2021 Remedial Action Annual Effectiveness Report

Alcoa (Point Comfort)/Lavaca Bay Superfund Site

March 2022

Alcoa

100027959

TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 Objective 1

1.2 Consent Decree and Statement of Work Requirements for the RAAER 1

1.3 Site Information and Overview 2

1.3.1 Site Definition 2

1.3.2 Previous Remedial Activities 3

1.3.3 Discussion of Explanation of Significant Differences and Preliminary Close Out Report . 4

1.3.4 Discussion of the Second (2016) Five-Year Review Process 4

1.3.5 Discussion of the Third (2021) Five-Year Review Process 6

1.3.6 Community Outreach Process 6

1.4 CAPA Groundwater Extraction and Treatment System 7

1.5 CAPA Offshore Surface Water Sampling 7

1.6 Site Inspections 7

1.6.1 CAPA Soil Cap Inspections 7

1.6.2 Witco Area Inspections 8

1.6.3 Dredge Island 9

1.7 Routine Lavaca Bay Sediment Monitoring 11

1.8 Routine Finfish and Shellfish Monitoring 12

2 ROUTINE MONITORING RESULTS 13

2.1 Verification of Site Conditions and Land Use 13

2.2 CAPA Groundwater Extraction and Treatment System 13

2.3 CAPA Offshore Surface Water Sampling 14

2.4 Site Inspections 14

2.4.1 Dredge Island Inspections 14

2.4.2 CAPA Soil Cap Inspections 14

2.4.3 Witco Area Inspections 14

2.5 Sediment Trends and Observations 15

2.5.1 Spatial and Temporal Trends in Total Mercury Sediment Concentrations from the Open Water Closed Area 15

2.6 Routine Finfish and Shellfish Monitoring Results 16

2.6.1 Closed Area Red Drum Trends 16

2.6.2 Statistical Comparison of Mean Red Drum Mercury Concentrations in the Closed and Adjacent Open Areas 17

2.6.3 Results of 2021 Gut Content Survey 18

2.6.4 Juvenile Blue Crab Analysis 19

2.6.5 Temporal and Spatial Trends in Juvenile Blue Crab Averages 19

2.6.6 Trends at Individual Juvenile Blue Crab Stations 20

3 CONCLUSIONS 21

3.1 Comparison to Performance Standards 21

3.2 Planned 2022 Response Actions 21

3.3 Continued Monitoring 22

3.4 Summary of Overall Remedy Effectiveness 22

4 REFERENCES 23

LIST OF TABLES

Table 2.4-1 Summary of Annual Sediment Monitoring Protocols

Table 2.6-1 Summary of Red Drum and Juvenile Blue Crab Tissue Data 1997-2021

Table 2.6-2 Summary of 2021 Red Drum Tissue Mercury Results

LIST OF FIGURES

Figure 2.5-1 Closed Area Sediment Sub-areas

Figure 2.5-2 Closed Area Open-water Sediment Sub-area Total Mercury Trends

Figure 2.6-1 Lavaca Bay Red Drum Tissue Mercury Concentrations by Year, 1996-2021

Figure 2.6-2 Average Total Mercury Concentrations in Lavaca Bay Red Drum Tissue by Year, 1996-2021

Figure 2.6-3 Lavaca Bay Red Drum Mercury Distributions from 2015 to 2021

Figure 2.6-4 Closed Area Average Red Drum Total Hg (2021)

Figure 2.6-5 Average Red Drum Total Hg 2010-2021

Figure 2.6-6 Ratio of Closed Area Red Drum Station 2021 Average to Average in Adjacent Open Area

Figure 2.6-7 Lavaca Bay Juvenile Blue Crab Tissue Mercury Concentrations by Year, 2002-2021

Figure 2.6-8 Closed Area Average Juvenile Blue Crab Total Hg (2021)

Figure 2.6-9 Ratio of Closed Area Juvenile Blue Crab Station 2021 Average to Average in Adjacent Open Area

Figure 2.6-10 Comparison of Mercury in Red Drum and Juvenile Blue Crab Collected in Closed Area in 2021

Figure 2.6-11 Closed Area Blue Crab Mercury Trends by Station

LIST OF APPENDICES

Appendix A CAPA Groundwater Data

Appendix B1 Dredge Island Inspection Records

Appendix B2 CAPA Cap Inspection Records

Appendix B3 Witco Inspection Records
Appendix C Lavaca Bay Annual Sediment Monitoring Report
Appendix D1 Lavaca Bay Finfish and Shellfish Monitoring Report
Appendix D2 Lavaca Bay Red Drum Gut Content Survey Report

