685			15-6608-9784	18-2508-7781
12			9	13:20	37.28	-7.158	-0.8783			14-8299-7228	08-4892-6835
13			23	14:00	48.96	4.526	0.485			12-1922-4773	11-2137-3210
14		Feb	2	14:20	38.87	-5.564	-0.6689			05-5157-4005	07-7973-9309
15			6	13:40	54.21	9.774	0.9941			04-6220-8945	00-3964-3519
16			8	14:30	53.15	8.721	0.8961			03-7992-6322	00-8689-1143
17			13	13:39	47.77	3.339	0.3623			03-2019-4612	17-1613-5689
18			20	14:35	50.12	5.689	0.6024			08-4635-5285	06-8568-1699
19			21	14:55	40.83	-3.599	-0.4223			16-3813-0758	03-1908-6745
20			27	11:15	44.64	0.2098	0.02356			19-5637-4552	04-7521-9748
21		Mar	5	15:00	42.55	-1.886	-0.2169			15-3336-6648	12-9818-4247

173243

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018]		ANALYSIS REQUIRED													
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Outfall 011 COMPOSITE		Total Recoverable Metals: (E200.6): Al, Cd, Cu, Pb, Se, Zn	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCAL0)	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300) <b>AND (E31A.0)</b>	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2) (SM2540D)	Ammonia-N (350.2)	Routine Pesticides - alpha-BHC, 4,4-DDE, Heptachlor (E606)	Routine SVOCs - 2,4,6-TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NOMA, PCP, Benzidine, 3,3'-Dichlorobenzidine, Indeno(1,2,3- cd) Pyrene (E629)	LL Mercury (1631) Total Recoverable	Comments		
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24 Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)															
Sampler: Adrien Mobeka																	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Al, Cd, Cu, Pb, Se, Zn	TCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E405.1)(SM5210B_BODCAL0)	Surfactants (MBAS) (SM5540C/E425.1)	Cl-, SO4, Nitrate-N, Nitrite-N, NO3+NO2-N, Perchlorate (E300) <b>AND (E31A.0)</b>	Turbidity, TDS (SM2540C/E180.1)	TSS (160.2) (SM2540D)	Ammonia-N (350.2)	Routine Pesticides - alpha-BHC, 4,4-DDE, Heptachlor (E606)	Routine SVOCs - 2,4,6-TCP, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NOMA, PCP, Benzidine, 3,3'-Dichlorobenzidine, Indeno(1,2,3- cd) Pyrene (E629)	LL Mercury (1631) Total Recoverable	Comments			
Outfall 011	Outfall011_20240221_Comp	2/21/2024 0650	WM	500 mL Poly	1	HNO3	90	Yes	H												HOLD		
			WM	1 L Glass Amber	2	None	110			X													
			WM	1L Poly	1	None	115					X											
			WM	500 mL Poly	2	None	120						X										
			WM	500 mL Poly	1	None	130							X									48 hours Holding Time NO3 & NO2
			WM	500 mL Poly	1	None	150								X								48 hour holding time for turbidity
			WM	500 mL Poly	1	H2SO4	160										X						
			WM	1 L Glass Amber	4	None	170											X					
			WM	1 L Glass Amber	6	None	180	Yes												X			<del>EXTRACT AND HOLD IF OP-0011002</del>
			WM	250mL Glass, double bagged	1	HCL	998														X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. <del>HOLD IF OP-0011002</del>
Outfall011_20240221_Comp_Extra	2/21/2024 0650	WM	1L Poly	1	None	185								X									
		WM	1 L Glass Amber	2	None	110				H												Hold	
		WM	500 mL Poly	2	None	120						H										Hold	
		WM	500 mL Poly	1	None	130							H									Hold	
		WM	1 L Glass Amber	4	None	170											H					Hold	

Legend: C=Conditional, R=Routine

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 2/21/24 1130 Company: H&A	Received By: <i>[Signature]</i> Date/Time: 2/21/24 1130 Company: EC	750-173243 Chain of Custody
Relinquished By: <i>[Signature]</i> Date/Time: 2/21/24 1820 Company: EC	Received By: <i>[Signature]</i> Date/Time: 2/21/24 1820 Company: EC	
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	

Data Requirements: (Check)  
No Level IV: \_\_\_\_\_ All Level IV:   X  

1.3/1.5 2.1/2.3 SC14

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018]  Outfall 011 COMPOSITE	ANALYSIS REQUIRED									
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Total Dissolved Metals: (E200.0): Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs In Ventura, CA	LL Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8315MDV-WC-0077) Weck Labs In Hacienda Heights, CA	1,4-Dioxane (E624) (SW8260M_SIM)	Comments		
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)	Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)								
Sampler: Adrien Mobeka											

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.0): Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013) ABC Labs In Ventura, CA	LL Mercury (1631) Total Dissolved	Monomethyl hydrazine (SW8315MDV-WC-0077) Weck Labs In Hacienda Heights, CA	1,4-Dioxane (E624) (SW8260M_SIM)	Comments		
Outfall 011	Outfall011_20240221_Comp_F	2/21/2024 0650	WM	1L Poly	1	None	200	Yes	H							Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
			WM	250mL Glass, double bagged	1	None	999						X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.	
	Outfall011_20240221_Comp	2/21/2024 0650	WM	250 mL Poly	1	NaOH	220				X							
			WM	2.5 Gal Cube	1	None	225											Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
				1 L Glass Amber	1	None	230											
			WM	1 Gal Cube	5	None	235							X				Only test if first or second discharge events of the year. Deliver to ABC Labs In Ventura, CA.
			WM	1 L Glass Amber	1	None									X			
WM	40 mL VOA	3	HCl											X				
QA/QC	FB-Outfall011-20240221	2/21/24 0650	WR	1L Glass Amber	1	None										X		

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Michelle Dellalah</i> Date/Time: 2/21/24 1130 Company: H&A	Received By: <i>[Signature]</i> Date/Time: 2/21/24 1130 Company: EC
Relinquished By: <i>[Signature]</i> Date/Time: 2/21/24 1820 Company: EC	Received By: <i>[Signature]</i> Date/Time: 2/21/24 1820 Company: EC

Bis-2-ethylhexylphthalate by E625

## Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-173243-4

**Login Number: 173243**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	







# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 2/10/2024 10:33:51 AM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 018 - Comp

## JOB NUMBER

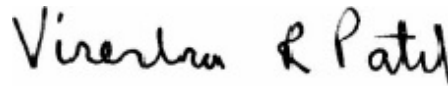
570-166871-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-166871-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-166871-4

**Job ID: 570-166871-4**

**Eurofins Calscience**

## Job Narrative 570-166871-4

### Receipt

The samples were received on 1/4/2024 4:40 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.6° C, 2.1° C and 2.4° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic-Ceriodaphnia: This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-166871-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-166871-4

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166871-1	Outfall018_20240104_Comp	Water	01/04/24 07:30	01/04/24 16:40

1

2

3

4

5

6

7

8

9



**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.

January 25, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall018\_20240104\_Comp\_F (Outfall 018)  
 DATE RECEIVED: 4 Jan - 2024  
 ABC LAB. NO.: CSE0124.012

**CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY**

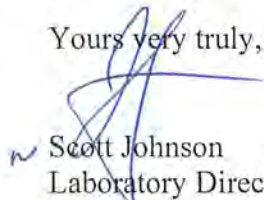
IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

REPRODUCTION = PASS    % EFFECT = 16.81 %

Yours very truly,



Scott Johnson  
 Laboratory Director

\*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia.





**CETIS Summary Report**

Report Date: 19 Jan-24 13:19 (p 1 of 1)  
 Test Code/ID: CSE0124.012cer / 10-9277-0902

Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-7702-9435	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:40	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 02-6834-7836	Code: CSE0124.012cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 07:30	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 7h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc	

**Single Comparison Summary**

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
18-3191-1378	7d Survival Rate	Fisher Exact Test	1.0000	100% passed 7d survival rate	1
09-6649-7614	Reproduction	TST-Welch's t Test	0.0079	100% passed reproduction	1

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
18-3191-1378	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
09-6649-7614	Reproduction	Control Resp	30.05	15	<<	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		20	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	20	30.05	28.83	31.27	25	37	0.5825	2.605	8.67%	0.00%
100		20	25	23.22	26.78	20	34	0.8522	3.811	15.25%	16.81%

**7d Survival Rate Detail**

MD5: E2FCA10CAEB5BD33B061F6901431A2E1

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Reproduction Detail**

MD5: E0AE7517E6370E136C5FDFDEF8762AAF

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	29	25	30	31	31	31	31	29	29	31
		35	37	28	29	29	29	28	31	27	31
100		29	23	20	22	26	23	23	21	23	24
		26	22	21	26	29	22	34	28	32	26

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

**CETIS Analytical Report**

Report Date: 19 Jan-24 13:18 (p 1 of 2)  
 Test Code/ID: CSE0124.012cer / 10-9277-0902

Ceriodaphnia 7-d Survival and Reproduction Test				Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 09-6649-7614	Endpoint: Reproduction	CETIS Version: CETISv2.1.4		Analyzed: 16 Jan-24 9:21	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1	
Edit Date: 16 Jan-24 9:18	MD5 Hash: E0AE7517E6370E136C5FDFDEF8762AAF	Editor ID:		Batch ID: 19-7702-9435	Test Type: Reproduction-Survival (7d)	Analyst:	
Start Date: 04 Jan-24 14:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water		Ending Date: 11 Jan-24 14:40	Species: Ceriodaphnia dubia	Brine: Not Applicable	
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO	Age: <24	Sample ID: 02-6834-7836	Code: CSE0124.012cer	Project: Boeing-SSFL NPDES 2023 PERMIT	
Sample Date: 04 Jan-24 07:30	Material: Sample Water	Source: Bioassay Report		Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp	
Sample Age: 7h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc						

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed reproduction endpoint

TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:20%)
Negative Control		100*	28	2.571	0.8546	CDF	0.0079	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control Resp	30.05	15	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	255.025	255.025	1	23.93	1.9E-05	Significant Effect
Error	404.95	10.6566	38			
Total	659.975		39			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	4.092	7.353	0.0502	Equal Variances
	Mod Levene Equality of Variance Test	2.421	7.353	0.1280	Equal Variances
	Variance Ratio F Test	2.14	3.432	0.1057	Equal Variances
Distribution	Anderson-Darling A2 Test	1.188	3.878	0.0042	Non-Normal Distribution
	D'Agostino Kurtosis Test	1.206	2.576	0.2278	Normal Distribution
	D'Agostino Skewness Test	2.367	2.576	0.0179	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	7.058	9.21	0.0293	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2032	0.1617	0.0002	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9234	0.9236	0.0098	Non-Normal Distribution

Reproduction Summary

Conc.-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	20	30.05	28.83	31.27	29.14	25	37	0.5825	8.67%	0.00%
100		20	25	23.22	26.78	23.2	20	34	0.8522	15.25%	16.81%

Reproduction Detail

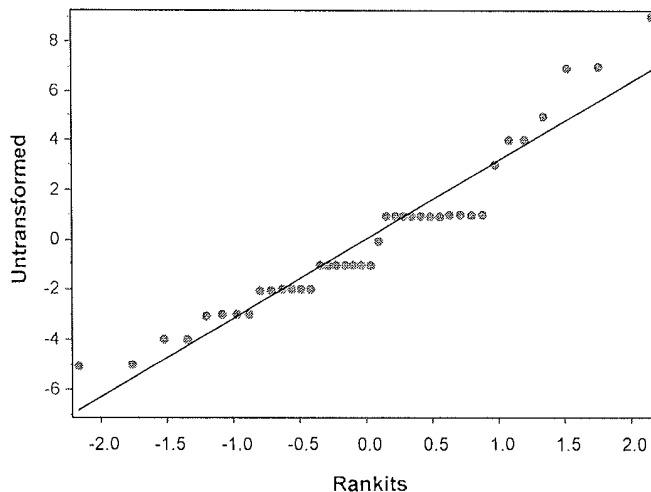
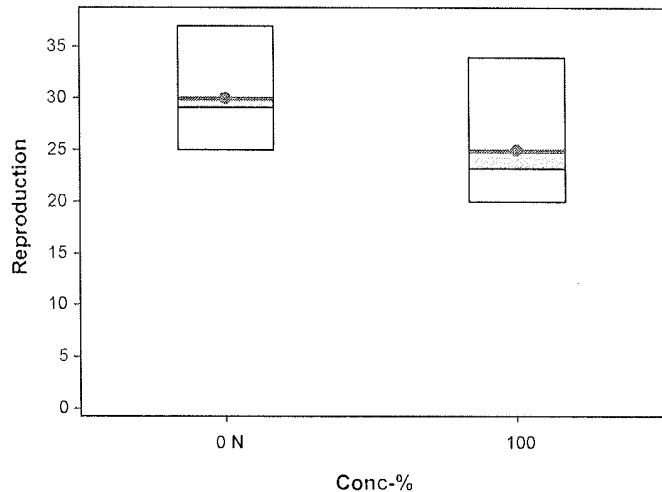
Conc.-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	29	25	30	31	31	31	31	29	29	31
		35	37	28	29	29	29	28	31	27	31
100		29	23	20	22	26	23	23	21	23	24
		26	22	21	26	29	22	34	28	32	26

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-6649-7614      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
Analyzed: 16 Jan-24 9:21      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 16 Jan-24 9:18      MD5 Hash: E0AE7517E6370E136C5FDFDEF8762AAF      Editor ID:

Graphics





# CETIS Analytical Report

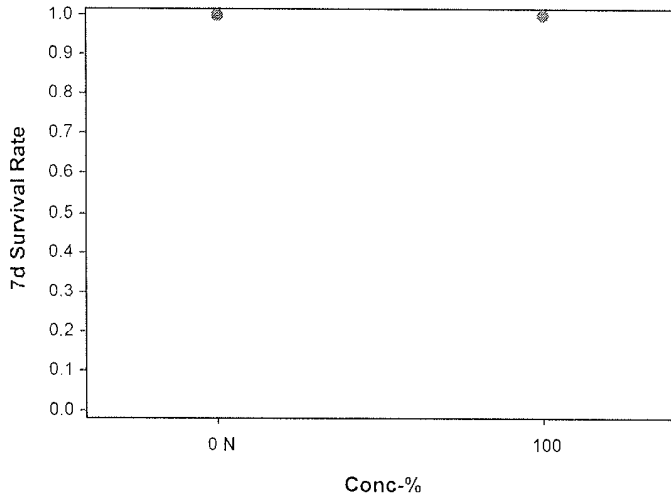
Report Date: 19 Jan-24 13:19 (p 2 of 2)  
Test Code/ID: CSE0124.012cer / 10-9277-0902

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 18-3191-1378	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 16 Jan-24 9:20	Analysis: Single 2x2 Contingency Table	Status Level: 1
Edit Date: 16 Jan-24 9:18	MD5 Hash: E2FCA10CAEB5BD33B061F6901431A2E1	Editor ID:

### Graphics



# CETIS Measurement Report

Report Date: 19 Jan-24 13:19 (p 1 of 1)  
 Test Code/ID: CSE0124.012cer / 10-9277-0902

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-7702-9435	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 04 Jan-24 14:10	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 11 Jan-24 14:40	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 7d 0h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: <24
Sample ID: 02-6834-7836	Code: CSE0124.012cer	Project: Boeing-SSFL NPDES 2023 PERMIT
Sample Date: 04 Jan-24 07:30	Material: Sample Water	Source: Bioassay Report
Receipt Date: 04 Jan-24 13:00	CAS (PC):	Station: Outfall002_20240104_Comp
Sample Age: 7h (3.3 °C)	Client: Calscience Environmental Laboratories, Inc	

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	66	62.43	69.57	62	70	0.5345	4.276	6.48%	0
100		8	78	78	78	78	78	0	0	0.00%	0
Overall		16	72	68.35	75.65	62	78	1.713	6.851	9.52%	0 (0%)

### Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	381.1	376.8	385.4	373	387	0.6424	5.139	1.35%	0
100		8	576.2	570.4	582.1	570	588	0.8731	6.985	1.21%	0
Overall		16	478.7	424.9	532.5	373	588	25.23	100.9	21.09%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.988	7.658	8.317	7.1	8.4	0.0493	0.3944	4.94%	0
100		8	7.975	7.727	8.223	7.3	8.2	0.03705	0.2964	3.72%	0
Overall		16	7.981	7.802	8.161	7.1	8.4	0.08427	0.3371	4.22%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	85	85	85	85	85	0	0	0.00%	0
Overall		16	92.5	88.37	96.63	85	100	1.936	7.746	8.37%	0 (0%)

### pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.037	8.163	8	8.2	0.00945	0.0756	0.93%	0
100		8	8.175	8.101	8.249	8.1	8.3	0.01108	0.08864	1.08%	0
Overall		16	8.138	8.09	8.185	8	8.3	0.02213	0.08851	1.09%	0 (0%)

### Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24.06	23.91	24.21	24	24.5	0.0221	0.1768	0.73%	0
Overall		16	24.03	23.96	24.1	24	24.5	0.03125	0.125	0.52%	0 (0%)

CHAIN OF CUSTODY FORM

Client Name/Address:		Project:		ANALYSIS REQUIRED										Comments														
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018] Outfall 018 COMPOSITE		Total Dissolved Metals: (E200.7): B, Hardness as CaCO3 (E200.8): Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Tl, V, Zn	Cr (VI): Total Dissolved (E218.6)	Gross Alpha, Gross Beta (E900.0); Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium (H-3) (E906.0)	Chronic Toxicity - Ceriodaphnia (EPA-821-R-02-013) ABC Labs in Ventura, CA	1,4-Dioxane (E624 (SW6200M_SIM))	Total Organic Carbon (415.2 (SM 5310B))	Monomethyl hydrazine (SM8315/MDV-WC-0077) Weck Labs in Hacienda Heights, CA	LL Mercury (E1631E) - Total Dissolved	Cyanide (SM4500-CHE / E336.2)																
Eurofins CalScience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)												012														
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																												
Sampler: Adrien Mobeka																												
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD																				
Outfall 018	Outfall018_20240104_Comp_F	1/4/2024 0730	WM	1 L Poly	1	None		Yes	X											Filter and preserve w/in 24hrs of receipt at lab.								
			WM	250 mL Poly	1	None		No		X											Filter and preserve w/in 24hrs of receipt at lab.							
			WM	250mL Clear Glass, double bagged	1	None		No						X											Filter and preserve w/in 24hrs of receipt at lab.			
	Outfall018_20240104_Comp	1/4/2024 0730	WM	500 mL Poly	1	NaOH		No								X												
			WM	2.5 Gal Cube	1	None		No			X											Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.						
			WM	1 L Glass Amber	1	None		No																				
			WM	Gal Cube	5	None		No				X											Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA					
			WM	40 mL VOA	3	HCl		No					X											Temp. deg. C = 3.3				
			WM	1 L Glass Amber	1	HCl		No					X											Chlorine (mg/L) = 60				
			WM	1 L Glass Amber	1	None		No						X											NH3 (mg/L) = 60			
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																												
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Company:	Turn-around time: (Check)																						
Mark Dominick	1-4-2024/1300	H&A	Elizabeth Mahwa	1-4-24/1300	H&A	24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/>						48 Hour: _____ 5 Day: _____ Normal: _____																
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Company:	Sample Integrity: (Check)						Intact: _____ On Ice: _____																
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Company:	Store samples for 6 months.						Data Requirements: (Check)																
Relinquished By	Date/Time:	Company:	Received By	Date/Time:	Company:	No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>																						

\* Hand-delivered to ABC Labs with this copy of the COC



**CHRONIC CERIODAPHNIA SURVIVAL AND REPRODUCTION BIOASSAY**

DATE: 5 January - 2024

STANDARD TOXICANT: Copper Chloride

ENDPOINT: SURVIVAL

NOEC = 10.00 ug/l

EC25 = 17.14 ug/l

EC50 = 24.29 ug/l

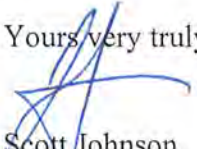
ENDPOINT: REPRODUCTION

NOEC = 10.00 ug/l

IC25 = 15.36 ug/l

IC50 = 20.73 ug/l

Yours very truly,

  
Mr. Scott Johnson  
Laboratory Director



**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-5328-3144	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	✓ 10	30	17.32	---	1
11-1237-1648	Reproduction	Dunnett Multiple Comparison Test	✓ 10	30	17.32	13.6%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
07-0692-8548	7d Survival Rate	Linear Interpolation (ICPIN)	✓ EC15	14.29	13.33	17.5	1
			EC20	15.71	14.44	20	
			EC25	17.14	15.56	22.5	
			EC40	21.43	18.89	30	
			EC50	24.29	21.11	33.33	
07-9708-4589	Reproduction	Linear Interpolation (ICPIN)	✓ IC15	13.22	12.3	13.48	1
			✓ IC20	14.29	13.4	14.65	
			✓ IC25	15.36	14.51	15.81	
			✓ IC40	18.58	17.81	19.29	
			✓ IC50	20.73	19.98	21.62	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
07-0692-8548	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
14-5328-3144	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
07-9708-4589	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria
11-1237-1648	Reproduction	Control Resp	24.8	15	<<	Yes	Passes Criteria
11-1237-1648	Reproduction	PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
30		10	0.3000	-0.0456	0.6456	0.0000	1.0000	0.1528	0.4830	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	24.8	23.42	26.18	22	28	0.611	1.932	7.79%	0.00%
3		10	27	24.62	29.38	23	32	1.054	3.333	12.35%	-8.87%
5		10	26.6	23.82	29.38	21	32	1.231	3.893	14.64%	-7.26%
10		10	27.6	24.56	30.64	23	34	1.343	4.248	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	8	0.9978	3.155	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

**CETIS Summary Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

Aquatic Bioassay & Consulting Labs, Inc.

**7d Survival Rate Detail**

MD5: AE52350A46AC30A172F710E040BB92B1

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**Reproduction Detail**

MD5: D30251365D8B1138125925092AE28FAC

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

**Ceriodaphnia 7-d Survival and Reproduction Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO <span style="float: right;">Age: &gt;24</span>
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	10	30	17.32	---	3.385	13.65%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		3	18	-1.444	2.222	3.385	CDF	0.9939	Non-Significant Effect
		5	18	-1.182	2.222	3.385	CDF	0.9865	Non-Significant Effect
		10	18	-1.838	2.222	3.385	CDF	0.9984	Non-Significant Effect
		30*	18	15.1	2.222	3.385	CDF	<1.0E-05	Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.8	15	<<	Yes	Passes Criteria
PMSD	0.1365	0.13	0.47	Yes	Passes Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4924.32	1231.08	4	106.1	<1.0E-05	Significant Effect
Error	522	11.6	45			
Total	5446.32		49			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	5.346	13.28	0.2536	Equal Variances
	Levene Equality of Variance Test	2.283	3.767	0.0750	Equal Variances
	Mod Levene Equality of Variance Test	1.757	3.767	0.1542	Equal Variances
Distribution	Anderson-Darling A2 Test	0.792	3.878	0.0398	Normal Distribution
	D'Agostino Kurtosis Test	2.111	2.576	0.0347	Normal Distribution
	D'Agostino Skewness Test	0.9295	2.576	0.3526	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	5.322	9.21	0.0699	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1494	0.1453	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9541	0.9367	0.0502	Normal Distribution

**Reproduction Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	24.8	23.42	26.18	24.33	22	28	0.611	7.79%	0.00%
3		10	27	24.62	29.38	27.5	23	32	1.054	12.35%	-8.87%
5		10	26.6	23.82	29.38	27	21	32	1.231	14.64%	-7.26%
10		10	27.6	24.56	30.64	27	23	34	1.343	15.39%	-11.29%
30		10	1.8	-0.4571	4.057	0	0	8	0.9978	175.29%	92.74%
50		10	0	0	0	0	0	0	0	---	100.00%

Ceriodaphnia 7-d Survival and Reproduction Test

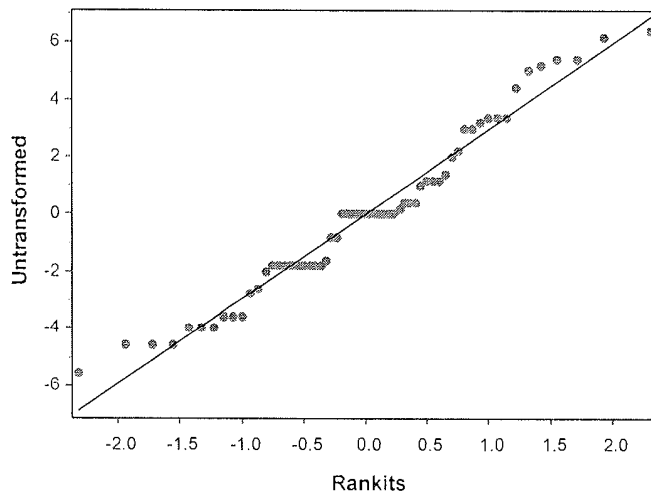
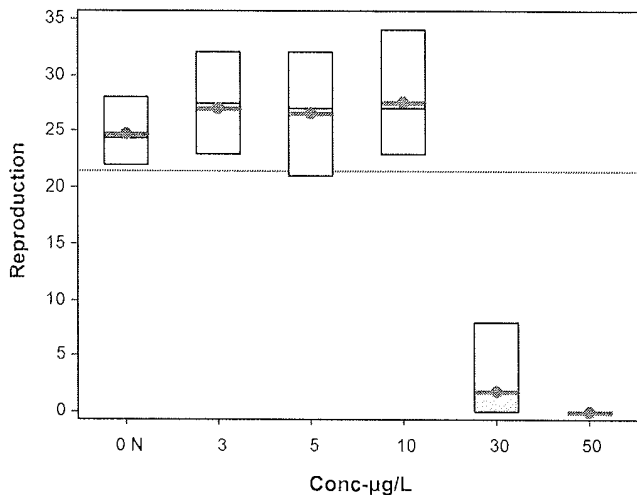
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-1237-1648      Endpoint: Reproduction      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: D30251365D8B1138125925092AE28FAC      Editor ID: 006-853-889-6

Reproduction Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

Graphics



CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 1 of 4)
Test Code/ID: CER010524 / 03-8898-9993

Table with 3 columns: Analysis ID, Endpoint, CETIS Version; Batch ID, Test Type, Analyst; Sample ID, Code, Project; etc.