LIST OF ACRONYMS AND ABBREVIATIONS

µg/g	micrograms per gram
CAB	Community Advisory Board
CAPA	Chlor-Alkali Process Area
CD	Consent Decree
CDF	confined disposal facility
cm	centimeter
DNAPL	dense nonaqueous phase liquid
EE/CA	Engineering Evaluation/Cost Analysis
HAC	health-based assessment comparison
meHg	methylmercury
mg/kg	milligrams per kilogram
MS3	Mainland Shoreline No. 3
O&M	operations and maintenance
OMMP	Operation, Maintenance and Monitoring Plan
OU	Operable Unit
PAH	polycyclic aromatic hydrocarbon
PCO	Point Comfort Operations
ppm	parts per million
RAAER	*Remedial Action Annual Effectiveness Report*
RAO	remedial action objective
RDR	Remedial Design Report
RI	Remedial Investigation
ROD	Record of Decision
Site	Alcoa (Point Comfort)/Lavaca Bay Superfund Site
SOW	Statement of Work
TCEQ	Texas Commission on Environmental Quality
THg	total mercury
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

1.1 Objective

This *2021 Remedial Action Annual Effectiveness Report* (RAAER) for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site (Site) in Point Comfort, Texas, satisfies the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act Consent Decree (CD)/Statement of Work (SOW) between Alcoa, the United States of America, and the State of Texas, entered in the United States District Court, Southern District, on the effective date of March 1, 2005 (United States et al. 2005).

The objective of the RAAER is to create an integrated assessment of the progress towards achieving overall Site remediation goals using results from all monitoring performed after the lodging of the CD.

1.2 Consent Decree and Statement of Work Requirements for the RAAER

Per the SOW attached to the CD, the RAAER needs to adhere to the following guidelines:

> [The RAAER] shall be prepared to evaluate the effectiveness of the RA [Remedial Action] including, but not limited to, an evaluation of the performance of the hydraulic control system at CAPA, natural recovery of sediments in Lavaca Bay, trends in fish/shellfish tissue values, and an evaluation of O&M activities. In preparing the report, Settling Defendants shall use the O&M [Operation and Maintenance] and Performance Monitoring data collected and any data collected during construction of the remedy. The Annual Effectiveness Report shall be submitted to EPA in accordance with the schedule contained in the Remedial Action Work Plan. (United States et al. 2005, p. 7-1)

The *Remedial Action Work Plan* (Alcoa 2005) specifies that the RAAER be submitted by March 31 of the year following the completion of each monitoring program.

The SOW attached to the CD states that the specific topics to be discussed in the RAAER include the following:

- Site information;
- Media description;
- Treatment system description;
- Treatment system performance;
- Observations and lessons learned; and
- Verification that Site conditions have not changed and there have been no land use or property development changes that may affect the remedial action.

1.3 Site Information and Overview

This section provides relevant background information, including previous response actions, the U.S. Environmental Protection Agency (USEPA) five-year review process, reporting, and public outreach information.

1.3.1 Site Definition

The Site is defined in the CD as follows: [1]

> the Alcoa/Lavaca Bay Superfund Site, generally consisting of the Plant, Dredge Island, Formosa Tract, and portions of Lavaca Bay, Cox Bay, Cox Creek, Cox Cove, Cox Lake (Cox Creek, Cox Cove, and Cox Lake are also known as Huisache Creek, Cove and Lake) and western Matagorda Bay located in Calhoun County, Texas, and areas containing hazardous substances depicted generally on the map attached as Appendix C. (United States et al. 2005, p. 11)

Although all areas of the Site were investigated during the Remedial Investigation (RI), the risk assessments indicated that only certain parts of Lavaca Bay, Dredge Island, and two areas within the boundaries of the operating facility (the Chlor-Alkali Process Area [CAPA] and the Witco Area) required development of remedial action objectives (RAOs) and subsequent remediation. This RAAER presents monitoring information that reflects the effects of the completed response actions and ongoing activities:

- Stabilization of Dredge Island (completed as a non-time critical removal action prior to USEPA's issuance of the Record of Decision [ROD; USEPA 2001a] for the Site);
- Removal of shoreline sediment at the CAPA and sediment near Dredge Island (completed as treatability studies prior to issuance of the ROD);
- Extraction and treatment of groundwater at the CAPA (initiated as a treatability study prior to issuance of the ROD and continuing as an ongoing remedial action pursuant to the CD);
- Dredging of the Witco Channel (performed as part of routine maintenance for Point Comfort Operations [PCO] prior to issuance of the ROD);
- Installation of a soil cap at the CAPA with institutional controls to manage exposure to soil (completed prior to issuance of the ROD);
- Removal of Building R-300 at the CAPA (completed prior to issuance of the ROD);
- Natural recovery of sediments (ongoing activity);
- Institutional controls to manage exposure to finfish and shellfish (ongoing activity);

[1] Note: the map referenced in the quotation from the CD is not presented with this RAAER.