Table with 6 columns: X Transform, Y Transform, Seed, Resamples, Exp 95% CL, Method

Table with 6 columns: Attribute, Test Stat, Lower, Upper, Overlap, Decision

Table with 4 columns: Level, ug/L, 95% LCL, 95% UCL

Table with 12 columns: Conc-ug/L, Code, Count, Mean, Median, Min, Max, CV%, %Effect, SA/SB, Mean, %Effect

Table with 12 columns: Conc-ug/L, Code, Rep 1, Rep 2, Rep 3, Rep 4, Rep 5, Rep 6, Rep 7, Rep 8, Rep 9, Rep 10

Table with 12 columns: Conc-ug/L, Code, Rep 1, Rep 2, Rep 3, Rep 4, Rep 5, Rep 6, Rep 7, Rep 8, Rep 9, Rep 10

# CETIS Analytical Report

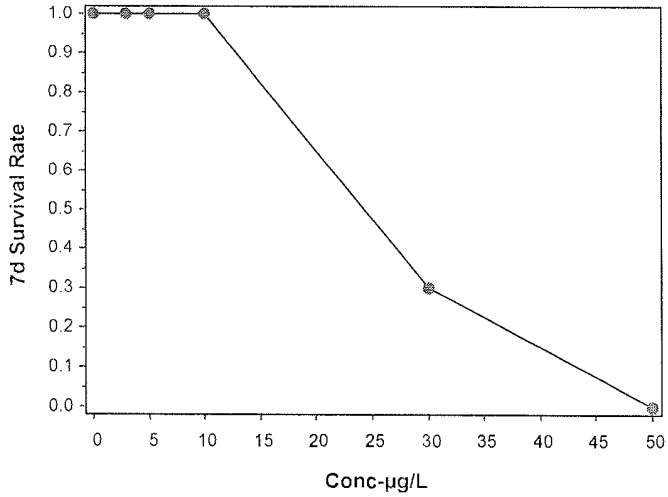
Report Date: 26 Jan-24 13:02 (p 2 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-0692-8548	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6

### Graphics



**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 3 of 4)  
 Test Code/ID: CER010524 / 03-8898-9993

**Ceriodaphnia 7-d Survival and Reproduction Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	992278	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	24.8	15	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	13.22	12.3	13.48
IC20	14.29	13.4	14.65
IC25	15.36	14.51	15.81
IC40	18.58	17.81	19.29
IC50	20.73	19.98	21.62

**Reproduction Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	10	24.8	24.33	22	28	7.79%	0.00%	26.5	0.00%
3		10	27	27.5	23	32	12.35%	-8.87%	26.5	0.00%
5		10	26.6	27	21	32	14.64%	-7.26%	26.5	0.00%
10		10	27.6	27	23	34	15.39%	-11.29%	26.5	0.00%
30		10	1.8	0	0	8	175.29%	92.74%	1.8	93.21%
50		10	0	0	0	0	---	100.00%	0	100.00%

**Reproduction Detail**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	22	24	28	24	23	23	26	25	26	27
3		29	30	23	28	23	32	23	25	30	27
5		27	24	27	30	30	30	22	23	21	32
10		23	24	23	24	29	26	33	32	28	34
30		3	0	0	0	0	8	7	0	0	0
50		0	0	0	0	0	0	0	0	0	0

# CETIS Analytical Report

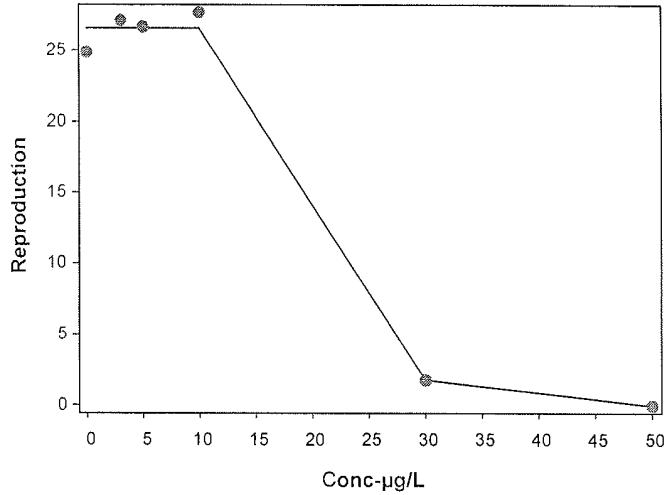
Report Date: 26 Jan-24 13:02 (p 4 of 4)  
Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-9708-4589	Endpoint: Reproduction	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: D30251365D8B1138125925092AE28FAC	Editor ID: 006-853-889-6

### Graphics





# CETIS Analytical Report

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 25 Jan-24 12:39	Analysis: STP 2xK Contingency Tables	Status Level: 1
Edit Date: 25 Jan-24 12:37	MD5 Hash: AE52350A46AC30A172F710E040BB92B1	Editor ID: 006-853-889-6
Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units
Untransformed	C > T	10	30	17.32	---

### Fisher Exact/Bonferroni-Holm Test

Control	vs	Conc-µg/L	Test Stat	P-Type	P-Value	Decision(α:5%)
Negative Control		3	1.0000	Exact	1.0000	Non-Significant Effect
		5	1.0000	Exact	1.0000	Non-Significant Effect
		10	1.0000	Exact	1.0000	Non-Significant Effect
		30*	0.0015	Exact	0.0062	Significant Effect
		50*	0.0000	Exact	2.7E-05	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### 7d Survival Rate Frequencies

Conc-µg/L	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	N	10	0	10	1.0000	0.0000	0.00%
3		10	0	10	1.0000	0.0000	0.00%
5		10	0	10	1.0000	0.0000	0.00%
10		10	0	10	1.0000	0.0000	0.00%
30		3	7	10	0.3000	0.7000	70.00%
50		0	10	10	0.0000	1.0000	100.00%

### 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
3		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
30		10	0.3000	0.0000	0.6456	0.0000	0.0000	1.0000	0.1528	161.02%	70.00%
50		10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	---	100.00%

### 7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30		1.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000
50		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**CETIS Analytical Report**

Report Date: 26 Jan-24 13:02 (p 2 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

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

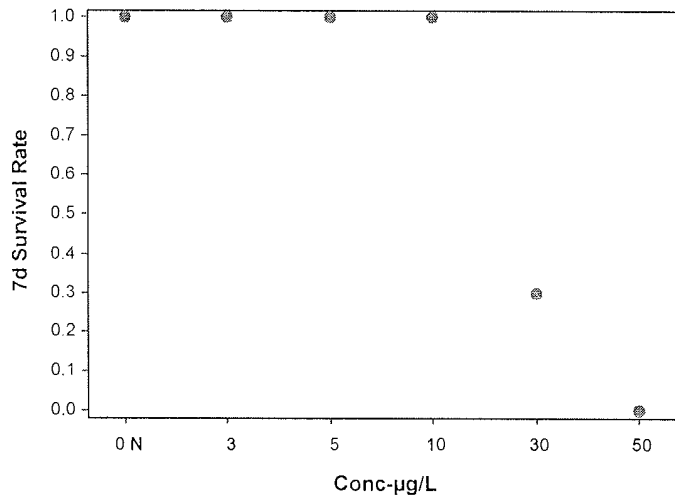
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-5328-3144      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 25 Jan-24 12:39      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 25 Jan-24 12:37      MD5 Hash: AE52350A46AC30A172F710E040BB92B1      Editor ID: 006-853-889-6

**7d Survival Rate Binomials**

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
10		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
30		1/1	0/1	0/1	0/1	0/1	1/1	1/1	0/1	0/1	0/1
50		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

**Graphics**



# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 1 of 2)  
 Test Code/ID: CER010524 / 03-8898-9993

## Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-5982-7129	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 05 Jan-24 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 12 Jan-24 11:20	Species: Ceriodaphnia dubia	Brine: Not Applicable
Test Length: 6d 23h	Taxon: Branchiopoda	Source: Aquatic Biosystems, CO Age: >24
Sample ID: 17-1014-7631	Code: CER010524	Project: REF TOX
Sample Date: 05 Jan-24 12:00	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

### Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	67	63.54	70.46	62	70	0.5175	4.14	6.18%	0
50		6	60	60	60	60	60	0	0	0.00%	0
Overall		14	64	61.28	66.72	60	70	1.258	4.707	7.35%	0 (0%)

### Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	380.5	376.8	384.2	373	387	0.551	4.408	1.16%	0
3		8	371	369.2	372.8	369	375	0.2673	2.138	0.58%	0
5		8	368.4	361.9	374.9	352	376	0.9727	7.782	2.11%	0
10		8	372.1	367.8	376.5	364	379	0.6493	5.194	1.40%	0
30		8	373.9	367	380.8	356	380	1.032	8.254	2.21%	0
50		6	377.8	372.5	383.2	370	383	0.8526	5.115	1.35%	0
Overall		46	373.8	371.7	375.8	352	387	1.023	6.938	1.86%	0 (0%)

### Dissolved Oxygen-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.025	7.817	8.233	7.6	8.4	0.03116	0.2493	3.11%	0
3		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
5		8	7.95	7.76	8.14	7.5	8.2	0.02835	0.2268	2.85%	0
10		8	7.938	7.738	8.137	7.4	8.2	0.02983	0.2387	3.01%	0
30		8	7.95	7.745	8.155	7.4	8.2	0.03062	0.2449	3.08%	0
50		5	8.02	7.916	8.124	7.9	8.1	0.01673	0.08367	1.04%	0
Overall		45	7.969	7.904	8.034	7.4	8.4	0.03223	0.2162	2.71%	0 (0%)

### Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
50		6	93	93	93	93	93	0	0	0.00%	0
Overall		14	97	94.92	99.08	93	100	0.9608	3.595	3.71%	0 (0%)

### pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.1	8.023	8.177	8	8.2	0.01157	0.09259	1.14%	0
3		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
5		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
10		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
30		8	8.063	8.019	8.106	8	8.1	0.006471	0.05177	0.64%	0
50		5	8.06	7.992	8.128	8	8.1	0.01096	0.05479	0.68%	0
Overall		45	8.073	8.054	8.093	8	8.2	0.009744	0.06537	0.81%	0 (0%)

# CETIS Measurement Report

Report Date: 26 Jan-24 13:02 (p 2 of 2)

Test Code/ID: CER010524 / 03-8898-9993

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
3		8	24	24	24	24	24	0	0	0.00%	0
5		8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
30		8	24	24	24	24	24	0	0	0.00%	0
50		5	24	24	24	24	24	0	0	0.00%	0
Overall		45	24	24	24	24	24	0	0	0.00%	0 (0%)



Ceriodaphnia 7-d Survival and Reproduction Test

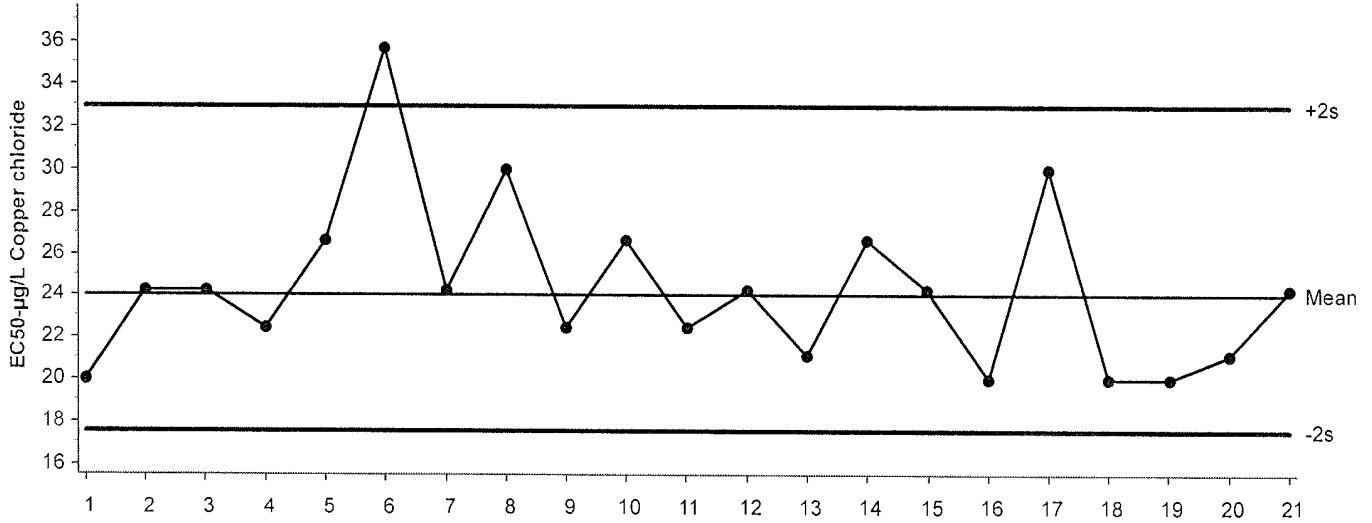
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
 Endpoint: 7d Survival Rate

Material: Copper chloride  
 Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
 7d Survival Rate Endpoint



Mean: 24.05      Count: 20      -2s Action Limit: 17.6  
 Sigma: NA      CV: 15.80%      +2s Action Limit: 32.9

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	20	-4.047	-1.171			15-9267-6325	13-8039-3389
2		Apr	5	13:40	24.29	0.239	0.06286			00-4985-0500	19-4921-0131
3		May	2	14:30	24.29	0.239	0.06286			11-3222-0627	00-2601-8684
4		Jun	6	14:00	22.5	-1.547	-0.4227			08-5473-2211	11-7704-8711
5			7	14:12	26.67	2.62	0.6574			02-3608-9426	17-9182-9169
6			15	15:40	35.71	11.67	2.515	(+)		10-4793-1547	20-4446-4479
7			27	14:40	24.29	0.239	0.06286			16-7344-0663	11-8484-0936
8			29	12:02	30	5.953	1.406			07-2471-0095	15-4161-4480
9		Jul	11	13:52	22.5	-1.547	-0.4227			12-8943-1800	03-0634-2447
10		Aug	8	14:23	26.67	2.62	0.6574			01-9164-3770	13-2486-3042
11			29	14:28	22.5	-1.547	-0.4227			06-3274-6762	20-0784-0120
12		Sep	5	13:20	24.29	0.239	0.06286			14-4921-5003	00-1422-5185
13		Oct	5	13:45	21.11	-2.936	-0.8277			20-2874-3873	04-2467-5752
14			24	13:59	26.67	2.62	0.6574			09-6061-9503	10-9205-4597
15		Nov	7	14:59	24.29	0.239	0.06286			16-2379-1831	01-6526-0546
16			9	16:30	20	-4.047	-1.171			11-1637-2324	18-2560-8953
17			17	12:00	30	5.953	1.406			06-0962-9936	07-2500-6920
18		Dec	5	15:04	20	-4.047	-1.171			06-9736-2705	01-6044-5215
19			13	14:03	20	-4.047	-1.171			01-9164-8741	10-2776-8004
20			22	14:00	21.11	-2.936	-0.8277			12-5671-2450	03-9575-0504
21	2024	Jan	5	12:00	24.29	0.239	0.06286			03-8898-9993	07-0692-8548

Ceriodaphnia 7-d Survival and Reproduction Test

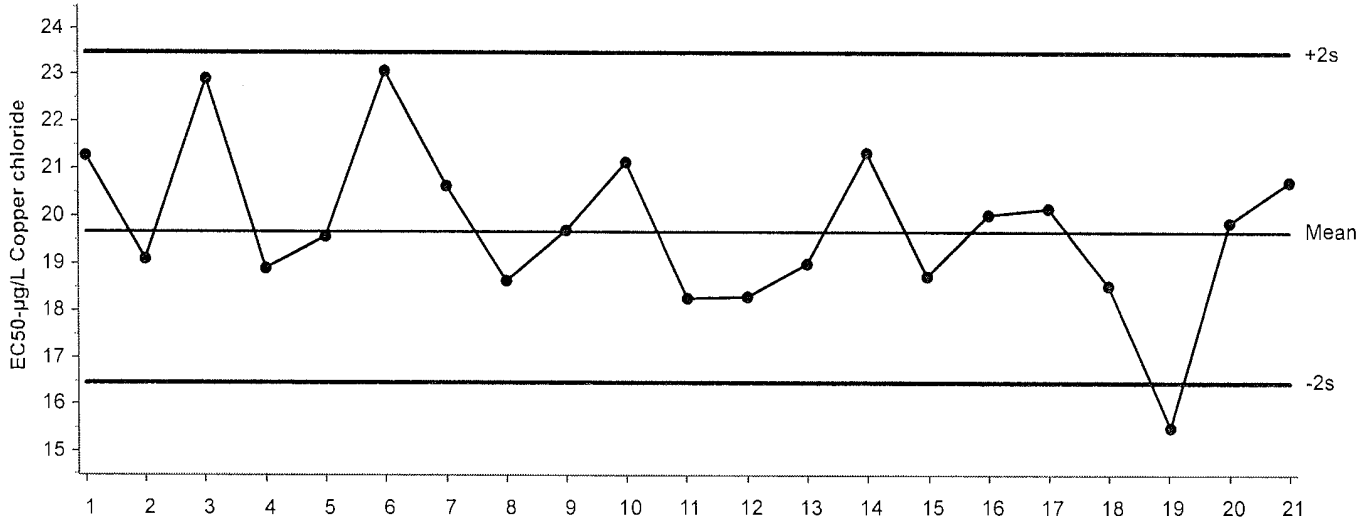
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Reproduction-Survival (7d)  
 Protocol: EPA/821/R-02-013 (2002)

Organism: Ceriodaphnia dubia  
 Endpoint: Reproduction

Material: Copper chloride  
 Source: Reference Toxicant-REF

Ceriodaphnia 7-d Survival and Reproduction Test  
 Reproduction Endpoint



Lognormal Levey-Jennings Plot

Mean: 19.67      Count: 20      -2s Action Limit: 16.5  
 Sigma: NA      CV: 8.90%      +2s Action Limit: 23.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Mar	29	14:30	21.26	1.593	0.8771			15-9267-6325	08-1059-6139
2		Apr	5	13:40	19.09	-0.5735	-0.3333			00-4985-0500	20-3935-2169
3		May	2	14:30	22.9	3.235	1.715			11-3222-0627	01-3728-6873
4		Jun	6	14:00	18.9	-0.7652	-0.447			08-5473-2211	04-5604-9640
5			7	14:12	19.58	-0.0887	-0.05091			02-3608-9426	14-9315-1462
6			15	15:40	23.07	3.399	1.795			10-4793-1547	11-8238-5156
7			27	14:40	20.64	0.9694	0.5419			16-7344-0663	17-6169-0419
8			29	12:02	18.63	-1.042	-0.613			07-2471-0095	11-6621-4104
9		Jul	11	13:52	19.71	0.03976	0.02275			12-8943-1800	06-3315-7505
10		Aug	8	14:23	21.14	1.473	0.8136			01-9164-3770	20-6159-4836
11			29	14:28	18.27	-1.395	-0.8289			06-3274-6762	03-6041-2149
12		Sep	5	13:20	18.28	-1.387	-0.824			14-4921-5003	12-3765-4725
13		Oct	5	13:45	18.99	-0.6762	-0.3941			20-2874-3873	13-5584-5541
14			24	13:59	21.35	1.677	0.9219			09-6061-9503	18-0766-3120
15		Nov	7	14:59	18.72	-0.9434	-0.5537			16-2379-1831	19-1623-7086
16			9	16:30	20.03	0.3645	0.2069			11-1637-2324	10-9594-7716
17			17	12:00	20.15	0.4851	0.2745			06-0962-9936	06-2076-7044
18		Dec	5	15:04	18.53	-1.137	-0.6705			06-9736-2705	06-2601-7564
19			13	14:03	15.51	-4.159	-2.676		(-)	01-9164-8741	04-3685-1503
20			22	14:00	19.87	0.2047	0.1166			12-5671-2450	18-1358-8860
21	2024	Jan	5	12:00	20.73	1.061	0.5916			03-8898-9993	07-9708-4589

**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



eurofins

Environment Testing

<b>Client Information (Sub Contract Lab)</b>				Sampler:	Lab PM: Patel, Virendra	Carrier Tracking No(s):	COG No: 570*336285.1					
Client Contact: Shipping/Receiving				Phone:	E-Mail: Virendra.Patel@et.eurofinsus.com	State of Origin: California	Page: Page 1 of 1					
Company: Weck Laboratories, Inc.				Accreditations Required (See note): State - California; State Program - California			Job #: 570-166871-5					
Address: 14849 East Clark Avenue				Due Date Requested: 1/18/2024	<b>Analysis Requested</b>			<b>Preservation Codes:</b> A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DJ Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)  <b>Other:</b>				
City: City of Industry				TAT Requested (days):								
State/Zip: CA, 917451396				PO #:								
Phone:				WO #:								
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite				Project #: 57013187								
Site:				SSOW#:	<b>Total Number of containers</b>							
<b>Sample Identification - Client ID (Lab ID)</b>				<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=comp, G=grab)</b>	<b>Matrix (W=water, S=soil, O=waste/oil, BT=Tissue, A=Air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>SUB (Weck-Hydrazine/ Weck-Hydrazine)</b>	<b>SUB (EPA 608 -Pesticides/PCBs - PP list)/ EPA 608 Pesticides/PCBs - PP list</b>	<b>Special Instructions/Note:</b>
Outfall018_20240104_Comp (570-166871-1)				1/4/24	07:30 Pacific		Water	X	X	X	5	See Attached Instructions
Outfall018_20240104_Comp (570-166871-1MS)				1/4/24	07:30 Pacific	MS	Water			X	4	See Attached Instructions
Outfall018_20240104_Comp (570-166871-1MSD)				1/4/24	07:30 Pacific	MSD	Water			X	4	See Attached Instructions
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>												
<b>Possible Hazard Identification</b>						<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>						
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:						
Empty Kit Relinquished by:				Date:	Time:	Method of Shipment:						
Relinquished by:				Date/Time: 1/4/24 1404	Company: EC	Received by:				Date/Time: 1/4/24 14.04	Company: Weck	
Relinquished by:				Date/Time:	Company:	Received by:				Date/Time:	Company:	
Relinquished by:				Date/Time:	Company:	Received by:				Date/Time:	Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 4.6 - 170297								

1  
2  
3  
4  
5  
6  
7  
8  
9

ICOC No:  
570-336285

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
13	Amber Glass 1 liter - unpreserved	None

**Subcontract Method Instructions**

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (EPA,608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list	Level 2 package only, MDL, EQUIS 5C
1	SUBCONTRACT	SUB (Weck-Hydrázine)/ Weck-Hydrázine	Level IV package, MDL, EQUIS 5C





**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



eurofins

Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COO No: 570-336285.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1			
Company: Weck Laboratories, Inc.		Address: 14839 East Clark Avenue,		Accreditations Required (See note): State - California; State Program - California		Job #:		570-166871-5			
City: City of Industry		Due Date Requested: 1/18/2024		<b>Analysis Requested</b>		<b>Preservation Cgdes:</b>		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)			
State/Zip: CA, 917451396		TAT Requested (days):		Field Filtered Sample (Yes or No):		Perform MS/MSD (Yes or No):		SUB (Weck-hydrazine)/ Weck-Hydrazine			
Phone:		PO #:		SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list		SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list		Total Number of containers:			
Email:		WO #:		Matrix (W=Water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Other:					
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite		Project #: 57013187		Preservation Code:							
Site:		SSOW#:									
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Weck-hydrazine)/ Weck-Hydrazine	SUB (EPA 608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list	Total Number of containers	Special Instructions/Note:
Outfall018_20240104_Comp (570-166871-1)		1/4/24	07:30 Pacific	Water	Water		X		X	5	See Attached Instructions
Outfall018_20240104_Comp (570-166871-1MS)		1/4/24	07:30 Pacific	MS	Water				X	4	See Attached Instructions
Outfall018_20240104_Comp (570-166871-1MSD)		1/4/24	07:30 Pacific	MSD	Water				X	4	See Attached Instructions
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>											
<b>Possible Hazard Identification</b>						<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: [Signature]		Date/Time: 1/4/24 1404		Company: EC		Received by: [Signature]		Date/Time: 1/4/24 14.04		Company: Weck	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 4.6 - 170297							

ICOC No:  
570-336285

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
13	Amber Glass 1 liter - unpreserved	None

**Subcontract Method Instructions**

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (EPA,608 - Pesticides/PCBs - PP list)/ EPA 608 - Pesticides/PCBs - PP list	Level 2 package only, MDL, EQUIS 5C
1	SUBCONTRACT	SUB (Weck-Hydrázine)/ Weck-Hydrázine	Level IV package, MDL, EQUIS 5C

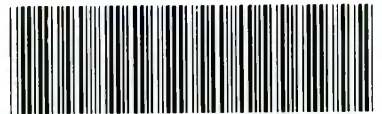


CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018] Outfall 018 COMPOSITE							ANALYSIS REQUIRED														Comments
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)							Total Recoverable Metals: (E200.7); B, Hardness as CaCO3 (E200.8); Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn	TOCDD (and all congeners) (E1613B)	BOD5 (20 degrees C) (E-405.1 (SM6210B_BODCalc))	LL Mercury (E1631E) -- Total Recoverable	Fluoride (F-) Chloride (Cl-) Sulfate (SO4), Nitrate-N, Nitrite-N, NO3+NO2-N (E300); Perchlorate (E314.0)	Turbidity, TDS (SM2540C/E180.1)	TSS (180.2 (SM2540D))	Priority Pollutants-Pesticides+PCBs (E608) Weck Labs in Hacienda Heights, CA	Priority Pollutants-SVOCs (E625)	Ammonia-N (E350.2)	PCBs (1668C)	Detergents (MBAS) (SM5540C/E425.1)	Cr (VI), Total Recoverable (E218.6)		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																					
Sampler: <i>Adrien Mabecka</i>																							
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD															
Outfall 018	Outfall018_20240104_Comp	1/4/2024 <i>10730</i>	WM	500 mL Poly	1	HNO3		Yes	X														
			WM	1 L Glass Amber	2	None			No		X												
			WM	1 L Poly	1	None			No			X											
			WM	250mL Clear Glass, double bagged	1	HCL			No				X										
			WM	500 mL Poly	1	None			No					X						48 hours Holding Time NO3 & NO2			
			WM	500 mL Poly	1	None			No						X						48 hour holding time for turbidity		
			WM	1 L Poly	1	None			No						X								
			WM	1 L Glass Amber	4	None			No							X							
			WM	1 L Glass Amber	2	None			No								X						
			WM	500 mL Poly	1	H2SO4			No									X					
			WM	1 L Glass Amber	4	None			No									X					
			WM	1 L Poly	1	None			No										X				
			WM	250 mL Poly	1	None			No											X			

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>[Signature]</i> Date/Time: <i>1-4-2024/1225</i> Company: <i>HA</i>	Received By: <i>[Signature]</i> Date/Time: <i>1/4/24 1225</i> Company: <i>EC</i>	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: <i>1/4/24 1640</i> Company: <i>EC</i>	Received By: <i>[Signature]</i> Date/Time: <i>1/4/24 1640</i> Company: <i>EC</i>	



570-166871 Chain of Custody

*1.9/2.1, 1.4/1.6 2.2/2.4 SC14*

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall [001, 002, 011, 018] Outfall 018 COMPOSITE				ANALYSIS REQUIRED															
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187								Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)				Total Dissolved Metals: (E200.7): B. Hardness as CaCO3 (E200.8): Al, Ag, As, Ba, Be, Cd, Co, Cu, Cr, Fe, Mn, Ni, Pb, Se, Sb, Ti, V, Zn Cr (VI), Total Dissolved (E218.6) Gross Alpha, Gross Beta (E900.0), Total Combined Radium 226 & 228 (E903, E904); K-40, Cesium-137 (E901); Strontium-90 (E905); Uranium (HASL-300 U-02 or A-01-R); Tritium (H-3) (E906.0) Chronic Toxicity - Centodaphnia (EPA-821-R-02-013) ABC Labs in Ventura, CA 1,4-Dioxane (E624 (SW8260M_SIM)) Total Organic Carbon (415.2 (SM 5310B)) Monomethyl hydrazine (SW8315M/DV-MC-0077) Weick Labs in Hacienda Heights, CA LL Mercury (E1631E) -- Total Dissolved Cyanide (SM4500-CNE / E335.2)											
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs with Blanket Service Agreements 2016-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc. Sampler: <i>Adrien Mobeka</i>								Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)															
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	A/R	A	R	A	R	A	R	R	R	Comments					
Outfall 018	Outfall018_20240104_Comp_F	1/4/2024 /0930	WM	1 L Poly	1	None		Yes	X									Filter and preserve w/in 24hrs of receipt at lab.					
			WM	250 mL Poly	1	None		No			X								Filter and preserve w/in 24hrs of receipt at lab.				
			WM	250mL Clear Glass, double bagged	1	None		No										X		Filter and preserve w/in 24hrs of receipt at lab.			
	Outfall018_20240104_Comp	1/4/2024 /0730	WM	500 mL Poly	1	NaOH		No										X					
			WM	2.5 Gal Cube	1	None		No				X								Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.			
			WM	1 L Glass Amber	1	None		No															
			WM	1 Gal Cube	5	None		No						X						Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA			
			WM	40 mL VOA	3	HCl		No							X								
			WM	1 L Glass Amber	1	HCl		No								X							
			WM	1 L Glass Amber	1	None		No									X						
Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																							
Relinquished By: <i>Mark Dominick</i> Date/Time: 1-4-2024 / 1225 Company: MIA				Received By: <i>[Signature]</i> Date/Time: 1/4/24 1225 EC				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> 48 Hour: _____ 5 Day: _____ Normal: _____															
Relinquished By: <i>[Signature]</i> Date/Time: 1/4/24 1640 EC				Received By: <i>[Signature]</i> Date/Time: 1/4/24 1640				Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/>															



**Eurofins Calscience**

2841 Dow Avenue, Suite 100  
Tustin, CA 92780  
Phone: 714-895-5494

**Chain of Custody Record**



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:		
Client Contact: Shipping/Receiving		Phone:		Patel, Virendra		E-Mail:		570-336923.1		
Company: Eurofins Environment Testing Northwest		Due Date Requested: 1/24/2024		E-Mail: Virendra.Patel@et.eurofinsus.com		State of Origin: California		Page: Page 1 of 1		
Address: 5755 8th Street E, City: Tacoma State, Zip: WA, 98424 Phone: Email:		TAT Requested (days):		Accreditations Required (See note): State - California; State Program - California		Job #: 570-166871-3		Preservation Codes:		
Project Name: Boeing NPDES SSFL - Outfall 002 - Composite Site:		Project #: 57013187 SSOW#:		Analysis Requested		Other:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1631E/Filtration, ME Mercury, Dissolved	Total Number of containers	Special Instructions/Note:
Outfall018_20240104_Comp_F (570-166871-2)		1/4/24	07:30 Pacific		Water		X		1	
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.										
<b>Possible Hazard Identification</b>					<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>					
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)					Primary Deliverable Rank: 2		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:			
Relinquished by: <i>[Signature]</i>			Date/Time: 1/5/24 1413		Company:		Received by:		Date/Time: Company:	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time: Company:	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time: Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:					

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# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-166871-4

**Login Number: 166871**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	







# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ms. Katherine Miller  
Haley & Aldrich, Inc.  
400 E Van Buren St.  
Suite 545  
Phoenix, Arizona 85004

Generated 3/16/2024 1:38:02 PM

## JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 018 - Comp

## JOB NUMBER

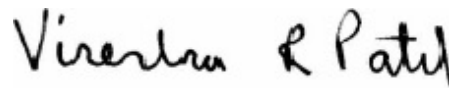
570-170983-4

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization



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3/16/2024 1:38:02 PM

Authorized for release by  
Virendra Patel, Project Manager I  
[Virendra.Patel@et.eurofinsus.com](mailto:Virendra.Patel@et.eurofinsus.com)  
(714)895-5494



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# Definitions/Glossary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-170983-4

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Haley & Aldrich, Inc.  
Project: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-170983-4

**Job ID: 570-170983-4**

**Eurofins Calscience**

## Job Narrative 570-170983-4

### Receipt

The samples were received on 2/5/2024 4:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.4° C, 2.1° C and 2.2° C.

### Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Subcontract Work

Method Chronic Toxicity - Fathead Minnow (EPA-821-R-02-013): This method was subcontracted to Aquatic Bioassay. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.



# Method Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-170983-4

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



# Sample Summary

Client: Haley & Aldrich, Inc.  
Project/Site: Boeing NPDES SSFL - Outfall 018 - Comp

Job ID: 570-170983-4

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
570-170983-1	Outfall018_20240204_Comp	Water	02/04/24 07:10	02/05/24 16:05

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**AQUATIC BIOASSAY**  
 & CONSULTING LABORATORIES, INC.