- Installation of a dense nonaqueous phase liquid (DNAPL) containment system (slurry wall vertical barrier) at the Witco Area (installed in 2006);
- Installation of soil caps at the Witco Area with institutional controls to manage exposure to soil (installed in 2006);
- Dredging of the Witco Marsh (completed in 2006);
- Removal of Marsh 14 (completed in 2013);
- Dredging of Witco Channel and Harbor (completed in 2017; Section 1.3.4);
- Removal of marsh along the eastern Causeway Cove and Mainland Shoreline No. 3 (MS3) shorelines (completed in 2017; Section 1.3.4); and
- Control of emergent marsh vegetation via herbicide application (ongoing).

The CD specifies certain performance monitoring activities to evaluate the effectiveness of the remedy. The work scopes for these activities were initially developed for the Remedial Design Reports (RDRs) and Operation, Maintenance and Monitoring Plans (OMMPs) attached to the CD. The following CD appendices govern operation, maintenance, and monitoring for ongoing activities:

- CAPA Groundwater RDR and OMMP (Appendix A);
- Former Witco Tank Farm DNAPL Containment System RDR and OMMP (Appendix B);
- North of Dredge Island Enhanced Natural Recovery RDR (Appendix C);
- Dredge Island OMMP (Appendix D);
- Witco Marsh Remediation RDR (Appendix E);
- CAPA Soils RDR and OMMP (Appendix F);
- Witco Area Soils RDR and OMMP (Appendix G);
- Lavaca Bay Sediment Remediation OMMP (Appendix H); and
- Lavaca Bay Finfish and Shellfish OMMP (Appendix I).

Approved by USEPA in 2019, the inspection and maintenance schedules were revised and are documented in *Updates to Operations, Maintenance, and Monitoring Plans* (Alcoa 2019a). As discussed in Section 1.3.2, additional activities have been performed in response to the first Five-Year Review Report by USEPA (2011).

1.3.2 Previous Remedial Activities

USEPA issued the first Five-Year Review Report in June 2011 (USEPA 2011). To address key findings from that review, the following recommendations and follow-up actions were identified and completed:

- Develop a plan to perform a focused, additional remedial measure in the area of the Dredge Island Stabilization Project to assess whether the rate of finfish and shellfish tissue recovery can be accelerated.

- Assess the statistical design of the marsh sediment monitoring program to determine whether the number and placement of samples can be modified to better capture the variability in sediment concentrations and to improve the understanding of temporal trends.
- Evaluate a smaller core sample interval closer to the sediment surface for future sediment sampling to provide more useful information about where and how methylmercury (meHg) enters the food web.
- Address the following issues related to the Dredge Island Stabilization Project:
  - Erosion of the interior side slopes of the confined disposal facility (CDF) caused by wave action of water in the CDF;
  - Erosion of the unvegetated areas of the exterior side slopes;
  - Possible damage to the northeast decant structure below the mudline;
  - Corrosion of metal portions of the decant structures; and
  - Vegetation within the stone armor on the exterior side slopes.

1.3.3 Discussion of Explanation of Significant Differences and Preliminary Close Out Report

On May 23, 2007, USEPA published a notice that an Explanation of Significant Differences (USEPA 2007a) had been signed for the Site. The Explanation of Significant Differences (USEPA 2007a) indicated that enhanced natural recovery north of Dredge Island was no longer a necessary component of remedial action for the Site. Alcoa was to continue monitoring mercury levels in fish and marsh sediment on an annual basis and report the results in the annual RAAER. USEPA and the Texas Commission on Environmental Quality (TCEQ) will review each RAAER to determine if the remedy continues to be protective of human health and the environment.

The Preliminary Close Out Report for the Site was signed by USEPA on July 23, 2007 (USEPA 2007b). It documents that all construction activities required by the ROD have been completed.

1.3.4 Discussion of the Second (2016) Five-Year Review Process

USEPA prepared the Second Five-Year Review Report (USEPA 2016) during the first half of 2016 after reviewing various aspects of the Site remedy to determine its current and future protectiveness. The five-year review process included a Site visit at PCO on February 10, 2016. During that Site visit, operating facility and remediation representatives provided USEPA and TCEQ status updates on the following: plant curtailment activities and schedule; actions taken to advise the community as the curtailment progressed; and the continuity plan for all ongoing programs required by the CD. A community meeting was hosted by operating facility personnel on March 2, 2016, to provide USEPA an opportunity to describe the five-year regulatory review process and the impacts of facility curtailment on USEPA oversight of the remediation projects.

In 2016, USEPA published the Second Five-Year Review Report, which determined the following:

> the remedy for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site is protective of human health and the environment in the short term. A determination of the long-term protectiveness of the remedy for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site Alcoa (Point Comfort)/Lavaca Bay Superfund Site cannot be made at this time until further information is obtained. This five-year review report specifies the actions that need to be taken for EPA to determine the long-term remedy protectiveness. (USEPA 2016, cover letter)

The following actions were identified in the Second Five-Year Review Report (USEPA 2016) as needing to be completed to provide sufficient information for USEPA to make a determination of long-term remedy protectiveness:

- Conduct studies to evaluate site-specific marsh conditions where enhanced methylation and uptake can occur. These studies were reported to USEPA in *Final Lavaca Bay Methylation Special Study – Phase 2. Study 4 – Update the Understanding of Methylation Processes and Uptake in the Closed Area – Spring 2016* (Alcoa 2016a).
- Undertake studies to evaluate whether additional uptake pathways cause mercury levels in red drum in the Closed Area to remain elevated. These studies were reported to USEPA in *Final Lavaca Bay Methylation Special Study – Phase 2. Study 4 – Update the Understanding of Methylation Processes and Uptake in the Closed Area – Spring 2016* (Alcoa 2016a).
- Carry out a study to understand sediment and mercury transport from the Witco and Alcoa channels and Witco Cut to the area north of Dredge Island. These studies were reported to USEPA in *Final Report on Lavaca Bay High Resolution Water Column Monitoring Program* (Alcoa 2016b).
- Conduct a high-resolution water column sampling program in the vicinity of the Alcoa and Witco channels and MS3 to evaluate dissolved and particulate mercury levels. These studies were reported to USEPA in *Final Report on Lavaca Bay High Resolution Water Column Monitoring Program* (Alcoa 2016b).
- Use information gathered during these supplemental studies to further characterize mercury concentrations in nearshore and at-depth sediments.
- Use results from the actions in this list to update and refine the Site conceptual model and incorporate the results of the studies into a response action plan that, once implemented, would reduce mercury levels in red drum. The response action plans were presented in *Response Action Plan Witco Channel and Harbor Dredging and MS3 Excavation* (Alcoa 2016c); *Witco Channel and Harbor Dredging, MS3 Excavation and Causeway Cove Response Action Plan – Response Action Plan Addendum* (Alcoa 2016d); and *Response Action Plan Addendum 2 to the Channel and Harbor Dredging and MS3 Excavation Response Action Plan for the South MS3 Dredging Response Action* (Alcoa 2017a).

These actions and monitoring programs required by the Second Five-Year Review Report (USEPA 2016) are complete and have been reported to, and approved by, USEPA.

USEPA issued an Addendum to Second Five-Year Review Report (USEPA 2019a) on December 30, 2019, after deferring a determination of long-term remedy protectiveness in 2016. The 2019 Addendum revised the Site-wide protectiveness determination to "Protective," reflecting "new information and/or actions taken since the Second Five-Year Review completion date," and made the following revision:

> *Protectiveness Statement*: The remedy for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site is protective of human health and the environment in the short term due to the fish closure order in place to control the consumption of finfish and shellfish from the "Closed Area" of Lavaca Bay. (USEPA 2019a, p. 6)

1.3.5 Discussion of the Third (2021) Five-Year Review Process

Alcoa received USEPA's final Third Five-Year Review Report (USEPA 2021) on August 3, 2021. The report included USEPA's determination that the remedy for the Alcoa (Point Comfort)/Lavaca Bay Superfund site is protective of human health and the environment in the short term. The following actions were identified in the report as needing to be taken for the remedy to be protective over the long term:

- Implement institutional controls at the CAPA and Witco soils areas to protect the remedy and prevent potential exposures to remaining contamination.
- Continue monitoring to track progress in fish tissue mercury concentrations.
- Assess the planned ship channel improvements (e.g., the new turning basin and port in the bay area immediately next to the Site) to determine if these dredging and removal activities will affect the ongoing remedial actions.