March 1, 2024

Mr. Virendra Patel  
 Eurofins Calscience  
 2841 Dow Avenue, Suite #100  
 Tustin, CA 92780

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms EPA-821-R-02-013.* " Results were as follows:\*

CLIENT: Eurofins Calscience  
 SAMPLE I.D.: Outfall 018\_20240204\_Comp\_F  
 DATE RECEIVED: 5 Feb - 2024  
 ABC LAB. NO.: CSE0224.034

**CHRONIC FATHEAD LARVAE SURVIVAL & GROWTH BIOASSAY**

IWC = 100.00%

**TST RESULT**

SURVIVAL = PASS    % EFFECT = 0.00 %

GROWTH = PASS    % EFFECT = -3.07 %

Yours very truly,

  
 Scott Johnson  
 Laboratory Director



# CETIS Summary Report

Report Date: 01 Mar-24 12:04 (p 1 of 1)  
 Test Code/ID: CSE0224.034fml / 11-4352-5081

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 17-9077-1509	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:44	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:15	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-3349-1580	Code: CSE0224.034fml	Project: Boeing-SSFL NPDES Permit 2024
Sample Date: 04 Feb-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: Outfall 018
Sample Age: 62h (0.8 °C)	Client: Calscience Environmental Laboratories, Inc	

## Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
12-6501-0555	7d Survival Rate	TST-Welch's t Test	<0.25	100% passed 7d survival rate	1
11-6079-8224	Mean Dry Biomass-mg	TST-Welch's t Test	<1.0E-05	100% passed mean dry biomass-mg	1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
12-6501-0555	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria
11-6079-8224	Mean Dry Biomass-mg	Control Resp	0.3452	0.25	<<	Yes	Passes Criteria

## 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

## Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	0.3452	0.3402	0.3503	0.3387	0.3573	0.002121	0.005999	1.74%	0.00%
100		8	0.3558	0.3394	0.3723	0.34	0.398	0.006964	0.0197	5.54%	-3.07%

## 7d Survival Rate Detail

MD5: F33D79D05FEF902C5DB24788526CB24A

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

## Mean Dry Biomass-mg Detail

MD5: 124B43937C8E34FB4876C14F83D4B8DC

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3573	0.3387	0.3427	0.3387	0.348	0.3447	0.3473	0.3447
100		0.346	0.34	0.354	0.3413	0.3453	0.3713	0.3507	0.398

## 7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

# CETIS Analytical Report

Report Date: 01 Mar-24 12:04 (p 1 of 4)  
 Test Code/ID: CSE0224.034fml / 11-4352-5081

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-6501-0555	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:03	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:02	MD5 Hash: F33D79D05FEF902C5DB24788526CB24A	Editor ID: 009-702-627-3
Batch ID: 17-9077-1509	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:44	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:15	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-3349-1580	Code: CSE0224.034fml	Project: Boeing-SSFL NPDES Permit 2024
Sample Date: 04 Feb-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: Outfall 018
Sample Age: 62h (0.8 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Angular (Corrected)	C*b < T	0.75	100% passed 7d survival rate endpoint

### TST-Welch's t Test

Control	vs	Conc-%	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	0.3603	---		<0.25	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1			Indeterminate
Error	0	0	14			
Total	0		15			

### 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

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

### Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
100		8	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%

### 7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410
100		1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410	1.4410

**CETIS Analytical Report**

Report Date: 01 Mar-24 12:04 (p 2 of 4)  
 Test Code/ID: CSE0224.034fml / 11-4352-5081

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

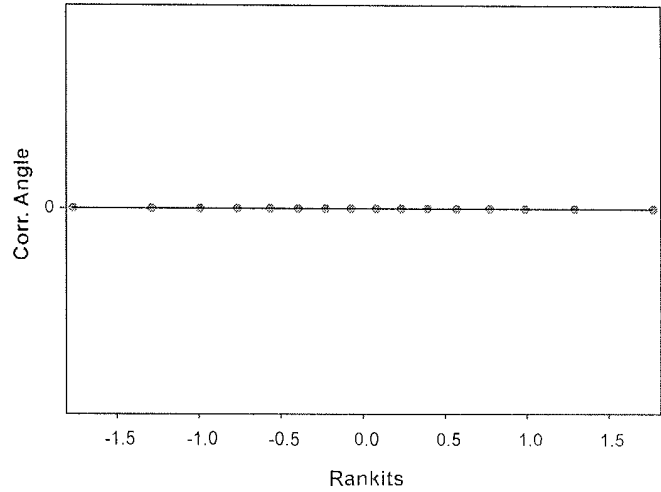
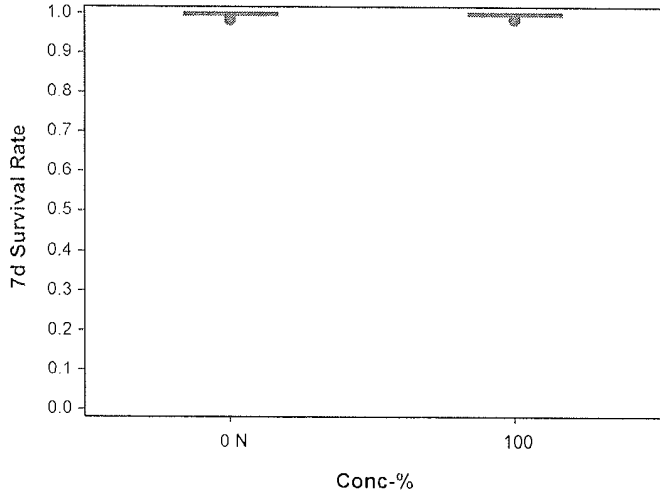
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-6501-0555      Endpoint: 7d Survival Rate      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 12:03      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
 Edit Date: 01 Mar-24 12:02      MD5 Hash: F33D79D05FEF902C5DB24788526CB24A      Editor ID: 009-702-627-3

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
100		15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15

**Graphics**



# CETIS Analytical Report

Report Date: 01 Mar-24 12:04 (p 3 of 4)  
 Test Code/ID: CSE0224.034fml / 11-4352-5081

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-6079-8224	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 12:03	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 01 Mar-24 12:02	MD5 Hash: 124B43937C8E34FB4876C14F83D4B8DC	Editor ID: 009-702-627-3
Batch ID: 17-9077-1509	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:44	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:15	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-3349-1580	Code: CSE0224.034fml	Project: Boeing-SSFL NPDES Permit 2024
Sample Date: 04 Feb-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: Outfall 018
Sample Age: 62h (0.8 °C)	Client: Calscience Environmental Laboratories, Inc	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed mean dry biomass-mg endpoint

### TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	7	13.56	0.7111	CDF	<1.0E-05	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3452	0.25	<<	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0004480	0.0004480	1	2.113	0.1681	Non-Significant Effect
Error	0.0029682	0.0002120	14			
Total	0.0034162		15			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	5	8.862	0.0421	Equal Variances
	Mod Levene Equality of Variance Test	2.059	8.862	0.1733	Equal Variances
	Variance Ratio F Test	10.78	8.885	0.0056	Unequal Variances
Distribution	Anderson-Darling A2 Test	1.057	3.878	0.0091	Non-Normal Distribution
	D'Agostino Skewness Test	3.059	2.576	0.0022	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.235	0.2471	0.0184	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8246	0.8408	0.0059	Non-Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	0.3452	0.3402	0.3503	0.3447	0.3387	0.3573	0.002121	1.74%	0.00%
100		8	0.3558	0.3394	0.3723	0.3483	0.34	0.398	0.006964	5.54%	-3.07%

### Mean Dry Biomass-mg Detail

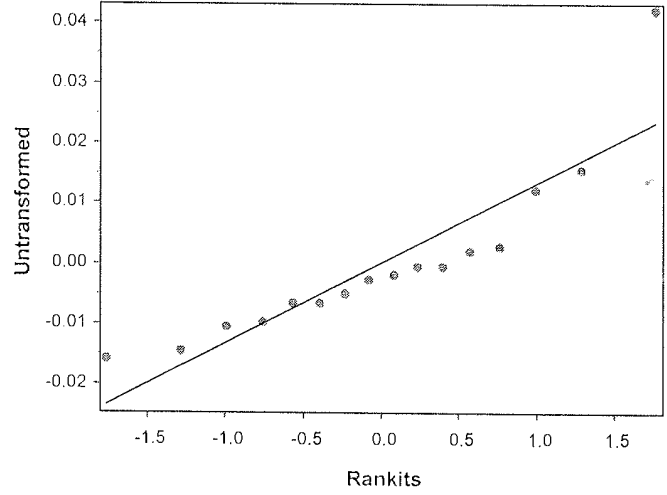
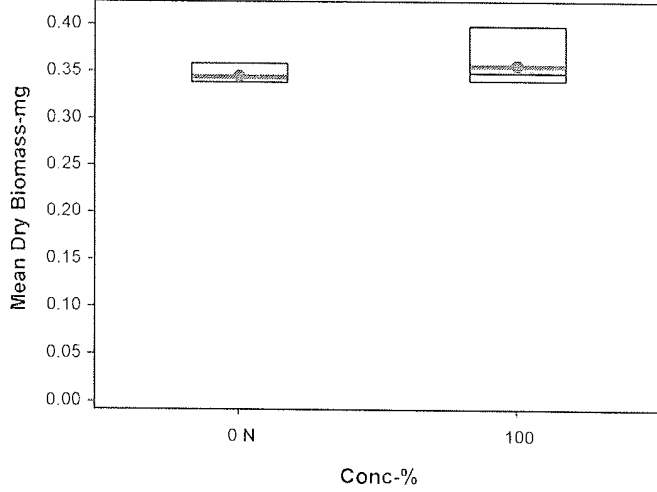
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	0.3573	0.3387	0.3427	0.3387	0.348	0.3447	0.3473	0.3447
100		0.346	0.34	0.354	0.3413	0.3453	0.3713	0.3507	0.398

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 11-6079-8224      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
Analyzed: 01 Mar-24 12:03      Analysis: Parametric Bioequivalence-Two Sample      Status Level: 1  
Edit Date: 01 Mar-24 12:02      MD5 Hash: 124B43937C8E34FB4876C14F83D4B8DC      Editor ID: 009-702-627-3

Graphics



**CETIS Measurement Report**

Report Date: 01 Mar-24 12:04 (p 1 of 1)

Test Code/ID: CSE0224.034fml / 11-4352-5081

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 17-9077-1509	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:44	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:15	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 15-3349-1580	Code: CSE0224.034fml	Project: Boeing-SSFL NPDES Permit 2024
Sample Date: 04 Feb-24	Material: Sample Water	Source: Bioassay Report
Receipt Date: 05 Feb-24 15:05	CAS (PC):	Station: Outfall 018
Sample Age: 62h (0.8 °C)	Client: Calscience Environmental Laboratories, Inc	

**Alkalinity (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
100		8	55	55	55	55	55	0	0	0.00%	0
Overall		16	58.5	56.57	60.43	55	62	0.9037	3.615	6.18%	0 (0%)

**Conductivity-µmhos**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
100		8	482.9	478.6	487.1	477	490	0.6354	5.083	1.05%	0
Overall		16	433.6	406.3	460.8	379	490	12.77	51.09	11.78%	0 (0%)

**Dissolved Oxygen-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
100		8	7.788	7.533	8.042	7.1	8.1	0.03805	0.3044	3.91%	0
Overall		16	7.825	7.65	8	7	8.2	0.0819	0.3276	4.19%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
100		8	88	88	88	88	88	0	0	0.00%	0
Overall		16	94	90.7	97.3	88	100	1.549	6.197	6.59%	0 (0%)

**pH-Units**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
100		8	7.975	7.936	8.014	7.9	8	0.005786	0.04629	0.58%	0
Overall		16	8.075	8.015	8.135	7.9	8.2	0.02814	0.1125	1.39%	0 (0%)

**Temperature-°C**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
100		8	24	24	24	24	24	0	0	0.00%	0
Overall		16	24	24	24	24	24	0	0	0.00%	0 (0%)

CHAIN OF CUSTODY FORM

$MDA\ C.F. = +0.3^{\circ}C$   
**Temp. deg. C = 1.8**  
*Method report > grab vs relative*  
**Chlorine (mg/L) = 2.0**

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2024 Routine Outfall [001, 002, 011, 018] Outfall 018 Comp		ANALYSIS REQUIRED (mg/L) = 2.0	
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8806, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Comments .034	
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.					
Sampler: Adrien Mobeka					

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.B); Zn (E200.B); Cu, Pb, Cd, Se	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha(E900.0); Gross Beta(E900.0); Tritium (H-3) (E906.0); Sr-90 (E905.0); Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0); Uranium (E908.0); K-40; CS-137 (E901.0 or E901.1)	Chronic Toxicity - Fathead minnow (EPA-821-R-02-013) ABC Labs in Ventura CA	Total Dissolved Metals: Mercury (E245.1)	Total Dissolved Metals: (E200.B); Mn, Fe								
Outfall 018	Outfall018_20240204_Comp_F	2/4/2024	WM	1L Poly	1	None	200	Yes	X					X						Filter and preserve w/in 24hrs of receipt at lab. Outfall 001 analyze for Fe Outfall 011 analyze for Mn and Fe		
			WM	borosilicate vials	2	None	320	No					X							Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
	Outfall018_20240204_Comp	2/4/2024	WM	500 mL Poly	1	NaOH	220	No			X											
			WM	2.5 Gal Cube	1	None	225	No														Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No														
WM	1 Gal Cube	5	None	235	No						X								Only test if first or second discharge events of the year. Deliver to ABC Labs in Ventura, CA.			

Hand-delivered to ABC with this copy of the COC

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Relinquished By: <i>Mark Dominick</i> Date/Time: 2-5-2024/1505 Company: H&A	Received By: <i>Vicki My</i> Date/Time: 2-5-24 1505
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____



**AQUATIC BIOASSAY**  
& CONSULTING LABORATORIES, INC.

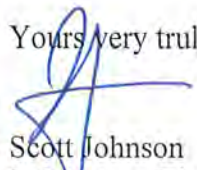


### CHRONIC FATHEAD MINNOW SURVIVAL AND GROWTH BIOASSAY

DATE: 6 February 2024  
STANDARD TOXICANT: Copper Chloride  
ENDPOINT: SURVIVAL  
NOEC = 38.00 ug/l  
EC25 = 57.82 ug/l  
EC50 = 80.77 ug/l

ENDPOINT: GROWTH  
NOEC = 38.00 ug/l  
IC25 = 54.21 ug/l  
IC50 = 70.57 ug/l

Yours very truly,

  
Scott Johnson  
Laboratory Director



**CETIS Summary Report**

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO <span style="float: right;">Age:</span>
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
14-3188-9121	7d Survival Rate	Steel Many-One Rank Sum Test	✓ 38	75	53.39	9.34%	1
12-8541-5621	Mean Dry Biomass-mg	Steel Many-One Rank Sum Test	✓ 38	75	53.39	14.1%	1

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
10-6161-5529	7d Survival Rate	Linear Interpolation (ICPIN)	EC15	49.89	46.53	55.08	1
			EC20	53.86	49.38	60.78	
			EC25	57.82	52.22	66.47	
			EC40	69.71	60.76	85.23	
			EC50	80.77	64.57	102.5	
00-3964-3519	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC15	47.66	43.59	52.13	1
			✓ IC20	50.94	46.01	56.81	
			✓ IC25	54.21	48.39	61.7	
			✓ IC40	64.03	55.49	76.19	
			✓ IC50	70.57	60.02	93.7	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
10-6161-5529	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
14-3188-9121	7d Survival Rate	Control Resp	1	0.8	<<	Yes	Passes Criteria	
00-3964-3519	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	Control Resp	0.3503	0.25	<<	Yes	Passes Criteria	
12-8541-5621	Mean Dry Biomass-mg	PMSD	0.1406	0.12	0.3	Yes	Passes Criteria	

**7d Survival Rate Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.4000	0.6667	0.0609	0.1217	22.82%	46.67%
150		4	0.1000	-0.1525	0.3525	0.0000	0.3333	0.0794	0.1587	158.70%	90.00%

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.342	0.364	0.004842	0.009684	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3413	0.366	0.005384	0.01077	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3413	0.3547	0.002944	0.005888	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.3407	0.3607	0.004131	0.008262	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.07933	0.216	0.02887	0.05773	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0	0.07867	0.01856	0.03713	146.55%	92.77%

# CETIS Summary Report

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

MD5: 28ECB5E5C36E53EA44D50952ED449010

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

### Mean Dry Biomass-mg Detail

MD5: F76AD684C03403B4619D68D6F5A6FE41

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

### 7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 1 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Angular (Corrected)	C > T	38	75	53.39	---	0.09338	9.34%

## Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	1	CDF	0.8333	Non-Significant Effect
		19	6	18	10	1	CDF	0.8333	Non-Significant Effect
		38	6	18	10	1	CDF	0.8333	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

## Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4.79478	0.958956	5	84.71	<1.0E-05	Significant Effect
Error	0.203761	0.01132	18			
Total	4.99854		23			

## ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
	Levene Equality of Variance Test	7.038	4.248	0.0008	Unequal Variances
	Mod Levene Equality of Variance Test	3.38	4.248	0.0251	Equal Variances
Distribution	Anderson-Darling A2 Test	3.628	3.878	<1.0E-05	Non-Normal Distribution
	D'Agostino Kurtosis Test	3.308	2.576	0.0009	Non-Normal Distribution
	D'Agostino Skewness Test	3.098	2.576	0.0019	Non-Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	20.54	9.21	3.5E-05	Non-Normal Distribution
	Kolmogorov-Smirnov D Test	0.375	0.2056	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.7022	0.884	1.1E-05	Non-Normal Distribution

## 7d Survival Rate Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
75		4	0.5333	0.3397	0.7270	0.5333	0.4000	0.6667	0.0609	22.82%	46.67%
150		4	0.1000	0.0000	0.3525	0.0222	0.0000	0.3333	0.0794	158.70%	90.00%

Fathead Minnow 7-d Larval Survival and Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-3188-9121 Endpoint: 7d Survival Rate CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16 Analysis: Nonparametric-Control vs Treatments Status Level: 1  
 Edit Date: 01 Mar-24 13:15 MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010 Editor ID: 009-702-627-3

Angular (Corrected) Transformed Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
10		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
19		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
38		4	1.4410	1.4410	1.4420	1.4410	1.4410	1.4410	0.0000	0.00%	0.00%
75		4	0.8195	0.6234	1.0160	0.8191	0.6847	0.9553	0.0616	15.04%	43.14%
150		4	0.2839	-0.0815	0.6493	0.1734	0.1295	0.6155	0.1148	80.88%	80.30%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

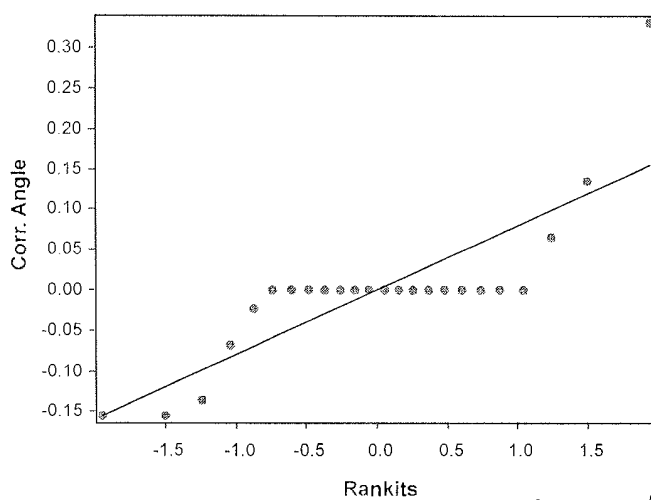
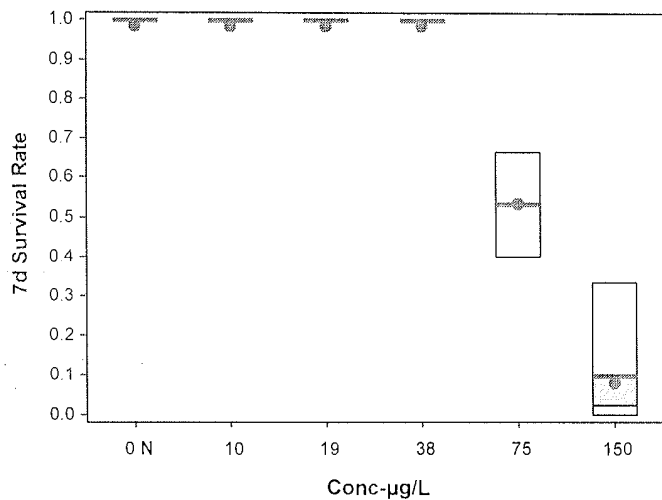
Angular (Corrected) Transformed Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.4410	1.4410	1.4410	1.4410
10		1.4410	1.4410	1.4410	1.4410
19		1.4410	1.4410	1.4410	1.4410
38		1.4410	1.4410	1.4410	1.4410
75		0.9553	0.8861	0.7520	0.6847
150		0.6155	0.2612	0.1295	0.1295

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

Graphics



# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 3 of 3)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Nonparametric-Control vs Treatments	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	38	75	53.39	---	0.04925	14.06%

### Steel Many-One Rank Sum Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Negative Control		10	6	18	10	0	CDF	0.8333	Non-Significant Effect
		19	6	18	10	0	CDF	0.8333	Non-Significant Effect
		38	6	17.5	10	1	CDF	0.7867	Non-Significant Effect
		75*	6	10	10	0	CDF	0.0417	Significant Effect
		150*	6	10	10	0	CDF	0.0417	Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria
PMSD	0.1406	0.12	0.3	Yes	Passes Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.396777	0.0793554	5	94.77	<1.0E-05	Significant Effect
Error	0.0150717	0.0008373	18			
Total	0.411849		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	21.19	15.09	0.0007	Unequal Variances
	Levene Equality of Variance Test	4.158	4.248	0.0110	Equal Variances
	Mod Levene Equality of Variance Test	3.182	4.248	0.0312	Equal Variances
Distribution	Anderson-Darling A2 Test	1.52	3.878	0.0001	Non-Normal Distribution
	D'Agostino Kurtosis Test	2.511	2.576	0.0120	Normal Distribution
	D'Agostino Skewness Test	0.1499	2.576	0.8808	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	6.326	9.21	0.0423	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1935	0.2056	0.0206	Normal Distribution
	Shapiro-Wilk W Normality Test	0.8702	0.884	0.0053	Non-Normal Distribution

### Mean Dry Biomass-mg Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.3503	0.3349	0.3657	0.3477	0.342	0.364	0.004842	2.76%	0.00%
10		4	0.3505	0.3334	0.3676	0.3473	0.3413	0.366	0.005384	3.07%	-0.05%
19		4	0.3493	0.34	0.3587	0.3507	0.3413	0.3547	0.002944	1.69%	0.29%
38		4	0.3498	0.3367	0.363	0.349	0.3407	0.3607	0.004131	2.36%	0.14%
75		4	0.1515	0.05964	0.2434	0.1553	0.07933	0.216	0.02887	38.11%	56.76%
150		4	0.02533	-0.03374	0.08441	0.007556	0	0.07867	0.01856	146.55%	92.77%

Fathead Minnow 7-d Larval Survival and Growth Test

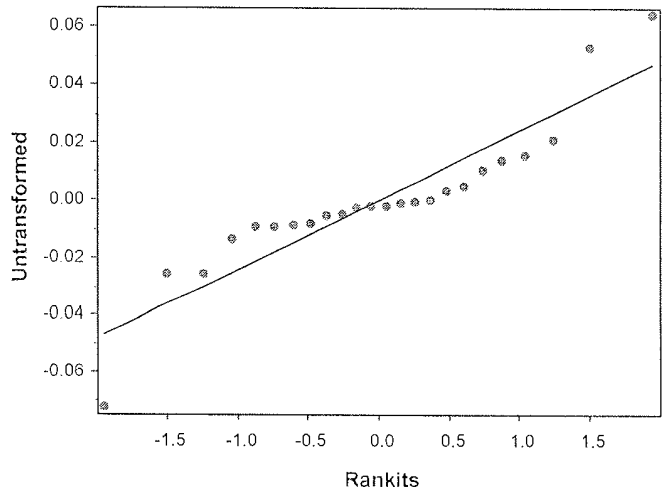
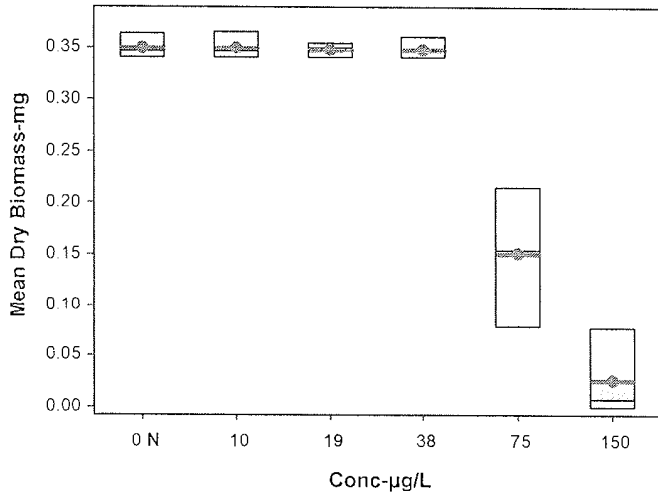
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 12-8541-5621      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv2.1.4  
 Analyzed: 01 Mar-24 13:16      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 01 Mar-24 13:15      MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41      Editor ID: 009-702-627-3

Mean Dry Biomass-mg Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

Graphics



# CETIS Analytical Report

Report Date: 01 Mar-24 13:17 (p 1 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

**Fathead Minnow 7-d Larval Survival and Growth Test** Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	1	0.8	<<	Yes	Passes Criteria

Point Estimates

Level	µg/L	95% LCL	95% UCL
EC15	49.89	46.53	55.08
EC20	53.86	49.38	60.78
EC25	57.82	52.22	66.47
EC40	69.71	60.76	85.23
EC50	80.77	64.57	102.5

7d Survival Rate Summary

Conc-µg/L	Code	Count	Calculated Variate(A/B)							Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	ΣA/ΣB	Mean	%Effect
0	N	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
10		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
19		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
38		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	60/60	1.0000	0.00%
75		4	0.5333	0.5333	0.4000	0.6667	22.82%	46.67%	32/60	0.5333	46.67%
150		4	0.1000	0.0222	0.0000	0.3333	158.70%	90.00%	6/60	0.1000	90.00%

7d Survival Rate Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000
19		1.0000	1.0000	1.0000	1.0000
38		1.0000	1.0000	1.0000	1.0000
75		0.6667	0.6000	0.4667	0.4000
150		0.3333	0.0667	0.0000	0.0000

7d Survival Rate Binomials

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
10		15/15	15/15	15/15	15/15
19		15/15	15/15	15/15	15/15
38		15/15	15/15	15/15	15/15
75		10/15	9/15	7/15	6/15
150		5/15	1/15	0/15	0/15

# CETIS Analytical Report

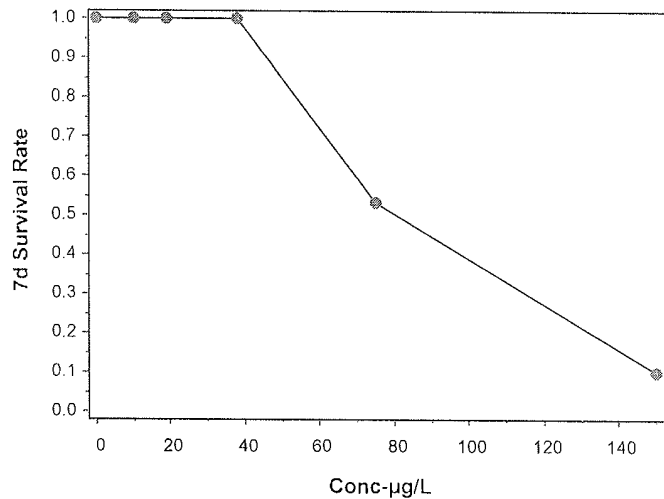
Report Date: 01 Mar-24 13:17 (p 2 of 4)  
Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-6161-5529	Endpoint: 7d Survival Rate	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: 28ECB5E5C36E53EA44D50952ED449010	Editor ID: 009-702-627-3

### Graphics





**CETIS Analytical Report**

Report Date: 01 Mar-24 13:17 (p 3 of 4)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3
Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	419376	280	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3503	0.25	<<	Yes	Passes Criteria

**Point Estimates**

Level	µg/L	95% LCL	95% UCL
IC15	47.66	43.59	52.13
IC20	50.94	46.01	56.81
IC25	54.21	48.39	61.7
IC40	64.03	55.49	76.19
IC50	70.57	60.02	93.7

**Mean Dry Biomass-mg Summary**

Conc-µg/L	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	0.3503	0.3477	0.342	0.364	2.76%	0.00%	0.3504	0.00%
10		4	0.3505	0.3473	0.3413	0.366	3.07%	-0.05%	0.3504	0.00%
19		4	0.3493	0.3507	0.3413	0.3547	1.69%	0.29%	0.3496	0.23%
38		4	0.3498	0.349	0.3407	0.3607	2.36%	0.14%	0.3496	0.23%
75		4	0.1515	0.1553	0.07933	0.216	38.11%	56.76%	0.1515	56.76%
150		4	0.02533	0.007556	0	0.07867	146.55%	92.77%	0.02533	92.77%

**Mean Dry Biomass-mg Detail**

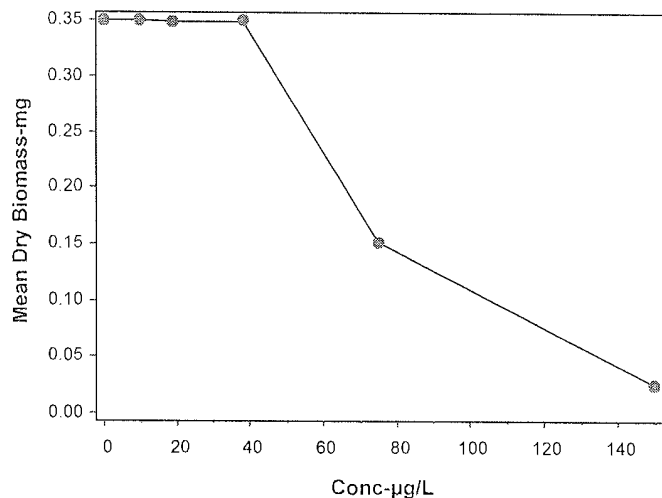
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.35	0.3453	0.342	0.364
10		0.3413	0.346	0.366	0.3487
19		0.3547	0.3527	0.3413	0.3487
38		0.3407	0.348	0.3607	0.35
75		0.216	0.1727	0.138	0.07933
150		0.07867	0.02267	0	0

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-3964-3519	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv2.1.4
Analyzed: 01 Mar-24 13:16	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 01 Mar-24 13:15	MD5 Hash: F76AD684C03403B4619D68D6F5A6FE41	Editor ID: 009-702-627-3

Graphics



**CETIS Measurement Report**

Report Date: 01 Mar-24 13:17 (p 1 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

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

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-9989-8515	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 06 Feb-24 13:40	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 13 Feb-24 14:12	Species: Pimephales promelas	Brine: Not Applicable
Test Length: 7d 1h	Taxon: Actinopterygii	Source: Aquatic Biosystems, CO Age:
Sample ID: 06-0345-7989	Code: FML020624	Project: REF TOX
Sample Date: 06 Feb-24 13:40	Material: Copper chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: ABC Labs	