1.3.6 Community Outreach Process

With USEPA concurrence, Alcoa developed a membership list for a Community Advisory Board (CAB) to reflect current Calhoun County demographics. The CAB met at PCO on the following dates:
March 2, 2016; November 29, 2016; May 16, 2017; May 10, 2018; and May 9, 2019.

Public outreach efforts were impacted in 2020 and 2021 due to the COVID–19 pandemic and were restricted to responding to requests from the community as they were received. The sixth CAB meeting was held virtually on October 25, 2021, and was attended by representatives from federal and state agencies, Alcoa, and the community.

1.4 CAPA Groundwater Extraction and Treatment System

The CAPA groundwater extraction and treatment system began full-scale operation in May 1998. The primary system components are four groundwater extraction wells, an air stripper that removes volatile organic compounds from the groundwater, and a series of carbon vessels that remove mercury. Ancillary piping, filters, pumps, tanks, and other elements comprise the rest of the system. The objective of the groundwater extraction system is to provide hydraulic control of that portion of the dissolved mercury plume that was believed to have contributed more than 98% of the mercury mass flux from Zone B groundwater to Lavaca Bay prior to groundwater control. A treatability test conducted in 1997 and 1998 indicated that an aggregate extraction rate of approximately 10 gallons per minute from the four extraction wells creates a cone of depression that extends parallel to the shoreline along the line of wells.

The system has operated continuously since 1998, with only minor interruptions for maintenance, troubleshooting, or power disruptions at the PCO. Detailed information for the CAPA groundwater extraction and treatment system, including the results of investigations and system design, is provided in the CAPA Focused Investigation Data Report (Alcoa 1998) and CAPA Groundwater Treatability Study Data Report (Alcoa 1999).

Operations, maintenance, and monitoring were conducted in 2021 in accordance with the CAPA Groundwater RDR, the 2003 CAPA Groundwater OMMP attached to the CD, and the 2019 OMMP updates. The various maintenance activities, operational checks, and sampling requirements are summarized in Table 3-3 of the CAPA Groundwater RDR and OMMP.

The discharge standards for the system effluent are shown in Table 3-1 of the CAPA Groundwater RDR and OMMP. A summary of the CAPA groundwater extraction and treatment system performance for 2021 is provided in Section 2.2 of this RAAER and Appendix A.

1.5 CAPA Offshore Surface Water Sampling

As discussed in the 2006 RAAER (Alcoa 2007a), the performance objective for the CAPA offshore surface water sampling component of the OMMP was achieved in 2006, and it is no longer part of the annual monitoring program.

1.6 Site Inspections

1.6.1 CAPA Soil Cap Inspections

Soils that contain mercury at concentrations greater than the applicable risk-based values were identified during the RI at the CAPA. These soils were generally associated with the area to the west of the former Building R-300 and encompassed an area of approximately 1.8 acres. The RAO for CAPA soils

was to reduce the future exposure potential of Site workers to mercury in soils at the CAPA. A clay/gravel cap was installed and then graded for stormwater drainage, and the stormwater management structures were modified to collect only surface runoff. The grading objective was met by compaction of a clay sub-grade over the entire area from approximately several inches thick at the perimeter to 1.2 feet thick at the center. Six inches of crushed limestone material was then placed over the compacted clay sub-grade.

To restrict usage of the area by plant and contractor personnel, warning signs (i.e., “do not disturb”) measuring 3-by-6-feet were placed on the north and west sides of the capped area.

An inspection and maintenance program was developed for the capped area that consists of semiannual inspections and maintenance, as required, in accordance with the CAPA Soils RDR, the 2003 CAPA Soils OMMP attached to the CD, and the 2019 OMMP updates. The main components of the inspection are as follows:

- Cap integrity (e.g., signs of vehicular traffic, burrowing, erosion);
- Vegetation growth;
- Signage integrity (e.g., upright and legible);
- Storm drains free of debris; and
- No equipment or waste storage.

All items noted during the inspections are corrected as soon as practicable.

1.6.2 Witco Area Inspections

The containment of DNAPL-containing polycyclic aromatic hydrocarbons (PAHs) and the capping of PAH-impacted soils at the Witco Area were components of the remedy as described in the CD. DNAPL and PAH-contaminated sediments and soil have been observed at several locations at the Witco Area during previous investigations. In addition, surface soils in portions of the Witco Area exhibited elevated concentrations of PAHs that exceeded RAOs associated with potential on-site worker exposure to surface soils.

Response action activities were performed from March 8 to December 29, 2006, that included the following:

- Construction of a new drainage channel, including the removal of visually impacted sediments;
- Construction of a 100-foot-long slurry wall;
- Construction of a soil cap in the former tank farm area; and
- Removal of an oil/water separator and construction of a soil cap in the former processing area.