**Alkalinity (CaCO3)-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62	62	62	62	62	0	0	0.00%	0
150		8	61	61	61	61	61	0	0	0.00%	0
Overall		16	61.5	61.22	61.78	61	62	0.1291	0.5164	0.84%	0 (0%)

**Conductivity-µmhos**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	384.2	381.7	386.8	379	388	0.3765	3.012	0.78%	0
10		8	378	376.9	379.1	376	380	0.1637	1.309	0.35%	0
19		8	377.8	376.2	379.3	375	380	0.2386	1.909	0.51%	0
38		8	378.4	377	379.7	376	380	0.1997	1.598	0.42%	0
75		8	379.1	378	380.3	377	380	0.1695	1.356	0.36%	0
150		8	380.6	379.9	381.4	380	382	0.1145	0.9161	0.24%	0
Overall		48	379.7	378.9	380.5	375	388	0.4106	2.845	0.75%	0 (0%)

**Dissolved Oxygen-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.556	8.169	7	8.2	0.04578	0.3662	4.66%	0
10		8	7.85	7.554	8.146	7	8.1	0.04432	0.3546	4.52%	0
19		8	7.825	7.536	8.114	7	8.1	0.04317	0.3454	4.41%	0
38		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
75		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
150		8	7.813	7.525	8.1	7	8.1	0.04301	0.3441	4.40%	0
Overall		48	7.829	7.733	7.925	7	8.2	0.04782	0.3313	4.23%	0 (0%)

**Hardness (CaCO3)-mg/L**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	100	100	100	100	100	0	0	0.00%	0
150		8	100	100	100	100	100	0	0	0.00%	0
Overall		16	100	100	100	100	100	0	0	0.00%	0 (0%)

**pH-Units**

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.175	8.136	8.214	8.1	8.2	0.005788	0.04631	0.57%	0
10		8	8.125	8.066	8.184	8	8.2	0.00884	0.07072	0.87%	0
19		8	8.1	8.055	8.145	8	8.2	0.006684	0.05347	0.66%	0
38		8	8.088	8.058	8.117	8	8.1	0.004423	0.03538	0.44%	0
75		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
150		8	8.075	8.016	8.134	8	8.2	0.00884	0.07072	0.88%	0
Overall		48	8.106	8.087	8.126	8	8.2	0.009605	0.06654	0.82%	0 (0%)

**CETIS Measurement Report**

Report Date: 01 Mar-24 13:17 (p 2 of 2)  
 Test Code/ID: FML020624 / 04-6220-8945

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24	24	24	24	24	0	0	0.00%	0
10		8	24	24	24	24	24	0	0	0.00%	0
19		8	24	24	24	24	24	0	0	0.00%	0
38		8	24	24	24	24	24	0	0	0.00%	0
75		8	24	24	24	24	24	0	0	0.00%	0
150		8	24	24	24	24	24	0	0	0.00%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)





Fathead Minnow 7-d Larval Survival and Growth Test

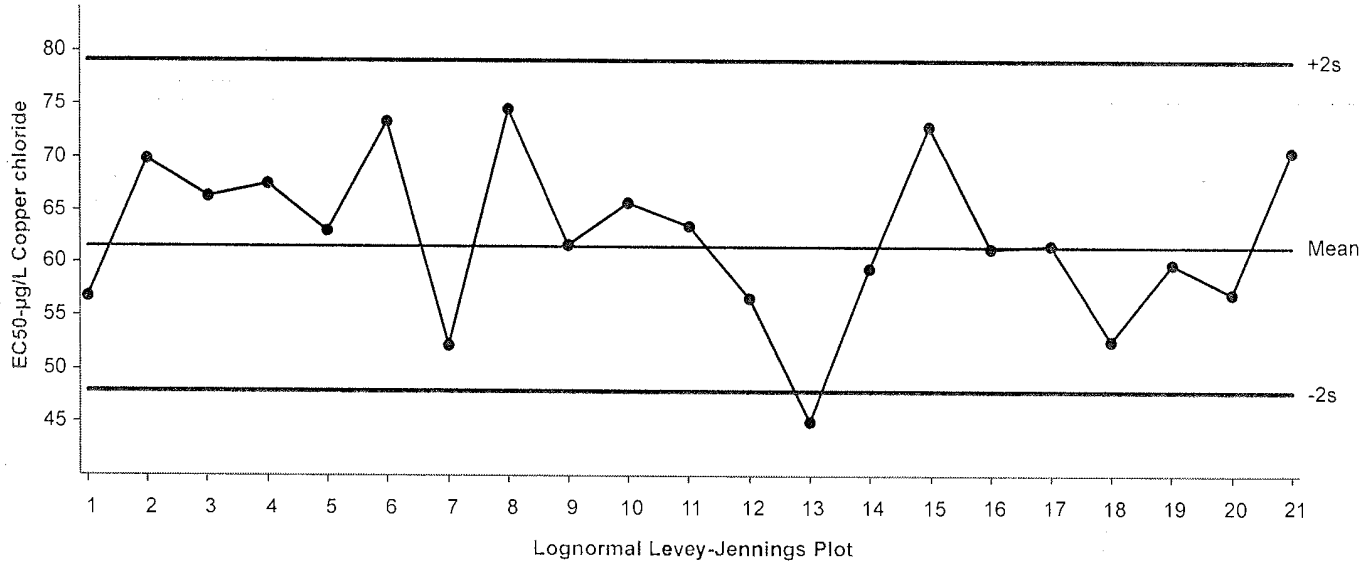
Aquatic Bioassay & Consulting Labs, Inc.

Test Type: Growth-Survival (7d)  
Protocol: EPA/821/R-02-013 (2002)

Organism: Pimephales promelas  
Endpoint: Mean Dry Biomass-mg

Material: Copper chloride  
Source: Reference Toxicant-REF

Fathead Minnow 7-d Larval Survival and Growth Test  
Mean Dry Biomass-mg Endpoint



Mean: 61.56      Count: 20      -2s Action Limit: 47.8  
Sigma: NA      CV: 12.70%      +2s Action Limit: 79.2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2023	Oct	6	14:45	56.73	-4.827	-0.6475			18-8099-7551	15-1441-4720
2			10	14:30	69.86	8.298	1.003			00-9395-0169	18-9888-9667
3			17	14:45	66.23	4.667	0.5795			10-4602-8256	13-8119-0525
4			24	13:40	67.38	5.825	0.7169			01-7885-2189	06-8805-4487
5			25	12:16	63.01	1.45	0.1847			11-1982-8946	04-1492-8778
6			31	15:30	73.46	11.9	1.401			07-7265-5981	21-3432-7293
7		Nov	7	15:10	52.21	-9.347	-1.306			19-2888-5334	11-0119-4879
8			14	15:30	74.52	12.96	1.515			18-8754-0700	03-4458-8213
9			17	14:01	61.66	0.1018	0.0131			17-0726-1937	06-0317-0204
10			28	14:49	65.63	4.075	0.5083			10-1970-7599	09-5836-2004
11		Dec	5	13:45	63.46	1.898	0.2409			19-1204-9208	02-5721-3294
12			12	13:30	56.61	-4.947	-0.6644			03-7560-9108	19-0990-5343
13			13	12:15	45.01	-16.55	-2.483		(-)	14-7892-5887	19-1033-5713
14			21	13:29	59.44	-2.118	-0.2777			06-6036-2868	01-3251-7777
15			22	14:30	72.95	11.39	1.346			00-5720-1635	06-1309-8628
16	2024	Jan	3	14:00	61.34	-0.2222	-0.02868			04-0866-8727	03-7640-5638
17			4	14:05	61.64	0.08199	0.01056			15-6608-9784	18-2508-7781
18			9	13:20	52.68	-8.881	-1.236			14-8299-7228	08-4892-6835
19			23	14:00	59.92	-1.64	-0.2141			12-1922-4773	11-2137-3210
20		Feb	2	14:20	57.13	-4.427	-0.5918			05-5157-4005	07-7973-9309
21			6	13:40	70.57	9.012	1.083			04-6220-8945	00-3964-3519

170983

CHAIN OF CUSTODY FORM



Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

570-170983 Chain of Custody

Eurofins Calscience Project Manager: Virendra Patel
2841 Dow Avenue, Suite #100
Tustin, CA 92780
Tel: 714-895-5494
ECI Project #57013187

Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs with Statist Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.

Sampler:

Project:
Boeing-SSFL NPDES
2023 Permit
Routine Outfall [001, 002, 011, 018]
Outfall 018
COMPOSITE

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)

Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

ANALYSIS REQUIRED

Table with columns for various analytical parameters: Total Recoverable Metals, TCDD, BOD5, Detergents, Cl-, SO4-, Nitrate-N, Turbidity, TSS, Ammonia-N, Routine Pesticides, Weck Labs, Routine SVOCs, 3,3-Dichlorobenzidene, Benzidine, LL Mercury.

Comments

Main data table with columns: Sample Description, Sample I.D., Sampling Date/Time, Sample Matrix, Container Type, # of Cont., Preservative, Bottle #, MS/MSD, and various analytical results.

Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual

Handwritten signature and date blocks for Relinquished By and Received By, including dates like 2/5/24 and 2/8/24.

Turn-around time: (Check)
24 Hour: \_\_\_ 72 Hour: \_\_\_ 10 Day: \_\_\_ X \_\_\_
48 Hour: \_\_\_ 5 Day: \_\_\_ Normal: \_\_\_
Sample Integrity: (Check)
Intact: \_\_\_ On Ice: \_\_\_
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: \_\_\_ All Level IV: \_\_\_ X \_\_\_

1.2/1.4 2.0/2.2 1.9/2.1 5.14

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES 2023 Permit Routine Outfall [001, 002, 011, 018] Outfall 018 COMPOSITE					ANALYSIS REQUIRED										
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187									Total Dissolved Metals: (E200.8): Al, Cd, Cu, Pb, Se, Zn Cyanide (SM4500-CN-E / E335.2) Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0) Chronic Toxicity - Fathead minnow (EPA-921-F-02-013) ABC Labs in Ventura, CA LL Mercury (1631) Total Dissolved Monomethyl hydrazine (SW631SM/DV-WC-0077) Weick Labs in Hacienda Heights, CA 1,4-Dioxane (E624 (SW6260M_SIM))										
Eurofins Calscience's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement#2022-24-Eurofins by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Eurofins Calscience, Inc.				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)					Comments										
Sampler:				Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)															
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Dissolved Metals: (E200.8): Al, Cd, Cu, Pb, Se, Zn	Cyanide (SM4500-CN-E / E335.2)	Gross Alpha, Gross Beta (E900.0); K-40, Cs-137 (E901); Sr-90 (E905); Total Combined Radium 226 & 228 (E903, E904); Uranium (HASL-300 U-02 or A-01-R); Tritium [H-3] (E906.0)	Chronic Toxicity - Fathead minnow (EPA-921-F-02-013)	ABC Labs in Ventura, CA	LL Mercury (1631) Total Dissolved Monomethyl hydrazine (SW631SM/DV-WC-0077)	Weick Labs in Hacienda Heights, CA	1,4-Dioxane (E624 (SW6260M_SIM))	Comments		
3  Outfall 018	Outfall018_20240204_Comp_F	2/4/2024 / 0710	WM	1L Poly	1	None	200	Yes	H								Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.		
			WM	250mL Glass, double bagged	1	None	999							H				Filter and preserve w/in 24hrs of receipt at lab, and then put on HOLD.  Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
	Outfall018_20240204_Comp	2/4/2024 / 0710	WM	250 mL Poly	1	NaOH	220			X									
			WM	2.5 Gal Cube	1	None	225					X							Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
				1 L Glass Amber	1	None	230												
			WM	1 Gal Cube	5	None	235						X						Only test if first or second discharge events of the year. Deliver to ABC Labs in Ventura, CA.
			WM	1 L Glass Amber	1	None									X				
				WM	40 mL VOA	3	HCl									X			
	Legend: A=Annual, C=Conditional, EP=Expert Panel, R=Routine, Q=Quarterly, QRSW=Quarterly Receiving Water, S=Semi-Annual																		
	Relinquished By: <i>W Dominick</i> Date/Time: 2-5-2024 / 1240 Company: H&A				Received By: <i>[Signature]</i> Date/Time: 2/5/24 1240 EC														
Relinquished By: <i>[Signature]</i> Date/Time: 2/5/24 1605 EC Company:				Received By: <i>[Signature]</i> Date/Time: 2-5-24 1605 EC															
Relinquished By: _____ Date/Time: _____ Company: _____				Received By: _____ Date/Time: _____															





ICOC No  
570-345367

**Containers**

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
9	Amber Glass 1 liter Wide - unpreserved	None

**Subcontract Method Instructions**

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Weck-EPA 608 - alpha-BHC, Heptachlor & 4,4-DDE only)	Level IV package, MDL, EQUIS 5C
1	SUBCONTRACT	SUB (Weck-Monomethyl Hydrazine only)/ Weck-Monomethyl Hydrazine	Level IV package MDL, EQUIS 5C
2	SUBCONTRACT	SUB (Weck-EPA 608 - alpha-BHC, Heptachlor & 4,4-DDE only) (Hold)	Level IV package, MDL, EQUIS 5C



# Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-170983-4

**Login Number: 170983**

**List Number: 1**

**Creator: Patel, Virendra**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Data Usability Summary Report

**Project Name: The Boeing Company, Santa Susana Field Laboratory, NPDES**

**Project Description: First Quarter 2024 Stormwater Samples**

**Sample Date(s): 2 January 2024 to 20 February 2024**

**Analytical Laboratory: Eurofins Calscience, Tustin, CA**

**Validation Performed by: Gabrielle Davis**

**Validation Reviewed by: Kristina Ilina**

**Validation Date: 9 May 2024**

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Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

- 1. Level II, First Quarter 2024**
  - 2. Explanations**
  - 3. Glossary**
  - 4. Abbreviations**
  - 5. Qualifiers**
- References**

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- National Functional Guidelines (NFG) for Organic Data Review.
- The project-specific Quality Assurance Project Plan (QAPP), herein referred to as the specified limits (see references section).

Data reported in this sampling event were reported to the laboratory reporting limit (RL) [OR] the laboratory method detection limit (MDL). Results found between the MDL and RL are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOPs). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQOs) for the project and are therefore usable; any exceptions are noted in the following pages.

# 1. Level II, First Quarter 2024

## 1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number(s) 570-166524-12, 570-166871-8, 570-169112-13, 570-170729-8, 570-170739-11, 570-170759-10, 570-171239-7, 570-171243-11, 570-172945-9, and 570-173136-10.

Samples were collected, preserved, and shipped following standard chain of custody (COC) protocols.

- Samples were subcontracted to Eurofins Sacramento in West Sacramento, California.

Samples were also received appropriately, identified correctly, and analyzed according to the COC.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods	Holding Time
Outfall018_20240104_Comp	N	570-166871-1	01/04/2024	WM	E1668A	365 days
Outfall001_20240202_Comp	N	570-170729-1	02/02/2024	WM		
Outfall011_20240206_Comp	N	570-171239-1	02/06/2024	WM		
INF001_20240219_Grab	N	570-172945-1	02/19/2024	WM		
INF002_20240102_Grab	N	570-166524-1	01/02/2024	WM		
Outfall009_20240123_Comp	N	570-169112-1	01/23/2024	WM		
Outfall008_20240202_Comp	N	570-170739-1	02/02/2024	WM		
Outfall009_20240202_Comp	N	570-170759-1	02/02/2024	WM		
INF001_20240205_Grab	N	570-171243-1	02/05/2024	WM		
Outfall008_20240220_Comp	N	570-173136-1	02/20/2024	WM		

## 1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol.

## 1.3 REPORTING LIMITS AND SAMPLE DILUTIONS

No sample dilutions were performed for the analysis of the samples in this report.

## 1.4 SURROGATE RECOVERY COMPLIANCE

[Refer to Section E 1.2.](#) The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory-specified quality control (QC) limits.

## 1.5 LABORATORY CONTROL SAMPLES

[Refer to Section E 1.3.](#) Compounds associated with the laboratory control samples/laboratory control sample duplicate (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits.

## 1.6 BLANK SAMPLE ANALYSIS

[Refer to Section E 1.5.](#) Method blank samples had no detections, indicating that no contamination from laboratory activities occurred, with the following exceptions:

SDG	Batch ID	Analyte Detected in Blank	Concentration (pg/L)	Qualifier	Affected Samples
570-166524-12	753297	PCB 105	0.702 J	RL U	570-166524-1
		PCB 118	1.98 J	RL U	570-166524-1
		PCB 156	0.785 J	RL U	570-166524-1
		PCB 157	0.785 J	RL U	570-166524-1
570-166871-8	753297	PCB 8	4.48 J	RL U	570-166871-1
		PCB 18	2.56 J	RL U	570-166871-1
		PCB 28	5.95 J	RL U	570-166871-1
		PCB 37	1.91 J	None	None, sample ND
		PCB 44	7.62 J	RL U	570-166871-1
		PCB 49	1.28 J	RL U	570-166871-1
		PCB 52	2.51 J	RL U	570-166871-1
		PCB 66	1.98 J	RL U	570-166871-1
		PCB 70	3.67 J	RL U	570-166871-1
		PCB 74	3.67 J	RL U	570-166871-1
		PCB 99	1.02 J	None	None, sample >10X blank
		PCB 101	1.80 J	RL U	570-166871-1
		PCB 105	0.702 J	RL U	570-166871-1
		PCB 110	1.36 J	None	None, sample >10X blank
		PCB 118	1.98 J	None	None, sample >10X blank
		PCB 138	3.48 J	None	None, sample >10X blank
		PCB 149	2.07 J	None	None, sample >10X blank
		PCB 151	0.849 J	RL U	570-166871-1
		PCB 153	2.93 J	None	None, sample >10X blank
		PCB 156	0.785 J	RL U	570-166871-1
PCB 157	0.785 J	RL U	570-166871-1		
PCB 168	2.93 J	None	None, sample >10X blank		
PCB 170	0.808 J	RL U	570-166871-1		
PCB 177	0.661 J	RL U	570-166871-1		
PCB 180	3.06 J	RL U	570-166871-1		
PCB 183	1.61 J	RL U	570-166871-1		

SDG	Batch ID	Analyte Detected in Blank	Concentration (pg/L)	Qualifier	Affected Samples
		PCB 187	1.90 J	RL U	570-166871-1
		PCB 195	0.290 J	RL U	570-166871-1
570-169112-13	753720	PCB 118	1.22 J	None	None, sample >10X blank
		PCB 156	0.668 J	RL U	570-169112-1
		PCB 157	0.668 J	RL U	570-169112-1
570-170729-8	753720	PCB 28	2.16 J	RL U	570-170729-1
		PCB 44	6.95 J	RL U	570-170729-1
		PCB 49	.726 J	RL U	570-170729-1
		PCB 52	1.78 J	RL U	570-170729-1
		PCB 70	2.11 J	RL U	570-170729-1
		PCB 74	2.11 J	RL U	570-170729-1
		PCB 87	0.991 J	RL U	570-170729-1
		PCB 99	0.528 J	RL U	570-170729-1
		PCB 101	1.09 J	RL U	570-170729-1
		PCB 118	1.22 J	RL U	570-170729-1
		PCB 138	1.88 J	None	None, sample >10X blank
		PCB 149	0.836 J	None	None, sample >10X blank
		PCB 153	1.39 J	None	None, sample >10X blank
		PCB 156	0.668 J	RL U	570-170729-1
		PCB 157	0.668 J	RL U	570-170729-1
		PCB 158	0.273 J	RL U	570-170729-1
		PCB 168	1.39 J	None	None, sample >10X blank
		PCB 180	1.31 J	None	None, sample >10X blank
		PCB 183	0.999 J	RL U	570-170729-1
		PCB 187	0.770 J	None	None, sample >10X blank
570-170739-11	753720	PCB 86	0.991 J	RL U	570-170739-1
		PCB 118	1.22 J	None	None, sample >10X blank
		PCB 119	0.991 J	RL U	570-170739-1
		PCB 156	0.668 J	RL U	570-170739-1
		PCB 157	0.668 J	RL U	570-170739-1
570-170759-10	753720	PCB 118	1.22 J	None	None, sample >10X blank
		PCB 156	0.668 J	None	None, sample >10X blank
		PCB 157	0.668 J	None	None, sample >10X blank
570-171239-7	753295	PCB 8	6.18 J	None	None, sample ND
		PCB 18	3.80 J	RL U	570-171239-1
		PCB 28	7.68 J	RL U	570-171239-1
		PCB 37	1.99 J	None	None, sample ND
		PCB 44	9.04 J	RL U	570-171239-1
		PCB 49	1.80 J	RL U	570-171239-1

SDG	Batch ID	Analyte Detected in Blank	Concentration (pg/L)	Qualifier	Affected Samples
		PCB 52	3.04 J	RL U	570-171239-1
		PCB 66	2.19 J	RL U	570-171239-1
		PCB 70	4.51 J	RL U	570-171239-1
		PCB 74	4.51 J	RL U	570-171239-1
		PCB 87	1.18 J	None	None, sample >10X blank
		PCB 99	0.964 J	None	None, sample >10X blank
		PCB 101	1.91 J	None	None, sample >10X blank
		PCB 105	0.764 J	None	None, sample >10X blank
		PCB 110	1.60 J	None	None, sample >10X blank
		PCB 118	2.17 J	None	None, sample >10X blank
		PCB 119	1.18 J	None	None, sample >10X blank
		PCB 126	0.509 J	None	None, sample ND
		PCB 138	2.74 J	None	None, sample >10X blank
		PCB 149	1.84 J	None	None, sample >10X blank
		PCB 153	2.98 J	None	None, sample >10X blank
		PCB 156	0.928 J	None	None, sample >10X blank
		PCB 157	0.928 J	None	None, sample >10X blank
		PCB 158	0.442 J	None	None, sample >10X blank
		PCB 167	0.502 J	RL U	570-171239-1
		PCB 168	2.98 J	None	None, sample >10X blank
		PCB 170	0.917 J	None	None, sample >10X blank
		PCB 177	0.380 J	None	None, sample >10X blank
		PCB 180	2.71 J	None	None, sample >10X blank
		PCB 183	1.28 J	None	None, sample >10X blank
		PCB 187	1.00 J	None	None, sample >10X blank
570-171243-11	755879	PCB 118	0.699 J	None	None, sample >10X blank
		PCB 126	0.623 J	None	None, sample ND
		PCB 156	0.959 J	None	None, sample >10X blank
		PCB 157	0.959 J	None	None, sample >10X blank
		PCB 169	0.568 J	None	None, sample ND
570-172945-9	755879	PCB 118	0.699 J	None	None, sample >10X blank
		PCB 126	0.623 J	None	None, sample ND
		PCB 156	0.959 J	None	None, sample >10X blank
		PCB 157	0.959 J	None	None, sample >10X blank
		PCB 169	0.568 J	None	None, sample ND



SDG	Batch ID	Analyte Detected in Blank	Concentration (pg/L)	Qualifier	Affected Samples
570-173136-10	755879	PCB 118	0.699 J	None	None, sample ND
		PCB 126	0.623 J	None	None, sample ND
		PCB 156	0.959 J	None	None, sample ND
		PCB 157	0.959 J	None	None, sample ND
		PCB 169	0.568 J	None	None, sample ND

### 1.7 DUPLICATE SAMPLE ANALYSIS

[Refer to Section E 1.6.](#) The laboratory did not analyze any laboratory duplicates as per the method or laboratory SOP.

### 1.8 PRECISION AND ACCURACY

[Refer to Section E 1.7.](#) Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

### 1.9 ESTIMATED MAXIMUM POSSIBLE CONCENTRATION (EMPC)

[Refer to Section E 1.9.](#) A result previously qualified as a non-detect for method blank contamination was not further qualified as an EMPC. The EMPC flags reported by the laboratory are listed below.

Method	Lab ID	Analyte	Concentration	Qualifier	Affected Samples
E1668A	570-170729-1	(PCB 201) 2,2',3,3',4,5',6,6'- Octachlorobiphenyl	1.5	UJ	Outfall001_20240202_Comp
E1668A	570-170739-1	(PCB 167) 2,3',4,4',5,5'- Hexachlorobiphenyl	2.2	UJ	Outfall008_20240202_Comp
E1668A	570-172945-1	(PCB 167) 2,3',4,4',5,5'- Hexachlorobiphenyl	42	J	INF001_20240219_Grab
E1668A	570-166871-1	(PCB 202) 2,2',3,3',5,5',6,6'- Octachlorobiphenyl	1.2	UJ	Outfall018_20240104_Comp
E1668A	570-166871-1	(PCB 194) 2,2',3,3',4,4',5,5'- Octachlorobiphenyl	4.9	UJ	Outfall018_20240104_Comp
E1668A	570-166871-1	(PCB 178) 2,2',3,3',5,5',6- Heptachlorobiphenyl	1.6	UJ	Outfall018_20240104_Comp
E1668A	570-171243-1	(PCB 77) 3,3',4,4'- Tetrachlorobiphenyl	2.9	UJ	INF001_20240205_Grab

## 1.10 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the DQOs for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected. The qualifiers applied to this dataset are summarized in the table below.

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
Outfall001_20240202_Comp	2/2/2024	(PCB 118) 2,3',4,4',5-Pentachlorobiphenyl	27	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 66) 2,3',4,4'-Tetrachlorobiphenyl	4.7	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 70) 2,3',4',5-Tetrachlorobiphenyl	9.5	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 105) 2,3,3',4,4'-Pentachlorobiphenyl	13	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 74) 2,4,4',5-Tetrachlorobiphenyl	9.5	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 170) 2,2',3,3',4,4',5-Heptachlorobiphenyl	29	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 52) 2,2',5,5'-Tetrachlorobiphenyl	10	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 194) 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	17	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 101) 2,2',4,5,5'-Pentachlorobiphenyl	31	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 99) 2,2',4,4',5-Pentachlorobiphenyl	19	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 87) 2,2',3,4,5'-Pentachlorobiphenyl	19	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 128) 2,2',3,3',4,4'-Hexachlorobiphenyl	16	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 156) 2,3,3',4,4',5-Hexachlorobiphenyl	9.8	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 201) 2,2',3,3',4,5',6,6'-Octachlorobiphenyl	1.5	J,DXq	UJ	*10
Outfall001_20240202_Comp	2/2/2024	(PCB 44) 2,2',3,5'-Tetrachlorobiphenyl	13	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 49) 2,2',4,5'-Tetrachlorobiphenyl	5.0	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 151) 2,2',3,5,5',6-Hexachlorobiphenyl	15	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 179) 2,2',3,3',5,6,6'-Heptachlorobiphenyl	5.8	J,DX	J	DNQ

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
Outfall001_20240202_Comp	2/2/2024	(PCB 178) 2,2',3,3',5,5',6- Heptachlorobiphenyl	4.1	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 183) 2,2',3,4,4',5',6- Heptachlorobiphenyl	11	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 177) 2,2',3,3',4',5,6- Heptachlorobiphenyl	14	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 167) 2,3',4,4',5,5'- Hexachlorobiphenyl	4.3	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 195) 2,2',3,3',4,4',5,6- Octachlorobiphenyl	5.7	J,DX	J	DNQ
Outfall001_20240202_Comp	2/2/2024	(PCB 157) 2,3,3',4,4',5'- Hexachlorobiphenyl	9.8	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 28) 2,4,4'- Trichlorobiphenyl	3.0	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 158) 2,3,3',4,4',6- Hexachlorobiphenyl	8.2	J,DXMB	U	B
Outfall008_20240202_Comp	2/2/2024	(PCB 105) 2,3,3',4,4'- Pentachlorobiphenyl	8.5	J,DX	J	DNQ
Outfall008_20240202_Comp	2/2/2024	(PCB 194) 2,2',3,3',4,4',5,5'- Octachlorobiphenyl	3.7	J,DX	J	DNQ
Outfall008_20240202_Comp	2/2/2024	(PCB 156) 2,3,3',4,4',5- Hexachlorobiphenyl	5.9	J,DXMB	U	B
Outfall008_20240202_Comp	2/2/2024	(PCB 167) 2,3',4,4',5,5'- Hexachlorobiphenyl	2.2	J,DXq	UJ	*10
Outfall008_20240202_Comp	2/2/2024	(PCB 86) 2,2',3,4,5- Pentachlorobiphenyl	12	J,DXMB	U	B
Outfall008_20240202_Comp	2/2/2024	(PCB 119) 2,3',4,4',6- Pentachlorobiphenyl	12	J,DXMB	U	B
Outfall008_20240202_Comp	2/2/2024	(PCB 157) 2,3,3',4,4',5'- Hexachlorobiphenyl	5.9	J,DXMB	U	B
Outfall009_20240202_Comp	2/2/2024	(PCB 194) 2,2',3,3',4,4',5,5'- Octachlorobiphenyl	26	J,DX	J	DNQ
Outfall009_20240202_Comp	2/2/2024	(PCB 189) 2,3,3',4,4',5,5'- Heptachlorobiphenyl	3.0	J,DX	J	DNQ
INF001_20240219_Grab	2/19/2024	(PCB 167) 2,3',4,4',5,5'- Hexachlorobiphenyl	42	q	J	*10
INF002_20240102_Grab	1/2/2024	(PCB 118) 2,3',4,4',5- Pentachlorobiphenyl	17	J,DXMB	U	B
INF002_20240102_Grab	1/2/2024	(PCB 105) 2,3,3',4,4'- Pentachlorobiphenyl	4.3	J,DXqMB	U	B