A Construction Completion Report (Alcoa 2007b) was submitted in June 2007, and the following operations and maintenance (O&M) activities were initiated in July 2007:

- Quarterly inspections (for 2 years, annually thereafter) of the drainage channel;
- Quarterly inspections of the soil caps at the former tank farm and oil/water separator;
- Placement of signage regarding prohibition of activities at the Site;
- Inspections of the DNAPL collection sump (monthly for 6 months, quarterly thereafter until 2 years after construction, frequency to be reviewed at that time based on findings); and
- Removal of any DNAPL that collects in the sump.

Operations, maintenance, and monitoring were conducted in 2019 in accordance with the 2003 Witco Area RDRs, the 2003 Witco Area OMMPs attached to the CD, and the 2019 OMMP updates.

A memorandum was distributed to plant employees on May 7, 2019, to inform workers of upgrades made to the area, the capped area restrictions, and the disciplinary actions for not complying with the restrictions. A similar memorandum was submitted annually for review by Site workers until 2020 after the plant was closed and active operations in the area were concluded. The remaining employees continue to be made aware of the restrictions.

1.6.3 Dredge Island

Alcoa conducted an Engineering Evaluation/Cost Analysis (EE/CA) for a non-time critical removal action for Dredge Island in 1997 (Alcoa 1997). A streamlined risk evaluation, prepared as part of the EE/CA, indicated that mercury from Dredge Island could enter Lavaca Bay via erosion of mercury-contaminated soils. Based on that finding, the EE/CA documented the selection of a removal action that would minimize the potential release of mercury from the island due to either uncontrolled erosion during normal storm events or due to the effects of more intense storms (e.g., hurricanes).

The removal action was conducted between 1998 and 2001 and is referred to as the Dredge Island Stabilization Project. The project included relocating the contents of the Dredge Materials Placement Areas that contained elevated levels of mercury (approximately 523,000 cubic yards) into the Gypsum Placement Areas. In addition, the containment dikes surrounding the Gypsum Placement Areas were raised so that they would not be overtopped during a 100-year storm event (i.e., a storm event that has a probability of occurring once within 100 years). Those activities required increasing 10,500 lineal feet of dike to an approximate elevation of 30 feet mean sea level. As part of this work, most of the marshes on the north end of the island were removed. Erosion protection and runoff control structures were also installed on the island. The final design and as-built drawings for the Dredge Island Stabilization Project are contained in the *Dredge Island Removal Action Plan, Volume 4 – Phase 1 Dredge Island Stabilization Completion Report* (Alcoa 2002).

The performance objective for the Dredge Island Stabilization Project is to interrupt the potential direct exposure pathway of contaminants in soils and sediments from Dredge Island as a result of a significant storm event or uncontrolled erosion during stormwater runoff. The removal action and reconfiguration of Dredge Island was designed to achieve this objective through engineering means. The remaining tasks for Alcoa include preservation of the integrity of the reconfigured island through periodic inspections and maintenance and/or repairs, as needed.

The requirements provided in the Dredge Island OMMP include inspection of the following primary components:

- The access bridge from the mainland to the northern shore of Dredge Island;
- The 10,500 lineal feet of the Alcoa CDF containment dike;
- The storm protection on the Alcoa CDF dike exterior, including the armor layer, under-layer, and dike toe protection;
- The gravel erosion protection on the exterior dike slopes above the armor protections and the interior dike slopes above 26.5 feet (National Geodetic Vertical Datum of 1929);
- The 25-foot-long concrete emergency spillway;
- The two dredge decant structures, including the discharge structures;
- The two water stops installed in the Calhoun Port Authority (previously called the Calhoun County Navigation District) CDF dikes; and
- The road on the Alcoa CDF dikes.

Operations, maintenance, and monitoring were conducted in 2021 in accordance with the Dredge Island RDR, the 2003 Dredge Island OMMP attached to the CD, and the 2019 OMMP updates. All repair items noted on the inspections are corrected as soon as practicable. Alcoa continued to evaluate the condition of the structural steel comprising the northeast and southwest decant structures. Assessment of the northeast and southwest decant structures began during March 2019. USEPA approval, with concurrence from TCEQ, for Alcoa's proposed replacement of both structures was received via letter dated May 22, 2019 (USEPA 2019b). Design, fabrication, and installation activities continued into 2021, with construction of the replacement structures completed in October 2021.