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
INF002_20240102_Grab	1/2/2024	(PCB 156) 2,3,3',4,4',5-Hexachlorobiphenyl	3.4	J,DXMB	U	B
INF002_20240102_Grab	1/2/2024	(PCB 167) 2,3',4,4',5,5'-Hexachlorobiphenyl	1.7	J,DX	J	DNQ
INF002_20240102_Grab	1/2/2024	(PCB 157) 2,3,3',4,4',5'-Hexachlorobiphenyl	3.4	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 209) Decachlorobiphenyl	3.2	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 202) 2,2',3,3',5,5',6,6'-Octachlorobiphenyl	1.2	J,DXq	UJ	*10
Outfall018_20240104_Comp	1/4/2024	(PCB 66) 2,3',4,4'-Tetrachlorobiphenyl	12	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 70) 2,3',4',5-Tetrachlorobiphenyl	28	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 105) 2,3,3',4,4'-Pentachlorobiphenyl	24	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 74) 2,4,4',5-Tetrachlorobiphenyl	28	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 8) 2,4'-Dichlorobiphenyl	4.8	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 180) 2,2',3,4,4',5,5'-Heptachlorobiphenyl	31	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 170) 2,2',3,3',4,4',5-Heptachlorobiphenyl	16	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 52) 2,2',5,5'-Tetrachlorobiphenyl	35	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 194) 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	4.9	J,DXq	UJ	*10
Outfall018_20240104_Comp	1/4/2024	(PCB 18) 2,2',5-Trichlorobiphenyl	4.2	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 101) 2,2',4,5,5'-Pentachlorobiphenyl	76	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 87) 2,2',3,4,5'-Pentachlorobiphenyl	44	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 128) 2,2',3,3',4,4'-Hexachlorobiphenyl	20	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 156) 2,3,3',4,4',5-Hexachlorobiphenyl	14	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 201) 2,2',3,3',4,5',6,6'-Octachlorobiphenyl	0.93	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 44) 2,2',3,5'-Tetrachlorobiphenyl	25	J,DXMB	U	B

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
Outfall018_20240104_Comp	1/4/2024	(PCB 49) 2,2',4,5'-Tetrachlorobiphenyl	15	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 82) 2,2',3,3',4-Pentachlorobiphenyl	6.0	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 151) 2,2',3,5,5',6-Hexachlorobiphenyl	20	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 178) 2,2',3,3',5,5',6-Heptachlorobiphenyl	1.6	J,DXq	UJ	*10
Outfall018_20240104_Comp	1/4/2024	(PCB 187) 2,2',3,4',5,5',6-Heptachlorobiphenyl	12	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 183) 2,2',3,4,4',5',6-Heptachlorobiphenyl	6.0	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 177) 2,2',3,3',4',5,6-Heptachlorobiphenyl	6.7	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 167) 2,3',4,4',5,5'-Hexachlorobiphenyl	6.2	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 195) 2,2',3,3',4,4',5,6-Octachlorobiphenyl	1.4	J,DXMBq	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 119) 2,3',4,4',6-Pentachlorobiphenyl	44	J,DX	J	DNQ
Outfall018_20240104_Comp	1/4/2024	(PCB 157) 2,3,3',4,4',5'-Hexachlorobiphenyl	14	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 28) 2,4,4'-Trichlorobiphenyl	7.2	J,DXMB	U	B
Outfall018_20240104_Comp	1/4/2024	(PCB 158) 2,3,3',4,4',6-Hexachlorobiphenyl	9.7	J,DX	J	DNQ
Outfall009_20240123_Comp	1/23/2024	(PCB 105) 2,3,3',4,4'-Pentachlorobiphenyl	23	J,DX	J	DNQ
Outfall009_20240123_Comp	1/23/2024	(PCB 194) 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	22	J,DX	J	DNQ
Outfall009_20240123_Comp	1/23/2024	(PCB 156) 2,3,3',4,4',5-Hexachlorobiphenyl	20	J,DXMB	U	B
Outfall009_20240123_Comp	1/23/2024	(PCB 189) 2,3,3',4,4',5,5'-Heptachlorobiphenyl	2.1	J,DX	J	DNQ
Outfall009_20240123_Comp	1/23/2024	(PCB 167) 2,3',4,4',5,5'-Hexachlorobiphenyl	9.5	J,DX	J	DNQ
Outfall009_20240123_Comp	1/23/2024	(PCB 157) 2,3,3',4,4',5'-Hexachlorobiphenyl	20	J,DXMB	U	B
Outfall001_20240202_Comp	2/2/2024	(PCB 209) Decachlorobiphenyl	6.2	J,DX	J	DNQ

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
Outfall009_20240202_Comp	2/2/2024	(PCB 167) 2,3',4,4',5,5'-Hexachlorobiphenyl	15	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 209) Decachlorobiphenyl	12	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 66) 2,3',4,4'-Tetrachlorobiphenyl	10	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 70) 2,3',4',5-Tetrachlorobiphenyl	28	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 74) 2,4,4',5-Tetrachlorobiphenyl	28	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 52) 2,2',5,5'-Tetrachlorobiphenyl	47	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 194) 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	24	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 18) 2,2',5-Trichlorobiphenyl	3.7	J,DXqMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 189) 2,3,3',4,4',5,5'-Heptachlorobiphenyl	3.5	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 201) 2,2',3,3',4,5',6,6'-Octachlorobiphenyl	3.0	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 206) 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	16	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 44) 2,2',3,5'-Tetrachlorobiphenyl	28	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 49) 2,2',4,5'-Tetrachlorobiphenyl	12	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 167) 2,3',4,4',5,5'-Hexachlorobiphenyl	24	J,DXMB	U	B
Outfall011_20240206_Comp	2/6/2024	(PCB 123) 2',3,4,4',5-Pentachlorobiphenyl	5.1	J,DX	J	DNQ
Outfall011_20240206_Comp	2/6/2024	(PCB 28) 2,4,4'-Trichlorobiphenyl	3.8	J,DXqMB	U	B
INF001_20240205_Grab	2/5/2024	(PCB 77) 3,3',4,4'-Tetrachlorobiphenyl	2.9	J,DXq	UJ	*10
INF001_20240205_Grab	2/5/2024	(PCB 194) 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	25	J,DX	J	DNQ
INF001_20240205_Grab	2/5/2024	(PCB 189) 2,3,3',4,4',5,5'-Heptachlorobiphenyl	4.0	J,DX	J	DNQ
INF001_20240205_Grab	2/5/2024	(PCB 167) 2,3',4,4',5,5'-Hexachlorobiphenyl	22	J,DX	J	DNQ

## 2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.1 Reporting Basis (Wet/Dry)
  - Soil samples can be reported on either a wet (as received) or dry weight basis. Dry weight data indicate calculations were made to compensate for the moisture content of the soil sample.
  - Percent (%) solids should be appropriately considered when evaluating analytical results for non-aqueous samples. Sediments with high moisture content may or may not be successfully analyzed by routine analytical methods. Samples should have greater than or equal to 30 percent solids to be appropriately quantified.
- E 1.2 Surrogate Recovery Compliance
  - Surrogates, also known as system monitoring compounds, are compounds added to each sample prior to sample preparation to determine the efficiency of the extraction procedure by evaluating the percent recovery (%R) of the compounds.
- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
  - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.

- E 1.9 Dioxin/Furan Estimated Maximum Possible Concentration
  - An Estimated Maximum Possible Concentration (EMPC) is a worst-case estimate of the concentration for a dioxin/furan based on all identification criteria being met except the ion abundance ratio criteria, or if a peak representing a chlorinated diphenyl ether was detected.



### 3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - $\mu\text{g}/\text{kg}$  micrograms per kilogram
  - $\mu\text{g}/\text{L}$  micrograms per liter
  - $\mu\text{g}/\text{m}^3$  micrograms per cubic meter
  - $\text{mg}/\text{kg}$  milligrams per kilogram
  - $\text{mg}/\text{L}$  milligrams per liter
  - ppb v/v parts per billion volume/volume
  - pCi/L picocuries per liter
  - $\text{pg}/\text{g}$  picograms per gram
  - $\text{pg}/\text{L}$  picograms per liter
- Matrices:
  - AA Ambient Air
  - GS Soil Gas
  - GW/WG Groundwater
  - QW Water Quality
  - IA Indoor Air
  - SE Sediment
  - SO Soil
  - SSV Sub-slab Vapor
  - WQ Water Quality control matrix
  - WS Surface Water
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - $\leq$  less than or equal to
  - > greater than
  - $\geq$  greater than or equal to
  - = equal
  - $^{\circ}\text{C}$  degrees Celsius
  - $\pm$  plus or minus
  - $\sim$  approximately
  - x times (multiplier)

- Fractions:
  - N Normal (method cannot be filtered)
  - D Dissolved (filtered)
  - T Total (unfiltered)

## 4. Abbreviations

%D	Percent Difference	MDL	Laboratory Method Detection Limit
%R	Percent Recovery	MS/MSD	Matrix Spike/Matrix Spike Duplicate
%RSD	Percent Relative Standard Deviation	NA	not applicable
%v/v	Percent volume by volume	ND	Non-Detect
2s	2 sigma	NFG	National Functional Guidelines
4,4-DDT	4 4-dichlorodiphenyltrichloroethane	NH <sub>3</sub>	Ammonia
Abs Diff	Absolute Difference	NYSDEC	New York State Department of Environmental Conservation
amu	atomic mass unit		
BPJ	Best Professional Judgement	PAH	Polycyclic Aromatic Hydrocarbon
BS	Blank Spike	PCB	Polychlorinated Biphenyl
CCB	Continuing Calibration Blank	PDS	Post-Digestion Spike
CCV	Continuing Calibration Verification	PEM	Performance Evaluation Mixture
CCVL	Continuing Calibration Verification Low	PFAS	Per- and Polyfluoroalkyl Substances
		PFBA	Perfluorbutanoic Acid
COC	Chain of Custody	PFD	Perfluorodecalin
COM	Combined Isotope Calculation	PFOA	Perfluorooctanoic Acid
Cr (VI)	Hexavalent Chromium	PFOS	Perfluorooctane sulfonate
CRI	Collision Reaction Interface	PFPeA	Perfluoropentanoic Acid
DoD	Department of Defense	QAPP	Quality Assurance Project Plan
DQO	data quality objective	QC	Quality Control
DUSR	Data Usability Summary Report	QSM	Quality Systems Manual
EIS	Extraction Internal Standard	R <sup>2</sup>	R-squared value
EMPC	Estimated Maximum Possible Concentration	Ra-226	Radium-226
		Ra-228	Radium-228
FBK	Field Blank Contamination	RESC	Resolution Check Measure
FDP	Field Duplicate	RL	Laboratory Reporting Limit
GC	Gas Chromatograph	RPD	Relative Percent Difference
GC/MS	Gas Chromatography/Mass Spectrometry	RRF	Relative Response Factor
		RT	Retention Time
GPC	Gel Permeation Chromatography	SAP	Sampling Analysis Plan
H <sub>2</sub>	Hydrogen gas	SDG	Sample Delivery Group
HCl	Hydrochloric Acid	SIM	Selected ion monitoring
ICAL	Initial Calibration	SOP	Standard Operating Procedure
ICB	Initial Calibration Blank	SPE	Solid-Phase Extraction
ICP/MS	Inductively Coupled Plasma/Mass Spectrometry	SVOC	Semi-Volatile Organic Compound
		TCLP	Toxicity Characteristic Leaching Procedure
ICV	Initial Calibration Verification		
ICVL	Initial Calibration Verification Low	TIC	Tentatively Identified Compound
IPA	Isopropyl Alcohol	TKN	Total Kjeldahl Nitrogen
LC	Laboratory Control	TPH	Total Petroleum Hydrocarbon
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate	TPU	Total Propagated Uncertainty
		USEPA	U.S. Environmental Protection Agency
MBK	Method Blank Contamination	VOC	Volatile Organic Compound
MDC	Minimum Detectable Concentration	WP	Work Plan

## 5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Laboratory Qualifiers:
  - BA Relative percent difference out of control.
  - BU Analyzed out of holding time.
  - BV Sample received after holding time expired.
  - EY Result exceeds normal dynamic range; reported as a minimum estimate.
  - F1 MS and/or MSD recovery exceeds control limits.
  - G The Sample MDC is greater than the requested RL.
  - J,DX Results found between the EDL or MDL and laboratory RL.
  - LM MS and/or MSD above acceptance limits. See Blank Spike (LCS).
  - LN MS and/or MSD below acceptance limits. See Blank Spike (LCS).
  - LQ LCS/LCSD recovery above method control limits.
  - MB Analyte present in the method blank.
  - PI Primary and confirm results varied by > than 40% RPD.
  - q The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio; the measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
  - U Result is less than the sample detection limit.
- Validation Notes:
  - Based on validation of the data, a qualifier was not required.
  - \*1 Improper preservation of sample.
  - \*III Unusual problems found with the data that have been described in the validation report.
  - B Laboratory method blank contamination.
  - D The analysis with this flag should not be used because another more technically sound analysis is available.
  - DNQ Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
  - E Duplicates show poor agreement.
  - H Holding times were exceeded.
  - L1 Laboratory control standard (LCS)/laboratory control standard duplicate (LCSD), relative percent difference (RPD) was outside the control limit.
  - Q Matrix spike (MS) recovery outside of control limits.
  - RPD Pesticides and PCB Confirmation Column RPD Exceeded.

- Validation Qualifiers:

- = No Qualifier.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- J- The result is an estimated quantity, but the result may be biased low.
- J+ The result is an estimated quantity, but the result may be biased high.
- R The sample results were rejected as unusable; the compound may or may not be present in the sample.
- U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
- UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

## References

1. United States Environmental Protection Agency, 2020b. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-20-005. November.
2. Haley & Aldrich, Inc, 2015. Quality Assurance Project Field Plan for Santa Susana Field Laboratory Stormwater Sampling Program. December.

## Data Usability Summary Report

**Project Name: The Boeing Company, Santa Susana Field Laboratory, NPDES**

**Project Description: First Quarter 2024 Stormwater Samples**

**Sample Date(s): January-February 2024**

**Analytical Laboratory: Eurofins Calscience, Tustin, CA**

**Validation Performed by: Eric Hitchens**

**Validation Reviewed by: Kristina Ilina, Raul Tenorio**

**Validation Date: 9 May 2024**

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Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

- 1. Level II, First Quarter 2024**
  - 2. Explanations**
  - 3. Glossary**
  - 4. Abbreviations**
  - 5. Qualifiers**
- References**

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- USEPA Contract Laboratory Program (CLP) NFG for Chlorinated Dioxin/Furan Data Review.
- National Functional Guidelines (NFG) for Inorganic Data Review.
- The project-specific Quality Assurance Project Plan (QAPP), herein referred to as the specified limits (see references section).

Data reported in this sampling event were reported to the laboratory estimated detection limit (EDL) or method detection limit (MDL). Results found between the EDL or MDL and laboratory reporting limit (RL) are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQO) for the project and therefore usable; any exceptions are noted in the following pages.

## 1. Level II, First Quarter 2024

### 1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers listed in Table 1A.

Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the COC. Any exceptions are noted in Table 3.

Analyses were performed on the samples listed in Table 1B. Method holding times are listed in Table 2.

### 1.2 CASE NARRATIVE

The laboratory report case narrative lists various additional quality control issues, such as internal standard exceedances and initial calibration verification (ICV) and/or continuing calibration verification (CCV) exceedances. Since these additional quality control issues were not required for the project's DQOs, these quality control issues were not reviewed. Any additional issues are listed in Table 3.

### 1.3 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol. Any exceptions are noted in Table 3.

### 1.4 REPORTING LIMITS AND SAMPLE DILUTIONS

The RLs for the samples within this SDG met or were below the minimum RL requirements specified by the project specific QAPP.

### 1.5 SURROGATE RECOVERY COMPLIANCE

[Refer to Section E 1.2.](#) The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory specified quality control (QC) limits.

### 1.6 LABORATORY CONTROL SAMPLES

[Refer to Section E 1.3.](#) Compounds associated with the laboratory control samples/laboratory control sample duplicates (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits.

### 1.7 MATRIX SPIKE SAMPLES

[Refer to Section E 1.4.](#) The samples listed in Table 4 were used for matrix spike/matrix spike duplicate (MS/MSD) analysis. The MS/MSD recoveries and the relative percent difference (RPD) between the MS and MSD results were within the specified limits, with the following exceptions:

- In cases where the parent sample dilution factor was  $\geq 5x$ , data was not qualified.
- In cases where the native sample results were  $\geq 4x$  the spike added, data was not qualified.



## **1.8 BLANK SAMPLE ANALYSIS**

[Refer to Section E 1.5.](#) Method blank samples had no detections, indicating that no contamination from laboratory activities occurred. Any exceptions are noted in Table 5.

## **1.9 DUPLICATE SAMPLE ANALYSIS**

[Refer to Section E 1.6.](#) The laboratory did not analyze any laboratory duplicates as per the method or laboratory SOP.

## **1.10 PRECISION AND ACCURACY**

[Refer to Section E 1.7.](#) Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

## **1.11 DIOXIN/FURAN ESTIMATED MAXIMUM POSSIBLE CONCENTRATION (EMPC)**

[Refer to Section E 1.9.](#) A result previously qualified as a non-detect for method blank contamination was not further qualified as an EMPC. The EMPC flags reported by the laboratory are listed in Table 6.

## **1.12 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT**

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected. A summary of qualifiers applied to this data set is shown in Table 7.

## 2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.2 Surrogate Recovery Compliance
  - Surrogates, also known as system monitoring compounds, are compounds added to each sample prior to sample preparation to determine the efficiency of the extraction procedure by evaluating the percent recovery (%R) of the compounds.
- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
  - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.
- E 1.9 Dioxin/Furan Estimated Maximum Possible Concentration
  - An Estimated Maximum Possible Concentration (EMPC) is a worst-case estimate of the concentration for a dioxin/furan based on all identification criteria being met except the ion abundance ratio criteria, or if a peak representing a chlorinated diphenyl ether was detected.

- E 1.22 Internal Standards
  - Internal standards are compounds added to each sample by the laboratory prior to sample analysis to ensure that instrument sensitivity and response are stable during each analysis. The lab uses a single internal standard to make sure they are getting good intake of the sample into the instrument. Corrections are not made to any of the elements' responses based on this standard.

### 3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - % SURVIVAL percent survival
  - $\mu\text{g/L}$  microgram per liter
  - $\text{mg/kg}$  milligrams per kilogram
  - $\text{mg/L}$  milligram per liter
  - $\text{mL/L}$  milliliters per liter
  - $\text{mpn}/100\text{mL}$  most probable number per 100 milliliters
  - NTU nephelometric turbidity unit
  - $\text{pCi/L}$  picocuries per liter
  - $\text{umhos/cm}$  micromhos per centimeter
- Matrices:
  - WM Stormwater
  - WMQ Water Quality control matrix
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - $\leq$  less than or equal to
  - > greater than
  - $\geq$  greater than or equal to
  - = equal
  - $^{\circ}\text{C}$  degrees Celsius
  - $\pm$  plus or minus
  - $\sim$  approximately
  - x times (multiplier)
- Fractions:
  - D Dissolved (filtered)
  - N Normal (method cannot be filtered)
  - T Total (unfiltered)

## 4. Abbreviations

%D	Percent Difference	LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
%R	Percent Recovery		
%RSD	Percent Relative Standard Deviation	MDC	Minimum Detectable Concentration
2s	2 sigma	MDL	Laboratory Method Detection Limit
4,4-DDT	4 4-dichlorodiphenyltrichloroethane	MS/MSD	Matrix Spike/Matrix Spike Duplicate
Abs Diff	Absolute Difference	NFG	National Functional Guidelines
amu	atomic mass unit	NH <sub>3</sub>	Ammonia
BPJ	Best Professional Judgement	PCB	Polychlorinated Biphenyl
BS	Blank Spike	PDS	Post Digestion Spike
CCB	Continuing Calibration Blank	PEM	Performance Evaluation Mixture
CCV	Continuing Calibration Verification	QAPP	Quality Assurance Project Plan
CCVL	Continuing Calibration Verification Low	QC	Quality Control
		QSM	Quality Systems Manual
COC	Chain of Custody	R <sup>2</sup>	R-squared value
COM	Combined Isotope Calculation	Ra-226	Radium-226
Cr (VI)	Hexavalent Chromium	Ra-228	Radium-228
CRI	Collision Reaction Interface	RESC	Resolution Check Measure
DQO	data quality objective	RER	Relative Error Ratio
DUSR	Data Usability Summary Report	RL	Laboratory Reporting Limit
EMPC	Estimated Maximum Possible Concentration	RPD	Relative Percent Difference
		RRF	Relative Response Factors
FBK	Field Blank Contamination	RT	Retention Time
FDP	Field Duplicate	SAP	sampling analysis plan
GC	Gas Chromatograph	SDG	Sample Delivery Group
GC/MS	Gas Chromatography/Mass Spectrometry	SIM	Selected ion monitoring
		SOP	Laboratory Standard Operating Procedures
GPC	Gel Permeation Chromatography		
HCl	Hydrochloric Acid	SPE	Solid Phase Extraction
ICAL	Initial Calibration	SVOC	Semi-Volatile Organic Compounds
ICB	Initial Calibration Blank	TIC	Tentatively Identified Compound
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry	TKN	Total Kjeldahl Nitrogen
		TPH	Total Petroleum Hydrocarbon
ICV	Initial Calibration Verification	TPU	Total Propagated Uncertainty
ICVL	Initial Calibration Verification Low	amu	atomic mass unit
IPA	Isopropyl Alcohol	USEPA	U.S. Environmental Protection Agency
LC	Laboratory Control	VOC	Volatile Organic Compounds

## 5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Laboratory Qualifiers:
  - BA Relative percent difference out of control.
  - BU Analyzed out of holding time.
  - BV Sample received after holding time expired.
  - EY Result exceeds normal dynamic range; reported as a minimum estimate.
  - F1 MS and/or MSD recovery exceeds control limits.
  - G The Sample MDC is greater than the requested RL.
  - J,DX Results found between the EDL or MDL and laboratory RL.
  - LM MS and/or MSD above acceptance limits. See Blank Spike (LCS).
  - LN MS and/or MSD below acceptance limits. See Blank Spike (LCS).
  - LQ LCS/LCSD recovery above method control limits.
  - MB Analyte present in the method blank.
  - PI Primary and confirm results varied by > than 40% RPD.
  - q The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio; the measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
  - U Result is less than the sample detection limit.
- Validation Notes:
  - Based on validation of the data, a qualifier was not required.
  - \*1 Improper preservation of sample.
  - \*III Unusual problems found with the data that have been described in the validation report.
  - B Laboratory method blank contamination.
  - D The analysis with this flag should not be used because another more technically sound analysis is available.
  - DNQ Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
  - E Duplicates show poor agreement.
  - H Holding times were exceeded.
  - L1 Laboratory control standard (LCS)/laboratory control standard duplicate (LCSD), relative percent difference (RPD) was outside the control limit.
  - Q Matrix spike (MS) recovery outside of control limits.
  - RPD Pesticides and PCB Confirmation Column RPD Exceeded.

- Validation Qualifiers:

- = No Qualifier.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- J- The result is an estimated quantity, but the result may be biased low.
- J+ The result is an estimated quantity, but the result may be biased high.
- R The sample results were rejected as unusable; the compound may or may not be present in the sample.
- U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
- UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

## References

1. United States Environmental Protection Agency (USEPA), 2011. USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review. EPA-540-R-11-016. September.
2. United States Environmental Protection Agency, 2020a. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-542-R-20-006. November.
3. Haley & Aldrich, Inc, 2015. Quality Assurance Project Field Plan for Santa Susana Field Laboratory Stormwater Sampling Program. December.

### Attachments:

- Table 1A - Sample Delivery Groups
- Table 1B - Sample Information
- Table 2 - Method Holding Time Exceedances
- Table 3 - Case Narratives
- Table 4 - Matrix Spike Sample Pairs
- Table 5 - Method Blank Samples
- Table 6 - Dioxin-Furan EMPC
- Table 7 - Summary of Qualifiers



**TABLE 1A**  
**SAMPLE DELIVERY GROUPS**  
THE BOEING COMPANY  
SANTA SUSANA FIELD LABORATORY

<b>Sample Delivery Group</b>
570166671
612400068
5701665244
5701668582
5701668712
5701688822
5701689643
5701689693
5701691121
5701691123
5701707292
5701707332
5701707391
5701707393
5701707591
5701707592
5701707593
5701707752
5701709832
5701712332
5701712333
5701712371
5701712372
5701712373
5701712431
5701712432
5701712434
5701729452
5701732392
5701757742
5701689703
5701712391
5701712392
5701729403
5701729453
5701731112
5701731223
5701731283
5701731333
5701731363
5701732393
5701732433
5701740103
5701741853
5701741893
5701741983
5701712393

## SAMPLE INFORMATION

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods <sup>1</sup>
Outfall002_20240103_Grab	N	0068-1	01/03/2024	WM	A, B
Outfall018_20240103_Grab	N	0068-2	01/03/2024	WM	A
INF002_20240102_Grab	N	570-166524-1	01/02/2024	WM	B
Outfall002_20240103_Grab	N	570-166671-1	01/03/2024	WM	B, E
Outfall002_20240104_Comp	N	570-166858-1	01/04/2024	WM	B
Outfall018_20240104_Comp	N	570-166871-1	01/04/2024	WM	B
Outfall002_20240121_Comp	N	570-168882-1	01/21/2024	WM	B
RSW-002_20240122_Grab	N	570-168964-1	01/22/2024	WM	B
RSW-003_20240122_Grab	N	570-168969-1	01/22/2024	WM	B
Outfall009_20240123_Comp	N	570-169112-1	01/23/2024	WM	B, C
Outfall009_20240123_Comp_F	N	570-169112-2	01/23/2024	WM	C
Outfall001_20240202_Comp	N	570-170729-1	02/02/2024	WM	B, C
Outfall002_20240202_Comp	N	570-170733-1	02/02/2024	WM	B
Outfall008_20240202_Comp	N	570-170739-1	02/02/2024	WM	B, C
Outfall009_20240202_Comp	N	570-170759-1	02/02/2024	WM	B, C, D
Outfall009_20240202_Comp_F	N	570-170759-2	02/02/2024	WM	C
INF002_20240202_Grab	N	570-170775-1	02/02/2024	WM	B
Outfall018_20240204_Comp	N	570-170983-1	02/04/2024	WM	B
Outfall004_20240206_Comp	N	570-171233-1	02/06/2024	WM	B, D
Outfall006_20240206_Comp	N	570-171237-1	02/06/2024	WM	B, C, D
INF001_20240205_Grab	N	570-171243-1	02/05/2024	WM	B, C, D
INF001_20240219_Grab	N	570-172945-1	02/19/2024	WM	D
NBB_20240221_Grab	N	570-173239-1	02/21/2024	WM	D
INF001_20240310_Grab	N	570-175774-1	03/10/2024	WM	D
Outfall011_20240206_Comp	N	570-171239-1	02/06/2024	WM	A, C, D
INF002_20240218_Grab	N	570-172940-1	02/18/2024	WM	B
INF001_20240219_Grab	N	570-172945-1	02/19/2024	WM	B
Outfall018_20240220_Comp	N	570-173111-1	02/20/2024	WM	B
Outfall009_20240220_Comp	N	570-173122-1	02/20/2024	WM	B
Outfall001_2240220_Comp	N	570-173128-1	02/20/2024	WM	B
Outfall002_20240220_Comp	N	570-173133-1	02/20/2024	WM	B
Outfall008_20240220_Comp	N	570-173136-1	02/20/2024	WM	B
NBB_20240221_Grab	N	570-173239-1	02/21/2024	WM	B
Outfall011_20240221_Comp	N	570-173243-1	02/21/2024	WM	B
INF002_20240227_Grab	N	570-174010-1	02/27/2024	WM	B
Outfall001_20240228_Comp	N	570-174185-1	02/28/2024	WM	B
Outfall002_20240228_Comp	N	570-174189-1	02/28/2024	WM	B
Outfall009_20240228_Comp	N	570-174198-1	02/28/2024	WM	B

## Notes:

1. See Table 2

**METHOD HOLDING TIMES**

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

<b>Letter Code</b>	<b>Method</b>	<b>Description</b>	<b>Holding Time(s)</b>
A	DHC qPCR	DNA polymerase chain reaction	None
B	E1613B	Dioxins/Furans	1 year
C	E200.8	Metals	180 days for liquid, preserved
D	E1631	Mercury	90 days
E	Field	Field pH	Not applicable

**TABLE 3**  
**METHOD HOLDING TIME EXCEEDANCES**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG	Issue
Multiple	Several samples were received at the laboratory with different numbers of corresponding containers than what was specified on the COC; this was discussed with the client. No qualifiers applied.
Multiple	Multiple samples were received outside of pH requirements. They were corrected at the laboratory upon receipt; therefore, no qualifiers were applied.
Multiple	Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The case narrative stated this retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times were updated for proper analyte identification. No qualifiers applied.
570-173239-2	NBB_20240221_Grab (570-173239-1) was received broken or leaking. Qualify data J/UJ.
Multiple	Methods 1613B, 8290A: The automated ending resolution check did not print due to a data system malfunction. A resolution check was performed following the continuing calibration verification (CCV) and indicated the instrument maintained greater than 10,000 resolution. The samples were evaluated for high mass fragmentation breakthrough and none was found. Therefore, no qualifiers were applied.