The access bridge was damaged during Hurricane Claudette in 2003 and again during Hurricane Harvey in 2017. Dredge Island inspections have not included detailed inspections of the bridge as it is nonoperational and not relevant to the RAOs. However, Alcoa continues to maintain signage and navigational lighting to help prevent access to, and collision with, the remaining portions of the bridge.

Notice to begin field work to conduct a geotechnical evaluation of the Dredge Island Confined Disposal Facility levees and a description of the work to be performed was submitted to USEPA on November 22, 2021. Field work began on December 7, 2021, and will continue into 2022.

1.7 Routine Lavaca Bay Sediment Monitoring

A key factor in the success of the Lavaca Bay remedy is the reduction of sediment mercury concentrations through targeted sediment removal efforts, capping, enhanced natural recovery, and natural recovery. The purpose of the sediment monitoring program is to verify that source control and remedial measures have been effective in reducing sediment concentrations to acceptable levels.

As described in the Lavaca Bay Sediment Remediation OMMP, the sediment monitoring program was designed to evaluate surface sediment mercury concentrations from open water and marsh areas within the Closed Area. The boundaries of the Closed Area are defined in the Texas Department of State Health Services' order against the taking of finfish and shellfish for consumption. The open water sediment sampling protocol has been modified over time to improve its utility.

The CD requires that the open water sediment monitoring program be performed until a mean mercury concentration of less than 0.5 milligrams per kilogram (mg/kg; i.e., parts per million [ppm]) dry weight is measured in the Closed Area sediment in two consecutive years. This occurred in 2004 and 2005 when average concentrations of 0.293 ppm and 0.276 ppm, respectively, were measured in open water surface sediment samples from the Closed Area (Alcoa 2006). Thus, the performance objective of the open water sediment monitoring program established in the CD has been met. However, Alcoa has elected to continue monitoring the northern half of the open water sediment sampling grid on a voluntary basis as part of its ongoing effort to better understand trends in fish tissue concentrations in the Closed Area of Lavaca Bay.

In 2009, Alcoa decided to adjust the open water sediment monitoring from annually to even-numbered years. However, as part of an expanded sampling effort, open water locations in the northern half of the sampling grid (i.e., samples matching the even-year routine sampling) were collected in 2015. In 2016, Alcoa modified the program in the western Causeway Cove and west of Dredge Island by omitting sampling locations that have exhibited consistent recovery. In 2017, Alcoa proposed, with USEPA concurrence, to collect open water sediment samples within Causeway Cove to monitor a localized area of elevated mercury concentrations observed during the 2015 and 2016 sampling events. In 2019 and 2021, 13 sediment samples were collected from eastern Causeway Cove to continue monitoring the 10 historical open water stations and 3 supplemental eastern Causeway Cove locations that were sampled since 2017.

The CD states that the objective of the marsh performance standard is to attain an average mercury concentration in the sediment of each marsh of less than 0.25 mg/kg dry weight. Monitoring is to occur annually until the remediation goals are met for two consecutive events. If the marsh sediment monitoring data attain the remediation goal for two consecutive annual events in a given marsh, monitoring of that marsh is complete, even if monitoring of other marshes continues.

The marsh sediment sampling protocol has also been modified over time to improve its utility. Based on a review of the 2007 supplemental data presented in the Amended 2007 RAAER (Alcoa 2008), measurements of meHg and total organic carbon were added to the analytical suite for the 2008 and subsequent marsh monitoring programs. In 2011, a sampling depth of 0 to 2 centimeters (cm) was approved by USEPA to further target peak meHg concentrations. The changes are documented in the 2012 RAAER (Alcoa 2013) and prior RAAERs. All monitored marshes have met the performance standard, and marsh sediment samples were not collected in 2021.

1.8 Routine Finfish and Shellfish Monitoring

The purpose of the Lavaca Bay Finfish and Shellfish OMMP is to collect and evaluate data to determine whether the remediation goals established in the CD have been met. As discussed in Section 2.6.2, a rigorous statistical approach is used to compare the mercury concentrations of Closed Area and Adjacent Open Area red drum tissue samples and to determine when the remediation goal has been met.

The Lavaca Bay Finfish and Shellfish OMMP provides for the collection of information to assess short-term trends (either increasing, decreasing, or static) in tissue recovery and to qualitatively evaluate remedy effectiveness. The OMMP states that increasing trends, based on multiple annual events, indicate that the sediment remediation efforts are not effective at reducing tissue concentrations and would warrant consideration of additional remedial measures. Decreasing trends, also based on multiple annual events, indicate that the remedies are having the desired effects, subject to quantitative confirmation by statistical comparison of Closed Area and Adjacent Open Area red drum tissue samples. Static or fluctuating trends indicate that multiple parameters are influencing tissue concentrations, and further monitoring, with possible consideration of additional remedial measures, may be necessary.