## MATRIX SPIKE SAMPLE PAIRS

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

Sample Type	Lab Sample ID	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
MS	570-169112-1 MS	Outfall009_20240123_Comp	E200.8
MSD	570-169112-1 MSD	Outfall009_20240123_Comp	E200.8
MS	570-169112-2 MS	Outfall009_20240123_Comp_F	E200.8
MSD	570-169112-2 MSD	Outfall009_20240123_Comp_F	E200.8
MS	570-170739-1 MS	Outfall008_20240202_Comp	E200.8
MSD	570-170739-1 MSD	Outfall008_20240202_Comp	E200.8
MS	570-170739-2 MS	Outfall008_20240202_Comp_F	E200.8
MSD	570-170739-2 MSD	Outfall008_20240202_Comp_F	E200.8
MS	570-170759-1 MS	Outfall009_20240202_Comp	E200.8
MSD	570-170759-1 MSD	Outfall009_20240202_Comp	E200.8
MS	570-170759-2 MS	Outfall009_20240202_Comp_F	E200.8
MSD	570-170759-2 MSD	Outfall009_20240202_Comp_F	E200.8
MS	570-171237-1 MS	Outfall006_20240206_Comp	E200.8
MSD	570-171237-1 MSD	Outfall006_20240206_Comp	E200.8
MS	570-171237-2 MS	Outfall006_20240206_Comp_F	E200.8
MSD	570-171237-2 MSD	Outfall006_20240206_Comp_F	E200.8
MS	570-171243-1 MS	INF001_20240205_Grab	E200.8
MSD	570-171243-1 MSD	INF001_20240205_Grab	E200.8
MS	570-170729-1 MS	Outfall001_20240202_Comp	E200.8
MSD	570-170729-1 MSD	Outfall001_20240202_Comp	E200.8

**Notes:***MS = Matrix spike**MSD = Matrix spike duplicate*

**TABLE 5**  
**METHOD BLANK SAMPLES**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG/Batch	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
570-166524-4	1,2,3,7,8-PeCDD	0.00000332 J,DX	None	None, sample is ND
	1,2,3,7,8-PeCDF	0.00000346 J,DX	None	None, sample is ND
	2,3,4,7,8-PeCDF	0.0000031 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDD	0.00000667 J,DX	Result U	INF002_20240102_Grab
	1,2,3,6,7,8-HxCDD	0.00000555 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.0000076 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDF	0.00000542 J,DX	Result U	INF002_20240102_Grab
	1,2,3,6,7,8-HxCDF	0.0000038 J,DX	Result U	INF002_20240102_Grab
	1,2,3,7,8,9-HxCDF	0.00000632 J,DX	None	None, sample is ND
	2,3,4,6,7,8-HxCDF	0.00000446 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000938 J,DX	Result U	INF002_20240102_Grab
	1,2,3,4,6,7,8-HpCDF	0.000016 J,DX	Result U	INF002_20240102_Grab
	1,2,3,4,7,8,9-HpCDF	0.00000769 J,DX	None	None, sample is ND
OCDD	0.0000342 J,DX	Result U	INF002_20240102_Grab	
OCDF	0.00002 J,DX	Result U	INF002_20240102_Grab	
570-166858-2	1,2,3,4,7,8-HxCDD	0.00000155 J,DX	Result U	Outfall002_20240104_Comp
	1,2,3,6,7,8-HxCDD	0.000000556 J,DX	Result U	Outfall002_20240104_Comp
	1,2,3,7,8,9-HxCDF	0.000000752 J,DX	Result U	Outfall002_20240104_Comp
	1,2,3,4,6,7,8-HpCDD	0.00000138 J,DX	Result U	Outfall002_20240104_Comp
	1,2,3,4,6,7,8-HpCDF	0.000000988 J,DX	Result U	Outfall002_20240104_Comp
	1,2,3,4,7,8,9-HpCDF	0.000000721 J,DX	None	None, sample is ND
	OCDD	0.0000111 J,DX	Result U	Outfall002_20240104_Comp
	OCDF	0.00000321 J,DX	Result U	Outfall002_20240104_Comp
570-166871-2	1,2,3,4,7,8-HxCDD	0.00000155 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDD	0.000000556 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.000000752 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000138 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDF	0.000000988 J,DX	None	None, sample is ND
	1,2,3,4,7,8,9-HpCDF	0.000000721 J,DX	None	None, sample is ND
	OCDD	0.0000111 J,DX	Result U	Outfall018_20240104_Comp
OCDF	0.00000321 J,DX	Result U	Outfall018_20240104_Comp	
570-168882-2	1,2,3,4,7,8-HxCDD	0.00000374 J,DX	Result U	Outfall002_20240121_Comp
	1,2,3,6,7,8-HxCDD	0.00000262 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.00000267 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDF	0.0000015 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDF	0.00000201 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.00000208 J,DX	None	None, sample is ND
	2,3,4,6,7,8-HxCDF	0.00000221 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000416 J,DX	Result U	Outfall002_20240121_Comp
	1,2,3,4,6,7,8-HpCDF	0.00000325 J,DX	None	None, sample is ND
	1,2,3,4,7,8,9-HpCDF	0.0000027 J,DX	None	None, sample is ND
	OCDD	0.0000128 J,DX	Result U	Outfall002_20240121_Comp
OCDF	0.00000676 J,DX	None	None, sample is ND	
570-168964-3	1,2,3,4,7,8-HxCDD	0.00000374 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDD	0.00000262 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.00000267 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDF	0.00000150 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDF	0.00000201 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.00000208 J,DX	None	None, sample is ND
	2,3,4,6,7,8-HxCDF	0.00000221 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000416 J,DX	Result U	RSW-002_20240122_Grab
	1,2,3,4,6,7,8-HpCDF	0.00000325 J,DX	Result U	RSW-002_20240122_Grab
	1,2,3,4,7,8,9-HpCDF	0.00000270 J,DX	None	None, sample is ND
OCDD	0.0000128 J,DX	None	None, sample > 10x blank	
OCDF	0.00000676 J,DX	Result U	RSW-002_20240122_Grab	

**TABLE 5**  
**METHOD BLANK SAMPLES**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG/Batch	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
570-168969-3	1,2,3,4,7,8-HxCDD	0.00000374 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDD	0.00000262 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.00000267 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDF	0.00000150 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDF	0.00000201 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.00000208 J,DX	Result U	RSW-003_20240122_Grab
	2,3,4,6,7,8-HxCDF	0.00000221 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000416 J,DX	Result U	RSW-003_20240122_Grab
	1,2,3,4,6,7,8-HpCDF	0.00000325 J,DX	Result U	RSW-003_20240122_Grab
	1,2,3,4,7,8,9-HpCDF	0.00000270 J,DX	None	None, sample is ND
OCDD	0.0000128 J,DX	Result U	RSW-003_20240122_Grab	
OCDF	0.00000676 J,DX	Result U	RSW-003_20240122_Grab	
570-169112-3	1,2,3,7,8,9-HxCDF	0.000000997 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDF	0.000000988 J,DX	Result U	Outfall009_20240123_Comp
570-170729-2	1,2,3,4,6,7,8-HpCDD	0.00000270 J,DX	Result U	Outfall001_20240202_Comp
	1,2,3,4,6,7,8-HpCDF	0.00000341 J,DX	Result U	Outfall001_20240202_Comp
	OCDD	0.0000221 J,DX	None	None, sample > 10x blank
	OCDF	0.0000125 J,DX	Result U	Outfall001_20240202_Comp
570-170733-2	1,2,3,4,6,7,8-HpCDD	0.00000270 J,DX	None	None, sample > 10x blank
	1,2,3,4,6,7,8-HpCDF	0.00000341 J,DX	None	None, sample > 10x blank
	OCDD	0.0000221 J,DX	None	None, sample > 10x blank
	OCDF	0.0000125 J,DX	None	None, sample > 10x blank
570-170739-3 570-170759-3 570-170775-2 570-170983-2 570-171233-2 570-171237-2	2,3,7,8-TCDD	0.00000388 J,DX	None	None, samples are ND
	1,2,3,7,8-PeCDD	0.0000101 J,DX	Result U	Outfall004_20240206_Comp
	1,2,3,7,8-PeCDF	0.00000993 J,DX	None	None, samples are ND
	2,3,4,7,8-PeCDF	0.0000109 J,DX	None	None, samples are ND
	1,2,3,4,7,8-HxCDD	0.0000133 J,DX	Result U	All detects in the batch
	1,2,3,6,7,8-HxCDD	0.0000131 J,DX	Result U	All detects in the batch
	1,2,3,7,8,9-HxCDD	0.0000138 J,DX	Result U	All detects in the batch
	1,2,3,4,7,8-HxCDF	0.0000119 J,DX	Result U	All detects in the batch
	1,2,3,6,7,8-HxCDF	0.0000119 J,DX	Result U	All detects in the batch
	1,2,3,7,8,9-HxCDF	0.0000122 J,DX	Result U	All detects in the batch
	2,3,4,6,7,8-HxCDF	0.00000992 J,DX	Result U	All detects in the batch
	1,2,3,4,6,7,8-HpCDD	0.0000163 J,DX	Result U	Outfall008_20240202_Comp, INF002_20240202_Grab, Outfall018_20240204_Comp, Outfall004_20240206_Comp, Outfall006_20240206_Comp, INF001_20240205_Grab
	1,2,3,4,6,7,8-HpCDF	0.000016 J,DX	Result U	All detects in the batch
	1,2,3,4,6,7,8-HpCDF	0.000016 J,DX	Result U	All detects in the batch
	1,2,3,4,7,8,9-HpCDF	0.0000119 J,DX	Result U	All detects in the batch
	OCDD	0.0000382 J,DX	Result U	INF002_20240202_Grab Outfall018_20240204_Comp Outfall004_20240206_Comp Outfall006_20240206_Comp
OCDF	0.0000319 J,DX	Result U	All detects in the batch	
570-171243-4	1,2,3,7,8-PeCDF	0.00000289 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDD	0.00000705 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDD	0.00000406 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.00000673 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDF	0.00000505 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDF	0.00000503 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.00000541 J,DX	None	None, sample is ND
	2,3,4,6,7,8-HxCDF	0.00000399 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.0000114 J,DX	Result U	INF001_20240205_Grab
	1,2,3,4,6,7,8-HpCDF	0.0000121 J,DX	Result U	INF001_20240205_Grab
	1,2,3,4,7,8,9-HpCDF	0.00000836 J,DX	None	None, sample is ND
	OCDD	0.0000342 J,DX	None	None, sample is >10x blank
	OCDF	0.0000224 J,DX	Result U	INF001_20240205_Grab

**TABLE 5**  
**METHOD BLANK SAMPLES**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG/Batch	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
Prep Batch 744292	1,2,3,7,8-PeCDF	0.00000289 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDD	0.00000705 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDD	0.00000406 J,DX q	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.00000673 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDF	0.00000505 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDF	0.00000503 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.00000541 J,DX	None	None, sample is ND
	2,3,4,6,7,8-HxCDF	0.00000399 J,DX	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.0000114 J,DX	Result U	Outfall011_20240206_Comp
	1,2,3,4,6,7,8-HpCDF	0.0000121 J,DX	Result U	Outfall011_20240206_Comp
	1,2,3,4,7,8,9-HpCDF	0.00000836 J,DX	None	None, sample is ND
OCDD	0.0000342 J,DX	None	None, sample >10x blank	
OCDF	0.0000224 J,DX	Result U	Outfall011_20240206_Comp	
570-172940-3	1,2,3,7,8-PeCDD	0.0000221 J,DX	None	None, sample is ND
	1,2,3,7,8-PeCDF	0.0000239 J,DX q	None	None, sample is ND
	2,3,4,7,8-PeCDF	0.00000216 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDD	0.00000408 J,DX	None	None, sample is ND
	1,2,3,6,7,8-HxCDD	0.00000327 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDD	0.00000514 J,DX	Result U	INF002_20240218_Grab
	1,2,3,4,7,8-HxCDF	0.00000250 J,DX q	Result U	INF002_20240218_Grab
	1,2,3,6,7,8-HxCDF	0.00000342 J,DX	Result U	INF002_20240218_Grab
	1,2,3,7,8,9-HxCDF	0.00000382 J,DX	Result U	INF002_20240218_Grab
	2,3,4,6,7,8-HxCDF	0.00000274 J,DX q	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000579 J,DX	Result U	INF002_20240218_Grab
	1,2,3,4,6,7,8-HpCDF	0.00000532 J,DX	Result U	INF002_20240218_Grab
	1,2,3,4,7,8,9-HpCDF	0.00000484 J,DX	Result U	INF002_20240218_Grab
	OCDD	0.0000155 J,DX q	Result U	INF002_20240218_Grab
OCDF	0.00000841 J,DX q	Result U	INF002_20240218_Grab	
570-172945-3	1,2,3,7,8-PeCDD	0.0000221 J,DX	None	None, sample is ND
	1,2,3,7,8-PeCDF	0.00000239 J,DX q	None	None, sample is ND
	2,3,4,7,8-PeCDF	0.00000216 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDD	0.00000408 J,DX	Result U	INF001_20240219_Grab
	1,2,3,6,7,8-HxCDD	0.00000327 J,DX	Result U	INF001_20240219_Grab
	1,2,3,7,8,9-HxCDD	0.00000514 J,DX	Result U	INF001_20240219_Grab
	1,2,3,4,7,8-HxCDF	0.00000250 J,DX q	None	None, sample is ND
	1,2,3,6,7,8-HxCDF	0.00000342 J,DX	Result U	INF001_20240219_Grab
	1,2,3,7,8,9-HxCDF	0.00000382 J,DX	Result U	INF001_20240219_Grab
	2,3,4,6,7,8-HxCDF	0.00000274 J,DX q	Result U	INF001_20240219_Grab
	1,2,3,4,6,7,8-HpCDD	0.00000579 J,DX	None	None, sample >10x blank
	1,2,3,4,6,7,8-HpCDF	0.00000532 J,DX	None	None, sample >10x blank
	1,2,3,4,7,8,9-HpCDF	0.00000484 J,DX	Result U	INF001_20240219_Grab
	OCDD	0.0000155 J,DX q	None	None, sample >10x blank
OCDF	0.00000841 J,DX q	Result U	INF001_20240219_Grab	
570-173111-2	1,2,3,4,7,8-HxCDD	0.00000239 J,DX	Result U	Outfall018_20240220_Comp
	1,2,3,7,8,9-HxCDD	0.00000198 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.000000761 J,DX q	Result U	Outfall018_20240220_Comp
	1,2,3,4,6,7,8-HpCDD	0.00000230 J,DX	Result U	Outfall018_20240220_Comp
	1,2,3,4,6,7,8-HpCDF	0.00000114 J,DX q	Result U	Outfall018_20240220_Comp
	OCDD	0.00000758 J,DX q	Result U	Outfall018_20240220_Comp
OCDF	0.00000363 J,DX	Result U	Outfall018_20240220_Comp	



SDG/Batch	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
Analysis Batch 749972	1,2,3,7,8-PeCDD	0.0000221 J,DX	None	None, sample is ND
	1,2,3,7,8-PeCDF	0.00000239 J,DX q	None	None, sample is ND
	2,3,4,7,8-PeCDF	0.00000216 J,DX	None	None, sample is ND
	1,2,3,4,7,8-HxCDD	0.00000408 J,DX	Result U	Outfall009_20240220_Comp Outfall001_2240220_Comp Outfall002_20240220_Comp
	1,2,3,6,7,8-HxCDD	0.00000327 J,DX	Result U	Outfall009_20240220_Comp
	1,2,3,7,8,9-HxCDD	0.00000514 J,DX	Result U	Outfall009_20240220_Comp
	1,2,3,4,7,8-HxCDF	0.00000250 J,DX q	Result U	Outfall008_20240220_Comp
	1,2,3,6,7,8-HxCDF	0.00000342 J,DX	None	None, sample is ND
	1,2,3,7,8,9-HxCDF	0.00000382 J,DX	Result U	Outfall009_20240220_Comp Outfall001_2240220_Comp Outfall002_20240220_Comp Outfall008_20240220_Comp
	2,3,4,6,7,8-HxCDF	0.00000274 J,DX q	None	None, sample is ND
	1,2,3,4,6,7,8-HpCDD	0.00000579 J,DX	Result U	Outfall001_2240220_Comp Outfall002_20240220_Comp Outfall008_20240220_Comp Outfall009_20240220_Comp
	1,2,3,4,6,7,8-HpCDF	0.00000532 J,DX	Result U	Outfall001_2240220_Comp Outfall002_20240220_Comp Outfall008_20240220_Comp
	1,2,3,4,7,8,9-HpCDF	0.00000484 J,DX	None	None, samples are ND
	OCDD	0.0000155 J,DX q	Result U	Outfall008_20240220_Comp Outfall009_20240220_Comp
	OCDF	0.00000841 J,DX q	Result U	Outfall001_2240220_Comp Outfall002_20240220_Comp Outfall008_20240220_Comp
Analysis Batch 750494	1,2,3,4,7,8-HxCDD	0.00000416 J,DX	Result U	INF002_20240227_Grab Outfall002_20240228_Comp
	1,2,3,6,7,8-HxCDD	0.00000293 J,DX q	None	None, samples are ND
	1,2,3,7,8,9-HxCDF	0.00000263 J,DX q	Result U	INF002_20240227_Grab Outfall001_20240228_Comp
	2,3,4,6,7,8-HxCDF	0.00000148 J,DX q	Result U	INF002_20240227_Grab
	1,2,3,4,6,7,8-HpCDD	0.00000471 J,DX q	Result U	INF002_20240227_Grab Outfall001_20240228_Comp Outfall002_20240228_Comp
	1,2,3,4,6,7,8-HpCDF	0.00000363 J,DX q	Result U	INF002_20240227_Grab Outfall001_20240228_Comp
	1,2,3,4,7,8,9-HpCDF	0.00000304 J,DX q	Result U	INF002_20240227_Grab
	OCDD	0.0000155 J,DX	Result U	INF002_20240227_Grab Outfall001_20240228_Comp Outfall002_20240228_Comp
	OCDF	0.00000978 J,DX	Result U	INF002_20240227_Grab Outfall001_20240228_Comp Outfall002_20240228_Comp
570-174198-3	1,2,3,7,8,9-HxCDF	0.00000123 J,DX q	Result U	Outfall009_20240228_Comp
	1,2,3,4,6,7,8-HpCDD	0.00000204 J,DX q	Result U	Outfall009_20240228_Comp
	1,2,3,4,6,7,8-HpCDF	0.00000103 J,DX q	None	None, sample is ND
	OCDD	0.00000782 J,DX q	Result U	Outfall009_20240228_Comp
	OCDF	0.00000330 J,DX	Result U	Outfall009_20240228_Comp

**Notes:**

µg/L = Micrograms per liter

ND = Non-detect

Result U = Qualify non-detect at the reported concentration

SDG = Sample delivery group

**TABLE 6**  
**DIOXIN-FURAN EMPC**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG #	Lab ID	Analyte	Concentration (µg/L)	Qualifier	Affected Samples
5701665244	570-166524-1	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.60E-06	UJ	INF002_20240102_Grab
5701665244	570-166524-1	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.30E-06	UJ	INF002_20240102_Grab
5701668582	570-166858-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	7.30E-07	UJ	Outfall002_20240104_Comp
5701668582	570-166858-1	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.20E-06	UJ	Outfall002_20240104_Comp
5701668582	570-166858-1	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.00E-07	UJ	Outfall002_20240104_Comp
5701668582	570-166858-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	5.20E-07	UJ	Outfall002_20240104_Comp
5701668712	570-166871-1	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.00E-05	UJ	Outfall018_20240104_Comp
5701688822	570-168882-1	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	4.10E-06	UJ	Outfall002_20240121_Comp
5701688822	570-168882-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.50E-06	UJ	Outfall002_20240121_Comp
5701689693	570-168969-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	7.70E-06	UJ	RSW-003_20240122_Grab
5701691123	570-169112-1	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.50E-05	UJ	Outfall009_20240123_Comp
5701691123	570-169112-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.50E-05	UJ	Outfall009_20240123_Comp
5701707292	570-170729-1	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.90E-05	UJ	Outfall001_20240202_Comp
5701707332	570-170733-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.40E-06	UJ	Outfall002_20240202_Comp
5701707393	570-170739-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.30E-06	UJ	Outfall008_20240202_Comp
5701707393	570-170739-1	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	6.50E-06	UJ	Outfall008_20240202_Comp
5701707593	570-170759-1	1,2,3,4,7,8-Heptachlorodibenzofuran (HpCDF)	4.40E-06	UJ	Outfall009_20240202_Comp
5701707593	570-170759-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.30E-06	UJ	Outfall009_20240202_Comp
5701707593	570-170759-1	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.40E-06	UJ	Outfall009_20240202_Comp
5701707752	570-170775-1	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	2.60E-06	UJ	INF002_20240202_Grab
5701709832	570-170983-1	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	9.70E-07	UJ	Outfall018_20240204_Comp
5701709832	570-170983-1	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.30E-06	UJ	Outfall018_20240204_Comp
5701709832	570-170983-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.10E-06	UJ	Outfall018_20240204_Comp
5701712332	570-171233-1	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	1.40E-06	UJ	Outfall004_20240206_Comp
5701712332	570-171233-1	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.00E-06	UJ	Outfall004_20240206_Comp
5701712332	570-171233-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.80E-06	UJ	Outfall004_20240206_Comp
5701712332	570-171233-1	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	9.20E-07	UJ	Outfall004_20240206_Comp
5701712372	570-171237-1	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.10E-06	UJ	Outfall006_20240206_Comp
5701712372	570-171237-1	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.40E-06	UJ	Outfall006_20240206_Comp
5701732433	570-173243-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.60E-06	UJ	Outfall011_20240221_Comp
5701732393	570-173239-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.50E-06	UJ	NBB_20240221_Grab
5701732393	570-173239-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	4.30E-06	UJ	NBB_20240221_Grab
5701729403	570-172940-1	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	5.70E-06	UJ	INF002_20240218_Grab
5701729403	570-172940-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.90E-06	UJ	INF002_20240218_Grab
5701729403	570-172940-1	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.80E-06	UJ	INF002_20240218_Grab
5701729453	570-172945-1	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.70E-06	UJ	INF001_20240219_Grab
5701729453	570-172945-1	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	3.20E-06	UJ	INF001_20240219_Grab
5701729453	570-172945-1	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	3.10E-06	UJ	INF001_20240219_Grab
5701731363	570-173136-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.90E-06	UJ	Outfall008_20240220_Comp
5701731363	570-173136-1	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	6.10E-06	UJ	Outfall008_20240220_Comp
5701731363	570-173136-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.00E-06	UJ	Outfall008_20240220_Comp
5701731223	570-173122-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.40E-06	UJ	Outfall009_20240220_Comp
5701731333	570-173133-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.20E-06	UJ	Outfall002_20240220_Comp
5701741983	570-174198-1	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.20E-06	UJ	Outfall009_20240228_Comp
5701741983	570-174198-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.80E-06	UJ	Outfall009_20240228_Comp
5701731112	570-173111-1	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.30E-06	UJ	Outfall018_20240220_Comp
5701731112	570-173111-1	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	5.40E-07	UJ	Outfall018_20240220_Comp
5701731112	570-173111-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.40E-06	UJ	Outfall018_20240220_Comp
5701740103	570-174010-1	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	3.90E-06	UJ	INF002_20240227_Grab
5701740103	570-174010-1	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	2.90E-06	UJ	INF002_20240227_Grab
5701740103	570-174010-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.70E-06	UJ	INF002_20240227_Grab
5701740103	570-174010-1	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.40E-06	UJ	INF002_20240227_Grab
5701741853	570-174185-1	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.70E-06	UJ	Outfall001_20240228_Comp
5701741853	570-174185-1	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.50E-06	UJ	Outfall001_20240228_Comp
5701741893	570-174189-1	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.10E-05	UJ	Outfall002_20240228_Comp
5701741893	570-174189-1	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.20E-06	UJ	Outfall002_20240228_Comp
5701741893	570-174189-1	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.70E-06	UJ	Outfall002_20240228_Comp



**TABLE 7**  
**SUMMARY OF QUALIFIERS**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG#	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701665244	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701665244	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.6E-04	MB	U	B	µg/L	Report ND at sample concentration
5701665244	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.6E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701665244	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701665244	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	5.3E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701665244	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.6E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701665244	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.6E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701665244	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.3E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701668582	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.7E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701668582	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.4E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701668582	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	7.3E-07	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701668582	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.2E-06	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701668582	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.4E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701668582	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.0E-07	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701668582	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	5.2E-07	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701668712	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.9E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701668712	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.0E-05	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701688822	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	4.1E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701688822	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.5E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701688822	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.5E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701689643	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701689643	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.5E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701689643	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.3E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701689693	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.5E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701689693	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.2E-04	MB	U	B	µg/L	Report ND at sample concentration
5701689693	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	7.7E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701689693	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.5E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701689693	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	9.9E-07	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701691123	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.5E-05	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701691123	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.5E-05	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701691123	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	4.6E-05	J,DX	J	DNQ	µg/L	
5701691123	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.9E-06	J,DX	J	DNQ	µg/L	
5701707292	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707292	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707292	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.9E-05	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701707292	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	3.5E-06	J,DX	J	DNQ	µg/L	
5701707332	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.4E-06	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701707332	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.6E-06	J,DX	J	DNQ	µg/L	
5701707332	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	5.1E-06	J,DX	J	DNQ	µg/L	
5701707393	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.4E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	7.3E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.1E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,4,7,8-Heptachlorodibenzofuran (HpCDF)	6.1E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	7.2E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.3E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701707393	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	5.7E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.0E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	5.1E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707393	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	6.5E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701707393	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	4.9E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707593	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	5.1E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707593	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	3.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707593	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	4.4E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701707593	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	5.0E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707593	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.3E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701707593	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	3.3E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707593	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.4E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701707593	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	3.9E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707593	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	3.0E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707752	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707752	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.8E-04	MB	U	B	µg/L	Report ND at sample concentration
5701707752	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.0E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration



**TABLE 7**  
**SUMMARY OF QUALIFIERS**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG#	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701707752	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701707752	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	2.6E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701707752	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.2E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.0E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.1E-04	MB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.5E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.2E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.2E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701709832	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	9.7E-07	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701709832	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.3E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701709832	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.1E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701709832	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	9.7E-07	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.5E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.0E-04	MB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	1.4E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.4E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.7E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.0E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701712332	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.4E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.8E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701712332	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.3E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	1.3E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712332	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	9.2E-07	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701712332	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	7.8E-07	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.3E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.2E-04	MB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.2E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.3E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	1.2E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.1E-06	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701712372	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.4E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.0E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.4E-06	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701712372	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.5E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	1.8E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	8.3E-07	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712372	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	8.8E-07	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701712434	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.8E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712434	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.7E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712434	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	4.0E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701732392	Mercury	0.10		J	*1	µg/L	
5701732433	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.70E-05	J,DX	J	DNQ	µg/L	
5701732433	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.40E-06	J,DX	J	DNQ	µg/L	
5701732433	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	5.30E-06	J,DX	J	DNQ	µg/L	
5701732433	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.60E-06	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701732393	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.20E-05	J,DX	J	DNQ	µg/L	
5701732393	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	9.90E-06	J,DX	J	DNQ	µg/L	
5701732393	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.50E-06	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701732393	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	4.30E-06	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701732393	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.50E-06	J,DX	J	DNQ	µg/L	
5701729403	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	5.70E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701729403	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.60E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729403	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.90E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701729403	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	4.30E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729403	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	2.70E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729403	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.80E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701729403	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.50E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729403	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.30E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729403	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.90E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729453	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	3.30E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration



**TABLE 7**  
**SUMMARY OF QUALIFIERS**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG#	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701729453	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	5.90E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729453	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.50E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729453	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.70E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701729453	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	3.70E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729453	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.60E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701729453	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	3.20E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701729453	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	3.10E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701729453	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	9.60E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731363	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.90E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731363	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.00E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731363	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	7.80E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731363	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	6.10E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731363	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	4.90E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731363	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.00E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731223	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.40E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731223	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.50E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731223	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.00E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731223	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.10E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731223	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.40E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731223	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.10E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731333	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.50E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731333	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.60E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731333	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.20E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731333	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	7.00E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731333	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.60E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731283	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.10E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731283	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.50E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731283	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.60E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731283	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.90E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731283	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.00E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741983	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.20E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741983	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.20E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741983	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.20E-06	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701741983	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.80E-06	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701741983	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.40E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731112	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	9.30E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731112	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.30E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731112	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.60E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731112	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.20E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701731112	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	1.30E-06	J,DX	J	DNQ	µg/L	
5701731112	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	7.60E-07	J,DX	J	DNQ	µg/L	
5701731112	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	5.40E-07	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701731112	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.40E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701731112	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.60E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701740103	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.30E-06	J,DX	J	DNQ	µg/L	
5701740103	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	7.10E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701740103	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	6.50E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701740103	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	3.90E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701740103	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	9.60E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701740103	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	2.90E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701740103	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	2.80E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701740103	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	2.70E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701740103	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.40E-06	J,DXq	UJ	*10	µg/L	Report ND at sample concentration
5701740103	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	1.70E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741853	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.90E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741853	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.70E-06	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701741853	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	3.40E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741853	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.30E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741853	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.50E-06	J,DXMBq	UJ	B*10	µg/L	Report ND at sample concentration
5701741893	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	1.10E-05	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701741893	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.40E-06	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701741893	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.20E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration
5701741893	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.70E-06	J,DXqMB	UJ	B*10	µg/L	Report ND at sample concentration



<b>SDG#</b>	<b>Location</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>Lab ID</b>	<b>Method</b>	<b>Fraction</b>
5701712392	OUTFALL 011	Outfall011_20240206_Comp	2/6/2024	570-171239-1	E1613B	N
5701712392	OUTFALL 011	Outfall011_20240206_Comp	2/6/2024	570-171239-1	E1613B	N
5701712392	OUTFALL 011	Outfall011_20240206_Comp	2/6/2024	570-171239-1	E1613B	N

SDG#	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701712392	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.40E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712392	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.60E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration
5701712392	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.20E-05	J,DXMB	U	B	µg/L	Report ND at sample concentration

**Notes:**

µg/L = Micrograms per liter

\*1 = Improper preservation of sample.

\*10 = Value was estimated detect or estimated non-detect (J, UJ) due to deficiencies in quantitation of the constituent including constituents reported by the laboratory as estimated maximum possible concentration (EMPC) values.

B = Presumed contamination as indicated by the preparation (method) blank results.

DNQ = The reported result is above the method detection limit but is less than the reporting limit.

N = Not applicable

ND = Non-detect

J = Estimated value.

J,DX = Estimated value, value < lowest standard method quantitation limit (MQL), but > than method detection limit (MDL).

q = The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio; the measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

U = Result not detected.

UJ = Result not detected at the estimated reporting limit.

## Data Usability Summary Report

**Project Name: The Boeing Company, Santa Susana Field Laboratory, NPDES**

**Project Description: First Quarter 2024 Stormwater Samples**

**Sample Date(s): 2 February 2024**

**Analytical Laboratory: Eurofins Calscience, Tustin, CA**

**Validation Performed by: Kristina Ilina**

**Validation Reviewed by: Vanessa Godard**

**Validation Date: 2 May 2024**

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Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

- 1. Level IV, First Quarter 2024**
  - 2. Explanations**
  - 3. Glossary**
  - 4. Abbreviations**
  - 5. Qualifiers**
- References**

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- USEPA Contract Laboratory Program (CLP) NFG for Chlorinated Dioxin/Furan Data Review.
- The project-specific Quality Assurance Project Plan (QAPP), herein referred to as the specified limits (see References section).

Data reported in this sampling event were reported to the laboratory estimated detection limit (EDL) or method detection limit (MDL). Results found between the EDL or MDL and laboratory reporting limit (RL) are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQO) for the project and therefore usable; any exceptions are noted in the following pages.

# 1. Level IV, First Quarter 2024

## 1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers 570-170733-2 and 570-170759-3.

Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol.

- Samples were subcontracted to Eurofins Sacramento in West Sacramento, California.

Samples were also received appropriately, identified correctly, and analyzed according to the COC.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods	Holding Time
Outfall002_20240202_Comp	N	570-170733-1	02/02/2024	WM	E1613B	1 year
Outfall009_20240202_Comp	N	570-170759-1	02/02/2024	WM	Dioxins/Furans	

## 1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol.

## 1.3 REPORTING LIMITS AND SAMPLE DILUTIONS

The RLs for the samples within this SDG met or were below the minimum RL requirements specified by the project specific QAPP.

## 1.4 SURROGATE RECOVERY COMPLIANCE

[Refer to Section E 1.2.](#) The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory specified quality control (QC) limits.

## 1.5 LABORATORY CONTROL SAMPLES

[Refer to Section E 1.3.](#) Compounds associated with the laboratory control samples/laboratory control sample duplicates (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits.

## 1.6 MATRIX SPIKE SAMPLES

[Refer to Section E 1.4.](#) The laboratory did not analyze any matrix spike/matrix spike duplicate (MS/MSD) analysis in these SDGs.

## 1.7 BLANK SAMPLE ANALYSIS

[Refer to Section E 1.5.](#) Method blank samples had no detections, indicating that no contamination from laboratory activities occurred, with exceptions listed below:

SDG	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
570-170733-2	1,2,3,4,6,7,8-HpCDD	0.00000270 J,DX	None	None, sample > 10x blank
	1,2,3,4,6,7,8-HpCDF	0.00000341 J,DX	None	None, sample > 10x blank
	OCDD	0.0000221 J,DX	None	None, sample > 10x blank
	OCDF	0.0000125 J,DX	None	None, sample > 10x blank
570-170759-3	2,3,7,8-TCDD	0.00000388 J,DX	None	None, samples are ND
	1,2,3,7,8-PeCDD	0.0000101 J,DX	None	None, samples are ND
	1,2,3,7,8-PeCDF	0.00000993 J,DX	None	None, samples are ND
	2,3,4,7,8-PeCDF	0.0000109 J,DX	None	None, samples are ND
	1,2,3,4,7,8-HxCDD	0.0000133 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,6,7,8-HxCDD	0.0000131 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,7,8,9-HxCDD	0.0000138 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,4,7,8-HxCDF	0.0000119 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,6,7,8-HxCDF	0.0000119 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,7,8,9-HxCDF	0.0000122 J,DX	Result U	Outfall009_20240202_Comp
	2,3,4,6,7,8-HxCDF	0.00000992 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,4,6,7,8-HpCDD	0.0000163 J,DX	None	None, sample > 10x blank
	1,2,3,4,6,7,8-HpCDF	0.000016 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,4,6,7,8-HpCDF	0.000016 J,DX	Result U	Outfall009_20240202_Comp
	1,2,3,4,7,8,9-HpCDF	0.0000119 J,DX	Result U	Outfall009_20240202_Comp
	OCDD	0.0000382 J,DX	None	None, sample > 10x blank
	OCDF	0.0000319 J,DX	Result U	Outfall009_20240202_Comp

**1.8 DUPLICATE SAMPLE ANALYSIS**

[Refer to Section E 1.6.](#) The laboratory did not analyze any laboratory duplicates as per the method or laboratory SOP.

**1.9 PRECISION AND ACCURACY**

[Refer to Section E 1.7.](#) Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

**1.10 DIOXIN/FURAN ESTIMATED MAXIMUM POSSIBLE CONCENTRATION (EMPC)**

[Refer to Section E 1.9.](#) A result previously qualified as a non-detect for method blank contamination was not further qualified as an EMPC. The EMPC flags reported by the laboratory are listed below.

SDG #	Analyte	Concentration (µg/L)	Qualifier	Affected Samples
5701707593	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.3E-06	UJ	Outfall009_20240202_Comp
5701707593	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	4.4E-06	UJ	Outfall009_20240202_Comp
5701707593	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.4E-06	UJ	Outfall009_20240202_Comp
5701707332	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.4E-06	UJ	Outfall002_20240202_Comp

### 1.11 INTERNAL STANDARDS

[Refer to Section E 1.22.](#) Area response and retention time were reviewed and found to be within the specified limits.

### 1.12 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable except for rejected data noted in the table. A summary of qualifiers applied to this data set is shown below.

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
Outfall002_20240202_Comp	2/2/2024	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	3.4E-06	J,DXq	UJ	*10
Outfall002_20240202_Comp	2/2/2024	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.6E-06	J,DX	J	DNQ
Outfall002_20240202_Comp	2/2/2024	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	5.1E-06	J,DX	J	DNQ
Outfall009_20240202_Comp	2/2/2024	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	5.1E-05	J,DXMB	U	B
Outfall009_20240202_Comp	2/2/2024	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	3.2E-05	J,DXMB	U	B
Outfall009_20240202_Comp	2/2/2024	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	4.4E-06	J,DXqMB	UJ	B*10
Outfall009_20240202_Comp	2/2/2024	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	5.0E-06	J,DXMB	U	B
Outfall009_20240202_Comp	2/2/2024	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	4.3E-06	J,DXqMB	UJ	B*10

Sample ID	Sample Date	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note
Outfall009_20240202_Comp	2/2/2024	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	3.3E-06	J,DXMB	U	B
Outfall009_20240202_Comp	2/2/2024	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	5.4E-06	J,DXqMB	UJ	B*10
Outfall009_20240202_Comp	2/2/2024	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	3.9E-06	J,DXMB	U	B
Outfall009_20240202_Comp	2/2/2024	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	3.0E-06	J,DXMB	U	B

## 2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.2 Surrogate Recovery Compliance
  - Surrogates, also known as system monitoring compounds, are compounds added to each sample prior to sample preparation to determine the efficiency of the extraction procedure by evaluating the percent recovery (%R) of the compounds.
- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
  - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.
- E 1.9 Dioxin/Furan Estimated Maximum Possible Concentration
  - An Estimated Maximum Possible Concentration (EMPC) is a worst-case estimate of the concentration for a dioxin/furan based on all identification criteria being met except the ion abundance ratio criteria, or if a peak representing a chlorinated diphenyl ether was detected.



- E 1.22 Internal Standards
  - Internal standards are compounds added to each sample by the laboratory prior to sample analysis to ensure that instrument sensitivity and response are stable during each analysis. The lab uses a single internal standard to make sure they are getting good intake of the sample into the instrument. Corrections are not made to any of the elements' responses based on this standard.

### 3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - % SURVIVAL percent survival
  - $\mu\text{g/L}$  microgram per liter
  - $\text{mg/kg}$  milligrams per kilogram
  - $\text{mg/L}$  milligram per liter
  - $\text{mL/L}$  milliliters per liter
  - $\text{mpn}/100\text{mL}$  most probable number per 100 milliliters
  - NTU nephelometric turbidity unit
  - $\text{pCi/L}$  picocuries per liter
  - $\text{umhos/cm}$  micromhos per centimeter
- Matrices:
  - WM Stormwater
  - WMQ Water Quality control matrix
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - $\leq$  less than or equal to
  - > greater than
  - $\geq$  greater than or equal to
  - = equal
  - $^{\circ}\text{C}$  degrees Celsius
  - $\pm$  plus or minus
  - $\sim$  approximately
  - x times (multiplier)
- Fractions:
  - D Dissolved (filtered)
  - N Normal (method cannot be filtered)
  - T Total (unfiltered)

## 4. Abbreviations

%D	Percent Difference	LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
%R	Percent Recovery		
%RSD	Percent Relative Standard Deviation	MDC	Minimum Detectable Concentration
2s	2 sigma	MDL	Laboratory Method Detection Limit
4,4-DDT	4 4-dichlorodiphenyltrichloroethane	MS/MSD	Matrix Spike/Matrix Spike Duplicate
Abs Diff	Absolute Difference	NFG	National Functional Guidelines
amu	atomic mass unit	NH <sub>3</sub>	Ammonia
BPJ	Best Professional Judgement	PCB	Polychlorinated Biphenyl
BS	Blank Spike	PDS	Post Digestion Spike
CCB	Continuing Calibration Blank	PEM	Performance Evaluation Mixture
CCV	Continuing Calibration Verification	QAPP	Quality Assurance Project Plan
CCVL	Continuing Calibration Verification Low	QC	Quality Control
		QSM	Quality Systems Manual
COC	Chain of Custody	R <sup>2</sup>	R-squared value
COM	Combined Isotope Calculation	Ra-226	Radium-226
Cr (VI)	Hexavalent Chromium	Ra-228	Radium-228
CRI	Collision Reaction Interface	RESC	Resolution Check Measure
DQO	data quality objective	RER	Relative Error Ratio
DUSR	Data Usability Summary Report	RL	Laboratory Reporting Limit
EMPC	Estimated Maximum Possible Concentration	RPD	Relative Percent Difference
		RRF	Relative Response Factors
FBK	Field Blank Contamination	RT	Retention Time
FDP	Field Duplicate	SAP	sampling analysis plan
GC	Gas Chromatograph	SDG	Sample Delivery Group
GC/MS	Gas Chromatography/Mass Spectrometry	SIM	Selected ion monitoring
		SOP	Laboratory Standard Operating Procedures
GPC	Gel Permeation Chromatography		
HCl	Hydrochloric Acid	SPE	Solid Phase Extraction
ICAL	Initial Calibration	SVOC	Semi-Volatile Organic Compounds
ICB	Initial Calibration Blank	TIC	Tentatively Identified Compound
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry	TKN	Total Kjeldahl Nitrogen
		TPH	Total Petroleum Hydrocarbon
ICV	Initial Calibration Verification	TPU	Total Propagated Uncertainty
ICVL	Initial Calibration Verification Low	amu	atomic mass unit
IPA	Isopropyl Alcohol	USEPA	U.S. Environmental Protection Agency
LC	Laboratory Control	VOC	Volatile Organic Compounds

## 5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Laboratory Qualifiers:
  - BA Relative percent difference out of control.
  - BU Analyzed out of holding time.
  - BV Sample received after holding time expired.
  - EY Result exceeds normal dynamic range; reported as a minimum estimate.
  - F1 MS and/or MSD recovery exceeds control limits.
  - G The Sample MDC is greater than the requested RL.
  - J,DX Results found between the EDL or MDL and laboratory RL.
  - LM MS and/or MSD above acceptance limits. See Blank Spike (LCS).
  - LN MS and/or MSD below acceptance limits. See Blank Spike (LCS).
  - LQ LCS/LCSD recovery above method control limits.
  - MB Analyte present in the method blank.
  - PI Primary and confirm results varied by > than 40% RPD.
  - q The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio; the measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
  - U Result is less than the sample detection limit.
- Validation Notes:
  - Based on validation of the data, a qualifier was not required.
  - \*1 Improper preservation of sample.
  - \*III Unusual problems found with the data that have been described in the validation report.
  - B Laboratory method blank contamination.
  - D The analysis with this flag should not be used because another more technically sound analysis is available.
  - DNQ Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
  - E Duplicates show poor agreement.
  - H Holding times were exceeded.
  - L1 Laboratory control standard (LCS)/laboratory control standard duplicate (LCSD), relative percent difference (RPD) was outside the control limit.
  - Q Matrix spike (MS) recovery outside of control limits.
  - RPD Pesticides and PCB Confirmation Column RPD Exceeded.

- Validation Qualifiers:

- = No Qualifier.
- J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
- J- The result is an estimated quantity, but the result may be biased low.
- J+ The result is an estimated quantity, but the result may be biased high.
- R The sample results were rejected as unusable; the compound may or may not be present in the sample.
- U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
- UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

## References

1. United States Environmental Protection Agency (USEPA), 2011. USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review. EPA-540-R-11-016. September.
2. Haley & Aldrich, Inc, 2015. Quality Assurance Project Field Plan for Santa Susana Field Laboratory Stormwater Sampling Program. December.

## Data Usability Summary Report

**Project Name: Santa Susana Field Laboratory**

**Project Description: Water Samples**

**Sample Date(s): 2 January through 5 February 2024**

**Analytical Laboratory: Eurofins Calscience - Tustin, CA**

**Validation Performed by: Raul Tenorio**

**Validation Reviewed by: Eric Hitchens**

**Validation Date: 9 May 2024**

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Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

- 1. Sample Delivery Group Numbers**
  - 2. Precision and Accuracy [for SDG(s) above]**
  - 3. Explanations**
  - 4. Glossary**
  - 5. Abbreviations**
  - 6. Qualifiers**
- References**

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.4, Table B-15.
- DoD Data Validation Guidelines Module 3: Data Validation Procedure for PFAS by QSM Table B-15.
- The project-specific Quality Assurance Project Plan (QAPP) and Standard Operating Procedure (SOP), herein referred to as the specified limits (see references section).
- The QSM was used as a reference only. These samples were analyzed for PFAS using a laboratory-specific method and were not analyzed in accordance with DoD protocol.

Data reported in this sampling event were reported to the laboratory method detection limit (MDL). Results found between the MDL and RL are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOPs). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQOs) for the project and are therefore usable; any exceptions are noted in the following pages.

# 1. Sample Delivery Group Numbers

## 1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number(s)

- 570-166524-4, dated 8 February 2024;
- 570-168970-3, dated 9 February 2024;
- 570-170448-2, dated 11 March 2024;
- 570-170452-4, dated 11 March 2024;
- 570-170775-2, dated 13 March 2024;
- 570-171243-4, dated 22 March 2024;
- 570-172945-3, dated 18 April 2024; and
- 570-172955-2, dated 14 April 2024.

Samples were collected, preserved, and shipped following standard chain of custody (COC) protocols.

- Samples for PFAS (for DoD QSM 5.4, Table B-15) analysis were subcontracted to Eurofins Sacramento - West Sacramento, CA.

Samples were also received appropriately, identified correctly, and analyzed according to the COC. Issues noted with sample management are listed below:

- Custody seals were not used when samples were dropped off at the laboratory or service center by the field staff, submitted to a laboratory-provided courier, or when transported between subcontracted laboratories.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
INF002_20240102_Grab	N	570-166524-1	01/02/2024	WM	A
EB-INF002-20240102	EB	570-166524-5	01/02/2024	WMQ	A
FB-INF002-20240102	FB	570-166524-6	01/02/2024	WMQ	A
Outfall009_20240122_Grab	N	570-168970-1	01/22/2024	WM	A
FB-20240122-1	FB	570-168970-5	01/22/2024	WMQ	A
Outfall009_20240201_Grab	N	570-170448-1	02/01/2024	WM	A
FB_Outfall009_20240201-1	FB	570-170448-3	02/01/2024	WMQ	A
Outfall_008_20240201_Grab	N	570-170452-1	02/01/2024	WM	A
FB-Outfall_008_20240201-1	FB	570-170452-5	02/01/2024	WMQ	A
INF002_20240202_Grab	N	570-170775-1	02/02/2024	WM	A
FB_INF002_20240202	FB	570-170775-4	02/02/2024	WMQ	A
INF001_20240205_Grab	N	570-171243-1	02/05/2024	WM	A
FB_INF001_20240205	FB	570-171243-6	02/05/2024	WMQ	A



Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
INF001_20240219_Grab	N	570-172945-1	02/19/2024	WM	A
FB_INF001_20240219	FB	570-172945-4	02/19/2024	WMQ	A
Outfall008_20240219_Grab	N	570-172955-1	02/19/2024	WM	A
FB-Outfall008_20240219	FB	570-172955-4	02/19/2024	WMQ	A

Method Holding Times			
A.	PFAS DoD QSM	PFAS (for DoD QSM 5.4, Table B-15)	14 days extraction/40 days analysis*

\*Holding time specified by project guidelines in project-specific OP 3032.

## 1.2 CASE NARRATIVE

The laboratory report case narrative lists various additional quality control issues, such as continuing calibration verification (CCV) exceedances and calibration verification internal standard (CCVIS) exceedances. Since these additional quality control issues were not required as per the QAPP and SOP, these quality control issues were not reviewed.

## 1.3 MULTIPLE SAMPLE RESULTS

The laboratory reported multiple results for the samples listed below. The validator chose the results that best met the DQOs of the project.

Lab ID	Reportable Analysis Date/Time	Method	Analyte	Qualification
570-170448-1	3/8/2024 7:20 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. The original results are marked nonreportable, and the reanalysis results are accepted.
570-170448-3	3/8/2024 7:31 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. The original results are marked nonreportable, and the reanalysis results are accepted.
570-170452-1	3/8/2024 7:42 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. The original results are marked nonreportable, and the reanalysis results are accepted.
570-170452-5	3/8/2024 7:54 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. The original results are marked nonreportable, and the reanalysis results are accepted.
570-170775-1	3/9/2024 3:17 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. The original results are marked nonreportable, and the reanalysis results are accepted.

Lab ID	Reportable Analysis Date/Time	Method	Analyte	Qualification
570-170775-4	3/9/2024 3:29 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. The original results are marked nonreportable, and the reanalysis results are accepted.
570-172955-1	3/10/2024 12:14 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. As the reanalysis showed concurring results, the laboratory marked reanalysis results nonreportable, and the original results were accepted.
570-172955-4	3/10/2024 12:25 AM	PFAS DoD QSM	PFODA	The laboratory reanalyzed the sample due to LCS. As the reanalysis showed concurring results, the laboratory marked reanalysis results nonreportable, and the original results were accepted.

#### 1.4 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol, with the following exceptions:

Method	Matrix	Holding Time	Preservation	Sample ID, Violation, Qualification
PFAS DoD QSM	Water	14 days extraction/40 days analysis	Cool to $\leq 6^{\circ}\text{C}$	The following samples were analyzed outside the holding time and qualified J/UJ: SDG 570-170448-2: 570-170448-1, -3 SDG 570-170452-4: 570-170452-1, -5 SDG 570-170775-2: 570-170775-1, -4

#### 1.5 REPORTING LIMITS AND SAMPLE DILUTIONS

No sample dilutions were performed for the analysis of the samples in this report.

#### 1.6 LABORATORY CONTROL SAMPLES

[Refer to Section E 1.3.](#) Compounds associated with the laboratory control samples/laboratory control sample duplicate (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits with the following exceptions:

SDG #	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
570-168970-3	LCS/LCSD	PFAS DoD QSM	738214	PFODA	88%/61%, RPD=36	J/None	None, samples are ND
570-171243-4	LCS/LCSD	PFAS DoD QSM	742430	PFODA	44%/38%	J-/R	570-171243-1
570-172945-3	LCS/LCSD	PFAS DoD QSM	748407	PFODA	41%/47%	J-/R	570-172945-1, -4
570-172955-2	LCS/LCSD	PFAS DoD QSM	745422	PFODA	39%/57%, RPD=38	J-/R	570-172955-1, -4

### 1.7 MATRIX SPIKE SAMPLES

[Refer to Section E 1.4.](#) The laboratory did not analyze any matrix spike/matrix spike duplicate (MS/MSD) analysis in these SDGs.

- Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with the following preparation batches: 320-732224, 320-737032, 320-740581, 320-744613, 320-744779, 320-741357, 320-743236, and 320-746513.

### 1.8 BLANK SAMPLE ANALYSIS

[Refer to Section E 1.5.](#) Method blank samples had no detections, indicating that no contamination from laboratory activities occurred, with the following exceptions:

Blank Type	SDG	Batch ID	Analyte Detected in Blank	Concentration (ng/L)	Qualifier	Affected Samples
Method Blank	570-166524-4	733209	PFBS	0.241 J,DX	Result U	570-166524-1
	570-172945-3	746643	PFMPA	0.302 J,DX	Result U	570-172945-4

The analysis of the blank samples for field quality control was free of target compounds.

### 1.9 PFAS SAMPLE PREPARATION

[Refer to Section E 1.14.](#) The laboratory's SOP was reviewed, and the reviewer confirmed it is the laboratory's procedure to use solid-phase extraction (SPE) for sample preparation. The entire sample plus sample bottle rinsate was extracted. No data qualification required.

The case narrative notes sample preparation abnormalities that are shown in Table 1.

### 1.10 PFAS IDENTIFICATION

[Refer to Section E 1.15.](#) Ion ratios were reviewed and were within the limits of 50 to 150 percent.

### **1.11 EXTRACTION INTERNAL STANDARDS**

[Refer to Section E 1.16.](#) Recoveries were reviewed and found to be within the limits of 50 to 150 percent, with exceptions shown in Table 2.

Extraction Internal Standards were out of limits for FBs, MBs, and LCS but did not affect the data.

### **1.12 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT**

The results presented in this report were found to comply with the DQOs for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable, except for rejected data noted in Table 3. A summary of qualifiers applied to this data set is shown in Table 3.

## 2. Precision and Accuracy [for SDG(s) above]

[Refer to Section E 1.7.](#) Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

### 3. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
  - Field blanks are prepared to identify contamination that may have been introduced during field activity. Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. Trip blanks are prepared when volatile analysis is requested to identify contamination that may have been introduced during transport.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
  - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.
- E 1.14 PFAS Sample Preparation
  - Analysis of PFAS requires specific sample preparation. Aqueous samples must be prepared using Solid Phase Extraction (SPE), unless samples are known to contain high PFAS concentrations or the samples are injected directly into the LC/MS/MS instrument. Samples with greater than 1 percent solids may require centrifugation prior to SPE. The entire sample plus bottle rinsate must be extracted using SPE. If high PFAS concentrations are known, the samples may alternately be prepared using serial dilution performed in duplicate. If prepared by serial dilution, there must be documented project approval for this deviation.
- E 1.15 PFAS Identification
  - Identification of PFAS requires dual confirmation. The chemical derivation of the ion transitions must be documented. A minimum of two ion transitions per analyte are required (except for PFBA and PFPeA). Ratios of the quantitation ion to the confirmation ion should be calculated for samples and be within 50 to 150 percent of the ratios of the quantitation ion to the confirmation ion for standards.

- Identification of PFAS also requires the proper assessment of branched and linear peaks. Standards for both isomers are not currently available for every PFAS compound, resulting in the common error of quantifying the area of only the branched or the linear isomers, which results in erroneous concentrations.
- E 1.16 Extraction Internal Standards
  - Analysis of PFAS by isotope dilution includes the use of extracted internal standards, which are stable isotope analogs of the PFAS compounds of interest added to each sample prior to extraction of the sample matrix. Matrix interferences that affect the quantification of the internal standard will affect the calculated target compound concentrations.

## 4. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - $\mu\text{g}/\text{kg}$  micrograms per kilogram
  - $\mu\text{g}/\text{L}$  micrograms per liter
  - $\mu\text{g}/\text{m}^3$  micrograms per cubic meter
  - $\text{mg}/\text{kg}$  milligrams per kilogram
  - $\text{mg}/\text{L}$  milligrams per liter
  - ppb v/v parts per billion volume/volume
  - pCi/L picocuries per liter
  - $\text{pg}/\text{g}$  picograms per gram
  - $\text{pg}/\text{L}$  picograms per liter
- Matrices:
  - AA Ambient Air
  - GS Soil Gas
  - GW/WG Groundwater
  - QW Water Quality
  - IA Indoor Air
  - SE Sediment
  - SO Soil
  - SSV Sub-slab Vapor
  - WQ Water Quality control matrix
  - WS Surface Water
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - $\leq$  less than or equal to
  - > greater than
  - $\geq$  greater than or equal to
  - = equal
  - $^{\circ}\text{C}$  degrees Celsius
  - $\pm$  plus or minus
  - $\sim$  approximately
  - x times (multiplier)



- Fractions:
  - N Normal (method cannot be filtered)
  - D Dissolved (filtered)
  - T Total (unfiltered)

## 5. Abbreviations

%D	Percent Difference	MDL	Laboratory Method Detection Limit
%R	Percent Recovery	MS/MSD	Matrix Spike/Matrix Spike Duplicate
%RSD	Percent Relative Standard Deviation	NA	not applicable
%v/v	Percent volume by volume	ND	Non-Detect
2s	2 sigma	NFG	National Functional Guidelines
4,4-DDT	4 4-dichlorodiphenyltrichloroethane	NH <sub>3</sub>	Ammonia
Abs Diff	Absolute Difference	NYSDEC	New York State Department of Environmental Conservation
amu	atomic mass unit	PAH	Polycyclic Aromatic Hydrocarbon
BPJ	Best Professional Judgement	PCB	Polychlorinated Biphenyl
BS	Blank Spike	PDS	Post-Digestion Spike
CCB	Continuing Calibration Blank	PEM	Performance Evaluation Mixture
CCV	Continuing Calibration Verification	PFAS	Per- and Polyfluoroalkyl Substances
CCVL	Continuing Calibration Verification Low	PFBA	Perfluorbutanoic Acid
COC	Chain of Custody	PFD	Perfluorodecalin
COM	Combined Isotope Calculation	PFOA	Perfluorooctanoic Acid
Cr (VI)	Hexavalent Chromium	PFOS	Perfluorooctane sulfonate
CRI	Collision Reaction Interface	PFPeA	Perfluoropentanoic Acid
DoD	Department of Defense	QAPP	Quality Assurance Project Plan
DQO	data quality objective	QC	Quality Control
DUSR	Data Usability Summary Report	QSM	Quality Systems Manual
EIS	Extraction Internal Standard	R <sup>2</sup>	R-squared value
EMPC	Estimated Maximum Possible Concentration	Ra-226	Radium-226
FBK	Field Blank Contamination	Ra-228	Radium-228
FDP	Field Duplicate	RESC	Resolution Check Measure
GC	Gas Chromatograph	RL	Laboratory Reporting Limit
GC/MS	Gas Chromatography/Mass Spectrometry	RPD	Relative Percent Difference
GPC	Gel Permeation Chromatography	RRF	Relative Response Factor
H <sub>2</sub>	Hydrogen gas	RT	Retention Time
HCl	Hydrochloric Acid	SAP	Sampling Analysis Plan
ICAL	Initial Calibration	SDG	Sample Delivery Group
ICB	Initial Calibration Blank	SIM	Selected ion monitoring
ICP/MS	Inductively Coupled Plasma/Mass Spectrometry	SOP	Standard Operating Procedure
ICV	Initial Calibration Verification	SPE	Solid-Phase Extraction
ICVL	Initial Calibration Verification Low	SVOC	Semi-Volatile Organic Compound
IPA	Isopropyl Alcohol	TCLP	Toxicity Characteristic Leaching Procedure
LC	Laboratory Control	TIC	Tentatively Identified Compound
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate	TKN	Total Kjeldahl Nitrogen
MBK	Method Blank Contamination	TPH	Total Petroleum Hydrocarbon
MDC	Minimum Detectable Concentration	TPU	Total Propagated Uncertainty
		USEPA	U.S. Environmental Protection Agency
		VOC	Volatile Organic Compound
		WP	Work Plan

## 6. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Laboratory Qualifiers:
  - BA Relative percent difference out of control.
  - BU Analyzed out of holding time.
  - BV Sample received after holding time expired.
  - EY Result exceeds normal dynamic range; reported as a minimum estimate.
  - F1 MS and/or MSD recovery exceeds control limits.
  - G The Sample MDC is greater than the requested RL.
  - J,DX Results found between the EDL or MDL and laboratory RL.
  - LM MS and/or MSD above acceptance limits. See Blank Spike (LCS).
  - LN MS and/or MSD below acceptance limits. See Blank Spike (LCS).
  - LQ LCS/LCSD recovery above method control limits.
  - MB Analyte present in the method blank.
  - PI Primary and confirm results varied by > than 40% RPD.
  - q The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio; the measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
  - U Result is less than the sample detection limit.
- Validation Notes:
  - Based on validation of the data, a qualifier was not required.
  - \*1 Improper preservation of sample.
  - \*III Unusual problems found with the data that have been described in the validation report.
  - B Laboratory method blank contamination.
  - D The analysis with this flag should not be used because another more technically sound analysis is available.
  - DNQ Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
  - E Duplicates show poor agreement.
  - H Holding times were exceeded.
  - L1 Laboratory control standard (LCS)/laboratory control standard duplicate (LCSD), relative percent difference (RPD) was outside the control limit.
  - Q Matrix spike (MS) recovery outside of control limits.
  - RPD Pesticides and PCB Confirmation Column RPD Exceeded.

- Concentration (C) Qualifiers:
  - U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or “ND”.
  - B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers:
  - E The compound was quantitated above the calibration range.
  - D The concentration is based on a diluted sample analysis.
- Validation Qualifiers:
  - = No Qualifier.
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - J+ The result is an estimated quantity, but the result may be biased high.
  - J- The result is an estimated quantity, but the result may be biased low.
  - J/UJ as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.
  - UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.
  - NJ The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.
  - R The sample results were rejected as unusable; the compound may or may not be present in the sample.
  - S Result is suspect. See DUSR for details.

## References

1. Haley & Aldrich, Inc., 2024. Quality Assurance Project Plan for Santa Susana Field Laboratory Stormwater Sampling Program. February.
2. Haley & Aldrich, Inc., 2023. Operating Procedure: OP 3032 Collection of Environmental Samples for the Analysis of Per- And Polyfluoroalkyl Substances (PFAS). Prepared for the Field Sampling Plan Stormwater Runoff and Discharge Monitoring Program Santa Susana Field Laboratory. December.
3. United States Department of Defense, 2021. Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.4, Table B-15: Per- and Polyfluoroalkyl Substances (PFAS) Using Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) With Isotope Dilution or Internal Standard Quantification in Matrices Other Than Drinking Water.
4. United States Department of Defense and Environmental Data Quality Workgroup, 2020. Data Validation Guidelines Module 3: Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-15. May.

### Attachments:

- Table 1 - PFAS Sample Preparation
- Table 2 - Extraction Internal Standards
- Table 3 - System Performance Summary

**TABLE 1**  
**PFAS SAMPLE PREPARATION**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG	Sample ID	Lab ID or Batch ID	Description	Qualifier	Affected Samples
570-166524-4	INF002_20240102_Grab	320-732224	The sample was yellow in color prior to extraction.	NA	570-166524-1
570-166524-4	INF002_20240102_Grab	320-732224	During the solid phase extraction process, the sample contained non-settable particulates which clogged the solid phase extraction column. The sample matrix prevented the full volume from being extracted, precluding the method mandated bottle rinse.	J/UJ	570-166524-1
570-166524-4	INF002_20240102_Grab	320-732224	The sample was yellow in color following extraction.	NA	570-166524-1
570-168970-3	Outfall009_20240122_Grab	570-168970-1	Due to the sample being brown in color and containing sediment, the initial volume used for the following samples deviated from the standard procedure. A 5x dilution was made on the sample, then fortified with IDA and extracted. The reporting limits (RLs) have been adjusted proportionately.	NA	570-168970-1
570-170448-2	Outfall009_20240201_Grab	320-740581	Samples were observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.	NA	570-170448-1
570-170448-2	Outfall009_20240201_Grab	570-170448-1	During the solid phase extraction process, the sample contained non-settable particulates which clogged the solid phase extraction column. The sample matrix prevented the full volume from being extracted, precluding the method mandated bottle rinse.	J/UJ	570-170448-1
570-170448-2	Outfall009_20240201_Grab	320-740581	Sample was pale yellow in color following extraction.	NA	570-170448-1
570-170448-2	Outfall009_20240201_Grab	320-744613	The sample was observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.	NA	570-170448-1
570-170448-2	Outfall009_20240201_Grab	320-744613	The sample was yellow in color following extraction.	NA	570-170448-1
570-170452-4	Outfall_008_20240201_Grab	320-740581	The sample was observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.	NA	570-170452-1
570-170452-4	Outfall_008_20240201_Grab	320-740581	The sample was pale yellow in color following extraction.	NA	570-170452-1
570-170452-4	Outfall_008_20240201_Grab	320-744613	The sample was observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.	NA	570-170452-1
570-170452-4	Outfall_008_20240201_Grab	320-744613	The sample was yellow in color following extraction.	NA	570-170452-1
570-170775-4	FB_INF002_20240202	320-740581	The sample was observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.	NA	570-170775-4
570-170775-4	FB_INF002_20240202	320-740581	The sample was pale yellow in color following extraction.	NA	570-170775-4
570-170775-4	FB_INF002_20240202	320-744779	The sample was observed to have non-settable particulates present in the bottom of the bottle prior to extraction.	NA	570-170775-4
570-170775-4	FB_INF002_20240202	320-744779	The sample was dark yellow in color prior to extraction	NA	570-170775-4
570-170775-4	FB_INF002_20240202	570-170775-4	During the solid phase extraction process, the sample contained non-settable particulates which clogged the solid phase extraction column. The sample matrix prevented the full volume from being extracted, precluding the method mandated bottle rinse.	J/UJ	570-170775-4
570-170775-4	FB_INF002_20240202	320-744779	The sample was light yellow in color following extraction and concentration.	NA	570-170775-4
570-171243-4	INF001_20240205_Grab	320-741357	The sample was observed to have a thin layer of sediment present in the bottom of the bottle prior to extraction.	NA	570-171243-1
570-171243-4	INF001_20240205_Grab	570-171243-1	During the solid phase extraction process, the sample contained non-settable particulates which clogged the solid phase extraction column. The sample matrix prevented the full volume from being extracted, precluding the method mandated bottle rinse.	J/UJ	570-171243-1
570-171243-4	INF001_20240205_Grab	320-741357	The sample was pale yellow in color following extraction.	NA	570-171243-1
570-171243-4	INF001_20240205_Grab	570-171243-1	The sample was observed to have a yellow color and contained particulates in the bottle prior to extraction.	NA	570-171243-1

**TABLE 1**  
**PFAS SAMPLE PREPARATION**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG	Sample ID	Lab ID or Batch ID	Description	Qualifier	Affected Samples
570-172945-3	INF001_20240219_Grab	570-172945-1	The sample was observed to have a yellow color and contained particulates in the bottle prior to extraction.	NA	570-172945-1
570-172945-3	INF001_20240219_Grab	570-172945-1	During the solid phase extraction process, the following sample contained particulates which clogged the solid phase extraction column. The sample matrix prevented the full volume from being extracted, precluding the method mandated bottle rinse.	J/UJ	570-172945-1
570-172945-3	INF001_20240219_Grab	570-172945-1	The sample was observed to have a yellow color after extraction/final volume	NA	570-172945-1
570-172955-2	Outfall008_20240219_Grab	320-743326	The sample was yellow in color prior to extraction.	NA	570-172955-1
570-172955-2	Outfall008_20240219_Grab	320-743326	The sample was observed to have floating particulates present in the sample bottle	NA	570-172955-1
570-172955-2	Outfall008_20240219_Grab	320-743326	The following samples in were yellow in color following extraction	NA	570-172955-1
570-172955-2	Outfall008_20240219_Grab	320-746513	The following sample in was yellow in color and particulates present in the samples bottle prior extraction.	NA	570-172955-1
570-172955-2	Outfall008_20240219_Grab	320-746513	The following sample in was yellow in color following extraction	NA	570-172955-1

**TABLE 2**  
**EXTRACTION INTERNAL STANDARDS**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG	Sample ID	Lab ID	Standard Name	%Recovery	Qualifier	Target analytes
570-166524-4	INF002_20240102_Grab	570-166524-1	13C4 PFBA	32%	J+/UJ	PFBA
570-166524-4	INF002_20240102_Grab	570-166524-1	13C5 PFPeA	39%	J+/UJ	PFPeA, PFMPA, PFMBA, & 3:3 FTCA
570-166524-4	INF002_20240102_Grab	570-166524-1	13C2 PFTeDA	43%	J+/UJ	PFTeDA & PFTeDA
570-166524-4	INF002_20240102_Grab	570-166524-1	13C2 PFHxDA	42%	J+/UJ	PFHxDA, PFODA
570-166524-4	INF002_20240102_Grab	570-166524-1	13C3 PFBS	37%	J+/UJ	PFBS
570-166524-4	INF002_20240102_Grab	570-166524-1	d-N-MeFOSA-M	44%	J+/UJ	NMeFOSA
570-166524-4	INF002_20240102_Grab	570-166524-1	d-N-EtFOSA-M	39%	J+/UJ	NEtFOSA
570-166524-4	INF002_20240102_Grab	570-166524-1	d7-N-MeFOSE-M	45%	J+/UJ	NMeFOSE
570-166524-4	INF002_20240102_Grab	570-166524-1	d9-N-EtFOSE-M	39%	J+/UJ	NEtFOSE
570-166524-4	INF002_20240102_Grab	570-166524-1	13C-6:2 FTCA	43%	J+/UJ	5:3 FTCA
570-166524-4	INF002_20240102_Grab	570-166524-1	13C-8:2 FTCA	41%	J+/UJ	7:3 FTCA
570-168970-3	Outfall009_20240122_Grab	570-168970-1	13C2 PFHxDA	43%	J+/UJ	PFHxDA only*
570-168970-3	Outfall009_20240122_Grab (RA)	570-168970-1 (RA)	13C2 PFHxDA	41%	J+/UJ	PFODA only**
570-170448-2	Outfall009_20240201_Grab	570-170448-1	13C2 PFTeDA	35%	J+/UJ	PFTeDA & PFTeDA
570-170448-2	Outfall009_20240201_Grab	570-170448-1	13C2 PFHxDA	21%	J+/UJ	PFHxDA only*
570-170448-2	Outfall009_20240201_Grab	570-170448-1	d9-N-EtFOSE-M	47%	J+/UJ	NEtFOSE
570-170448-2	Outfall009_20240201_Grab (RE)	570-170448-1 (RE)	13C2 PFHxDA	31%	J+/UJ	PFODA only**
570-170452-4	Outfall_008_20240201_Grab	570-170452-1	13C2 PFHxDA	48%	J+/UJ	PFHxDA only*
570-171243-4	INF001_20240205_Grab	570-171243-1	13C2 PFHxDA	40%	J+/UJ	PFHxDA, PFODA
570-171243-4	INF001_20240205_Grab	570-171243-1	13C-6:2 FTCA	153%	J-/None	5:3 FTCA
570-171243-4	INF001_20240205_Grab	570-171243-1	13C-8:2 FTCA	163%	J-/None	7:3 FTCA
570-172945-3	INF001_20240219_Grab	570-172945-1	13C2 PFTeDA	46%	J+/UJ	PFTeDA & PFTeDA
570-172945-3	INF001_20240219_Grab	570-172945-1	13C2 PFHxDA	38%	J+/UJ	PFHxDA only*
570-172945-3	INF001_20240219_Grab (RA)	570-172945-1 (RA)	13C2 PFHxDA	45%	J+/UJ	PFODA only**
570-172955-2	Outfall008_20240219_Grab	570-172955-1	13C2 PFHxDA	48%	J+/UJ	PFHxDA, PFODA

**Notes:**

RA = Reanalysis, RE = Reextraction

\*Target analytes for 13C2 PFHxDA are PFHxDA and PFODA. But EIS was used to quantify only PFHxDA for this analysis

\*\*Target analytes for 13C2 PFHxDA are PFHxDA and PFODA. But EIS was used to quantify only PFODA for this analysis











TABLE 3

## SYSTEM PERFORMANCE SUMMARY

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

SDG	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701665244	Perfluoro(2-ethoxyethane) sulphonic acid (PFEEESA)	U	U	UJ	*III	ng/L	
5701665244	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	U	U	UJ	*III	ng/L	
5701665244	Perfluoro-2-propoxypropanoic acid (PFPrOPrA)(GenX) (HFPO-DA)	U	U	UJ	*III	ng/L	
5701665244	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	U	U	UJ	*III	ng/L	
5701665244	Perfluorooctadecanoic acid (PFOcDA)	U	U	UJ	*III	ng/L	
5701665244	N-Ethylperfluorooctane sulfonamidoethanol (N-EtFOSE)	U	U	UJ	*III	ng/L	
5701665244	Perfluoroundecanoic acid (PFUnDA)	U	U	UJ	*III	ng/L	
5701707752	Perfluoro(2-ethoxyethane) sulphonic acid (PFEEESA)	U	U	UJ	*III	ng/L	
5701707752	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	U	U	UJ	*III	ng/L	
5701707752	Perfluoro-2-propoxypropanoic acid (PFPrOPrA)(GenX) (HFPO-DA)	U	U	UJ	*III	ng/L	
5701707752	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorooctadecanoic acid (PFOcDA)	U	ULRBA	R	*III	ng/L	
5701707752	N-Ethylperfluorooctane sulfonamidoethanol (N-EtFOSE)	U	U	UJ	*III	ng/L	
5701707752	Perfluoroundecanoic acid (PFUnDA)	U	U	UJ	*III	ng/L	
5701707752	N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	U	U	UJ	*III	ng/L	
5701707752	N-Methylperfluorooctane sulfonamidoethanol (N-MeFOSE)	U	U	UJ	*III	ng/L	
5701707752	Perfluoropentanesulfonic acid (PFPeS)	U	U	UJ	*III	ng/L	
5701707752	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	U	U	UJ	*III	ng/L	
5701707752	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorododecanoic acid (PFDoDA)	U	U	UJ	*III	ng/L	
5701707752	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorodecanesulfonic acid (PFDS)	U	U	UJ	*III	ng/L	
5701707752	3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	U	U	UJ	*III	ng/L	
5701707752	Perfluoroheptanesulfonic acid (PFHpS)	U	U	UJ	*III	ng/L	
5701707752	Perfluorotetradecanoic acid (PFTeDA)	U	U	UJ	*III	ng/L	
5701707752	Perfluoro-3-methoxypropanoic acid (PFMPA)	U	U	UJ	*III	ng/L	
5701707752	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	U	U	UJ	*III	ng/L	
5701707752	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorononane sulfonic acid (PFNS)	U	U	UJ	*III	ng/L	
5701707752	Perfluorotridecanoic acid (PFTrDA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorooctane sulfonamide (PFOSA)	U	U	UJ	*III	ng/L	
5701707752	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	U	U	UJ	*III	ng/L	
5701707752	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	U	U	UJ	*III	ng/L	
5701712434	Perfluoro(2-ethoxyethane) sulphonic acid (PFEEESA)	U	U	UJ	*III	ng/L	
5701712434	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	U	U	UJ	*III	ng/L	
5701712434	Perfluoro-2-propoxypropanoic acid (PFPrOPrA)(GenX) (HFPO-DA)	U	U	UJ	*III	ng/L	
5701712434	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	U	U	UJ	*III	ng/L	
5701712434	Perfluorooctadecanoic acid (PFOcDA)	U	ULR	R	LI	ng/L	
5701712434	N-Ethylperfluorooctane sulfonamidoethanol (N-EtFOSE)	U	U	UJ	*III	ng/L	
5701712434	Perfluoroundecanoic acid (PFUnDA)	U	U	UJ	*III	ng/L	
5701712434	N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	U	U	UJ	*III	ng/L	
5701712434	N-Methylperfluorooctane sulfonamidoethanol (N-MeFOSE)	U	U	UJ	*III	ng/L	
5701712434	Perfluoropentanesulfonic acid (PFPeS)	U	U	UJ	*III	ng/L	
5701712434	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	U	U	UJ	*III	ng/L	
5701712434	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	U	U	UJ	*III	ng/L	

TABLE 3

## SYSTEM PERFORMANCE SUMMARY

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

SDG	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701712434	Perfluorododecanoic acid (PFDoDA)	U	U	UJ	*III	ng/L	
5701712434	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	U	U	UJ	*III	ng/L	
5701712434	Perfluorodecanesulfonic acid (PFDS)	U	U	UJ	*III	ng/L	
5701712434	3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	U	U	UJ	*III	ng/L	
5701712434	Perfluoroheptanesulfonic acid (PFHpS)	U	U	UJ	*III	ng/L	
5701712434	Perfluorotetradecanoic acid (PFTeDA)	U	U	UJ	*III	ng/L	
5701712434	Perfluoro-3-methoxypropanoic acid (PFMPA)	U	U	UJ	*III	ng/L	
5701712434	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	U	U	UJ	*III	ng/L	
5701712434	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	U	U	UJ	*III	ng/L	
5701712434	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	*III	ng/L	
5701712434	Perfluorononane sulfonic acid (PFNS)	U	U	UJ	*III	ng/L	
5701712434	Perfluorotridecanoic acid (PFTrDA)	U	U	UJ	*III	ng/L	
5701712434	Perfluorooctane sulfonamide (PFOSA)	U	U	UJ	*III	ng/L	
5701712434	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	U	U	UJ	*III	ng/L	
5701712434	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	U	U	UJ	*III	ng/L	
5701712434	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	U	U	UJ	*III	ng/L	
5701712434	Perfluorododecane sulfonic acid (PFDoDS)	U	U	UJ	*III	ng/L	
5701712434	3-(Perfluoroheptyl)propanoic acid (7:3 FTCA)	U	U	UJ	*III	ng/L	
5701712434	Perfluoro(4-methoxybutanoic) acid (PFMBA)	U	U	UJ	*III	ng/L	
5701712434	2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	0.33	J,DX	J-	I	ng/L	
5701712434	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	U	U	UJ	*III	ng/L	
5701704482	Perfluorooctadecanoic acid (PFOcDA)	U	ULRBA	R	*III	ng/L	
5701704482	Perfluorooctadecanoic acid (PFOcDA)	U	UBU	UJ	*IIIIH	ng/L	
5701729552	Perfluorooctadecanoic acid (PFOcDA)	U	ULR	R	L	ng/L	
5701729552	Perfluorooctadecanoic acid (PFOcDA)	U	ULR	R	LI	ng/L	
5701729453	Perfluoro-3-methoxypropanoic acid (PFMPA)	0.45	J,DXMB	U	B	ng/L	Result U. Before validation the result was 0.45, MDL was 0.26, RL was 1.9
5701729453	Perfluorooctadecanoic acid (PFOcDA)	U	ULR	R	L	ng/L	
5701729453	Perfluorotetradecanoic acid (PFTeDA)	U	U	UJ	*IIII	ng/L	
5701729453	Perfluoro-3-methoxypropanoic acid (PFMPA)	U	U	UJ	*III	ng/L	
5701729453	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	U	U	UJ	*III	ng/L	
5701729453	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	U	U	UJ	*III	ng/L	
5701729453	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	*IIII	ng/L	
5701729453	Perfluorononane sulfonic acid (PFNS)	U	U	UJ	*III	ng/L	
5701729453	Perfluorotridecanoic acid (PFTrDA)	U	U	UJ	*IIII	ng/L	
5701729453	Perfluorooctane sulfonamide (PFOSA)	U	U	UJ	*III	ng/L	
5701729453	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	U	U	UJ	*III	ng/L	
5701729453	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	U	U	UJ	*III	ng/L	
5701729453	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	U	U	UJ	*III	ng/L	
5701729453	Perfluorododecane sulfonic acid (PFDoDS)	U	U	UJ	*III	ng/L	
5701729453	3-(Perfluoroheptyl)propanoic acid (7:3 FTCA)	U	U	UJ	*III	ng/L	
5701729453	Perfluoro(4-methoxybutanoic) acid (PFMBA)	U	U	UJ	*III	ng/L	
5701729453	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	U	U	UJ	*III	ng/L	
5701729453	Perfluorooctadecanoic acid (PFOcDA)	U	ULR	R	LI	ng/L	
5701729453	2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	U	U	UJ	*III	ng/L	
5701665244	N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	U	U	UJ	*III	ng/L	
5701665244	N-Methylperfluorooctane sulfonamidoethanol (N-MeFOSE)	U	U	UJ	*IIII	ng/L	
5701665244	Perfluoropentanoic acid (PFPeA)	7.9		J+	I	ng/L	
5701665244	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	U	U	UJ	*III	ng/L	
5701665244	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	U	U	UJ	*III	ng/L	
5701665244	Perfluorododecanoic acid (PFDoDA)	U	U	UJ	*III	ng/L	
5701665244	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	U	U	UJ	*IIII	ng/L	

TABLE 3

**SYSTEM PERFORMANCE SUMMARY**  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY

SDG	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701665244	Perfluorodecanesulfonic acid (PFDS)	U	U	UJ	*III	ng/L	
5701665244	Perfluorobutanoic acid (PFBA)	15		J+	I	ng/L	
5701665244	Perfluorobutanesulfonic acid (PFBS)	1.6	J,DXMB	UJ	BI	ng/L	Result U. Before validation the result was 1.6, MDL was 0.17, RL was 1.7
5701665244	Perfluoroheptanesulfonic acid (PFHpS)	U	U	UJ	*III	ng/L	
5701665244	Perfluorotetradecanoic acid (PFTeDA)	U	U	UJ	*III	ng/L	
5701665244	Perfluoro-3-methoxypropanoic acid (PFMPA)	U	U	UJ	*III	ng/L	
5701665244	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	U	U	UJ	*III	ng/L	
5701665244	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	U	U	UJ	*III	ng/L	
5701665244	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	*III	ng/L	
5701665244	Perfluorononane sulfonic acid (PFNS)	U	U	UJ	*III	ng/L	
5701665244	Perfluorotridecanoic acid (PFTrDA)	U	U	UJ	*III	ng/L	
5701665244	Perfluorooctane sulfonamide (PFOSA)	U	U	UJ	*III	ng/L	
5701665244	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	U	U	UJ	*III	ng/L	
5701665244	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	U	U	UJ	*III	ng/L	
5701665244	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	U	U	UJ	*III	ng/L	
5701665244	Perfluorododecane sulfonic acid (PFDoDS)	U	U	UJ	*III	ng/L	
5701665244	3-(Perfluoroheptyl)propanoic acid (7:3 FTCA)	U	U	UJ	*III	ng/L	
5701665244	Perfluoro(4-methoxybutanoic) acid (PFMBA)	U	U	UJ	*III	ng/L	
5701665244	2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	U	U	UJ	*III	ng/L	
5701665244	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	U	U	UJ	*III	ng/L	
5701665244	3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	U	U	UJ	*III	ng/L	
5701704524	Perfluorooctadecanoic acid (PFOcDA)	U	ULRBA	R	*III	ng/L	
5701704524	Perfluorooctadecanoic acid (PFOcDA)	U	UBU	UJ	*IIIIH	ng/L	
5701704524	Perfluorooctadecanoic acid (PFOcDA)	U	ULRBA	R	*III	ng/L	
5701704524	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	I	ng/L	
5701704524	Perfluorooctadecanoic acid (PFOcDA)	U	UBU	UJ	*IIIIH	ng/L	
5701707752	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	U	U	UJ	*III	ng/L	
5701707752	Perfluorododecane sulfonic acid (PFDoDS)	U	U	UJ	*III	ng/L	
5701707752	Perfluoro(4-methoxybutanoic) acid (PFMBA)	U	U	UJ	*III	ng/L	
5701707752	2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	U	U	UJ	*III	ng/L	
5701707752	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	U	U	UJ	*III	ng/L	
5701707752	3-(Perfluoroheptyl)propanoic acid (7:3 FTCA)	U	U	UJ	*III	ng/L	
5701707752	Perfluorooctadecanoic acid (PFOcDA)	U	UBU	UJ	*IIIIH	ng/L	
5701707752	Perfluorooctadecanoic acid (PFOcDA)	U	ULRBA	R	*III	ng/L	
5701707752	Perfluorooctadecanoic acid (PFOcDA)	U	UBU	UJ	*IIIIH	ng/L	
5701704482	Perfluoro(2-ethoxyethane) sulphonic acid (PFEESA)	U	U	UJ	*III	ng/L	
5701704482	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	U	U	UJ	*III	ng/L	
5701704482	Perfluoro-2-propoxypropanoic acid (PFPrOPra)(GenX) (HFPO-DA)	U	U	UJ	*III	ng/L	
5701704482	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	U	U	UJ	*III	ng/L	
5701704482	Perfluorooctadecanoic acid (PFOcDA)	U	ULRBA	R	*III	ng/L	
5701704482	N-Ethylperfluorooctane sulfonamidoethanol (N-EtFOSE)	U	U	UJ	*III	ng/L	
5701704482	Perfluoroundecanoic acid (PFUnDA)	U	U	UJ	*III	ng/L	
5701704482	N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	U	U	UJ	*III	ng/L	
5701704482	N-Methylperfluorooctane sulfonamidoethanol (N-MeFOSE)	U	U	UJ	*III	ng/L	
5701704482	Perfluoropentanesulfonic acid (PFPeS)	U	U	UJ	*III	ng/L	
5701704482	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	U	U	UJ	*III	ng/L	
5701704482	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	U	U	UJ	*III	ng/L	
5701704482	Perfluorododecanoic acid (PFDoDA)	U	U	UJ	*III	ng/L	
5701704482	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	U	U	UJ	*III	ng/L	
5701704482	Perfluorodecanesulfonic acid (PFDS)	U	U	UJ	*III	ng/L	

TABLE 3

## SYSTEM PERFORMANCE SUMMARY

THE BOEING COMPANY

SANTA SUSANA FIELD LABORATORY

SDG	Analyte	Result	Laboratory Qualifier	Final Validated Qualifier	Validation Note	Unit	Notes
5701704482	Perfluorohexanesulfonic acid (PFHxS)	U	U	UJ	*III	ng/L	
5701704482	3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	U	U	UJ	*III	ng/L	
5701704482	Perfluoroheptanesulfonic acid (PFHpS)	U	U	UJ	*III	ng/L	
5701704482	Perfluorotetradecanoic acid (PFTeDA)	U	U	UJ	*IIII	ng/L	
5701704482	Perfluoro-3-methoxypropanoic acid (PFMPA)	U	U	UJ	*III	ng/L	
5701704482	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	U	U	UJ	*III	ng/L	
5701704482	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	U	U	UJ	*III	ng/L	
5701704482	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	*IIII	ng/L	
5701704482	Perfluorononane sulfonic acid (PFNS)	U	U	UJ	*III	ng/L	
5701704482	Perfluorotridecanoic acid (PFTrDA)	U	U	UJ	*IIII	ng/L	
5701704482	Perfluorooctane sulfonamide (PFOSA)	U	U	UJ	*III	ng/L	
5701704482	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	U	U	UJ	*III	ng/L	
5701704482	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	U	U	UJ	*III	ng/L	
5701704482	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	U	U	UJ	*III	ng/L	
5701704482	Perfluorododecane sulfonic acid (PFDoDS)	U	U	UJ	*III	ng/L	
5701704482	Perfluoro(4-methoxybutanoic) acid (PFMBA)	U	U	UJ	*III	ng/L	
5701704482	2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	U	U	UJ	*III	ng/L	
5701704482	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	U	U	UJ	*III	ng/L	
5701704482	3-(Perfluoroheptyl)propanoic acid (7:3 FTCA)	U	U	UJ	*III	ng/L	
5701704482	Perfluorooctadecanoic acid (PFOcDA)	U	UBU	UJ	*IIIII	ng/L	
5701729552	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	I	ng/L	
5701729453	Perfluoro(2-ethoxyethane) sulphonic acid (PFEEESA)	U	U	UJ	*III	ng/L	
5701729453	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	U	U	UJ	*III	ng/L	
5701729453	Perfluoro-2-propoxypropanoic acid (PFPrOPrA)(GenX) (HFPO-DA)	U	U	UJ	*III	ng/L	
5701729453	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	U	U	UJ	*III	ng/L	
5701729453	N-Ethylperfluorooctane sulfonamidoethanol (N-EtFOSE)	U	U	UJ	*III	ng/L	
5701729453	Perfluoroundecanoic acid (PFUnDA)	U	U	UJ	*III	ng/L	
5701729453	N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	U	U	UJ	*III	ng/L	
5701729453	N-Methylperfluorooctane sulfonamidoethanol (N-MeFOSE)	U	U	UJ	*III	ng/L	
5701729453	Perfluoropentanesulfonic acid (PFPeS)	U	U	UJ	*III	ng/L	
5701729453	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	U	U	UJ	*III	ng/L	
5701729453	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	U	U	UJ	*III	ng/L	
5701729453	Perfluorododecanoic acid (PFDoDA)	U	U	UJ	*III	ng/L	
5701729453	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	U	U	UJ	*III	ng/L	
5701729453	Perfluorodecanesulfonic acid (PFDS)	U	U	UJ	*III	ng/L	
5701729453	3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	U	U	UJ	*III	ng/L	
5701729453	Perfluorobutanesulfonic acid (PFBS)	U	U	UJ	*III	ng/L	
5701729453	Perfluoroheptanesulfonic acid (PFHpS)	U	U	UJ	*III	ng/L	
5701689703	Perfluorohexadecanoic acid (PFHxDA)	U	U	UJ	I	ng/L	
5701689703	Perfluorooctadecanoic acid (PFOcDA)	U	UBA	UJ	I	ng/L	



## **APPENDIX F**

### **First Quarter 2024 Receiving Water Surveys**

**TABLE F**  
**RECEIVING WATER SURVEYS**  
 FIRST QUARTER 2024  
 THE BOEING COMPANY - SSFL  
 NPDES PERMIT CA0001309

January 1 through March 31, 2024

**Observation Requirements:** General observations are required on a monthly basis when Outfall 002 (Bell Creek), Outfall 009 (Arroyo Simi), and/or Outfall 008 (Dayton Creek) are flowing.

FIRST QUARTER 2024 BELL CREEK OBSERVATIONS AT OUTFALL 002			
BELL CREEK OBSERVATIONS	JANUARY	FEBRUARY	MARCH
Date and time of inspection	1/3/2024, 07:25	2/1/2024, 07:35	3/7/2024, 07:30
Weather conditions	Cloudy, cold, light rain, 49°F	Cloudy, cold, light rain, 43°F	Sunny, cool, calm, 46°F
Color of water	Clear	Pale brown	Clear
Appearance of oil films or grease, or floatable materials	None	None	None
Extent of visible turbidity or color patches	None	Uniform translucent	None
Description of odor, if any	None	None	None
Presence or activity of California Least Tern or California Brown Pelican	No	No	No

FIRST QUARTER 2024 ARROYO SIMI OBSERVATIONS AT ARROYO SIMI DOWNSTREAM			
ARROYO SIMI OBSERVATIONS	JANUARY	FEBRUARY	MARCH
Date and time of inspection	1/22/2024, 10:20	2/1/2024, 12:45	3/6/2024, 13:55
Weather conditions	Overcast, cold, light rain, 50°F	Overcast, drizzle, cool, 51°F	Overcast, light rain, cool, 51°F
Color of water	Brown	Brown	Pale brown
Appearance of oil films or grease, or floatable materials	None	None	None
Extent of visible turbidity or color patches	Uniform translucent	Uniform opaque	Uniform translucent
Description of odor, if any	None	None	None
Presence or activity of California Least Tern or California Brown Pelican	No	No	No

FIRST QUARTER 2024 ARROYO SIMI OBSERVATIONS AT ARROYO SIMI UPSTREAM			
ARROYO SIMI OBSERVATIONS	JANUARY	FEBRUARY	MARCH
Date and time of inspection	1/22/2024, 11:05	2/1/2024, 12:10	3/6/2024, 13:35
Weather conditions	Cool, light rain, cloudy, 51°F	Partly cloudy, cool, 51°F	Overcast, light rain, cool, 51°F
Color of water	Brown	Brown	Pale brown
Appearance of oil films or grease, or floatable materials	None	None	None
Extent of visible turbidity or color patches	Uniform translucent	Uniform opaque	Uniform translucent
Description of odor, if any	None	None	None
Presence or activity of California Least Tern or California Brown Pelican	No	No	No

**TABLE F**  
**RECEIVING WATER SURVEYS**  
FIRST QUARTER 2024  
THE BOEING COMPANY - SSFL  
NPDES PERMIT CA0001309

January 1 through March 31, 2024

FIRST QUARTER 2024 DAYTON CANYON CREEK OBSERVATIONS AT OUTFALL 008			
DAYTON CANYON CREEK OBSERVATIONS	JANUARY	FEBRUARY	MARCH
Date and time of inspection	N/A	2/1/2024, 08:25	3/7/2024, 09:45
Weather conditions	N/A	Cloudy, cold, light rain, 45°F	Sunny, cool, calm, 51°F
Color of water	N/A	Pale brown	Clear
Appearance of oil films or grease, or floatable materials	N/A	None	None
Extent of visible turbidity or color patches	N/A	Uniform translucent	None
Description of odor, if any	N/A	None	None
Presence or activity of California Least Tern or California Brown Pelican	N/A	No	No

**Notes:**  
N/A = not applicable. Since Outfall 008 did not flow in January, no monthly inspection was required at Outfall 008 for January.