During the fall 2021 monitoring event, Alcoa collected, delivered to the laboratory, and had analyzed 30 red drum from 10 sampling stations in the Closed Area and 30 red drum from 10 sampling stations in the Adjacent Open Area (three fish per station). The 20 stations sampled during the 2021 monitoring event were the same stations as those monitored during 2020.

Routine annual monitoring also includes the collection of juvenile blue crab samples from established shoreline marsh stations in the Closed Area and Adjacent Open Area. During the 2021 annual monitoring event, 30 juvenile blue crab samples were collected from 10 marsh stations in the Adjacent Open Area, and 30 juvenile blue crab samples were collected from 10 marsh stations in the Closed Area (three samples per station). The 20 stations sampled during the 2021 monitoring event were the same stations as those monitored during 2020.

2 ROUTINE MONITORING RESULTS

2.1 Verification of Site Conditions and Land Use

Conditions and land use within the Site remain consistent with those described in the ROD. The Texas Department of State Health Services' order against the taking of finfish and shellfish within the Closed Area remains current. Alcoa curtailed aluminum refining operations at the plant in 2016 and on December 16, 2019, announced permanent closure. Future land use will be determined according to the conditions outlined in the CD.

As described in the 2013 RAAER (Alcoa 2014), industrial development projects at and adjacent to the Calhoun Port Authority harbor have been proposed in the past. These projects have included widening and deepening the Matagorda Ship Channel and liquefied natural gas and energy-related projects. In support of Calhoun Port Authority's Liquid Docks Dredging Project and after USEPA's approval, Alcoa dredged three locations of the project area. The completion report for the program was submitted to USEPA on December 10, 2021. As future expansion or maintenance projects are planned, discussions with stakeholder entities will occur if sampling results indicate the need for subsequent dredging activities within the footprint of the project areas.

2.2 CAPA Groundwater Extraction and Treatment System

Primary monitoring results for the CAPA groundwater extraction and treatment system are provided in Appendix A, Tables 1 through 5. Selected potentiometric data are shown on Appendix A, Figures 1 through 4. Potentiometric contours for areas near Lavaca Bay use a surface water elevation for Lavaca Bay measured at a tidal gauge (gauge "CA BAY") located south of the recovery wells. In other words, contouring assumes that Lavaca Bay is in hydraulic connection with Zone B, as has been demonstrated previously due to the deep dredging of the Alcoa Channel. Graphs showing concentrations of mercury and carbon tetrachloride in samples from the recovery wells over time are provided in Appendix A, Figures 5 and 6. Concentrations of mercury and carbon tetrachloride in samples from the recovery wells have decreased over time since the groundwater extraction and treatment system has been operating. Field records and logs from system operational checks and maintenance activities are maintained.

Data collected from the treatment system indicate that it is operating efficiently and as designed. Hydraulic control has been achieved and is effectively reducing the potential for migration of mercury-impacted groundwater in Zone B west of former Building R-300 to Lavaca Bay. This conclusion is based on the evaluation of potentiometric surfaces created from water-level data collected from pumping and observation wells located at the CAPA. Concentrations of mercury and volatile organic compounds in system effluent samples were all less than the discharge standards listed in the original

CAPA Groundwater RDR and OMMP attached to the CD. Therefore, all performance standards were met during 2021.

The groundwater extraction and treatment system has essentially operated continuously since 1998. A significant volume of data has been collected since 1998, including information about system operation, system chemistry trends, and effluent characteristics. Alcoa continues to evaluate the current CAPA groundwater extraction and treatment system and will recommend revisions to USEPA if any are developed.

2.3 CAPA Offshore Surface Water Sampling

The performance objective for this component of the CAPA Groundwater OMMP was achieved in 2006, and it is no longer part of the annual monitoring program.

2.4 Site Inspections

2.4.1 Dredge Island Inspections

Dredge Island inspections were conducted semiannually in 2021. Inspection records are provided in Appendix B1. The inspections indicate that the island is in stable condition and performance objectives are met. Interior side-slope erosion caused by wave action within the CDF continues to be the most significant maintenance issue, but no repairs are required at this time to maintain the integrity of the dikes.

As discussed in Section 1.6.3, approval for Alcoa's proposed replacement of the northeast and southwest decant structures on Dredge Island was received via letter dated May 22, 2019 (USEPA 2019b). Installation activities were competed in October 2021 and a construction completion report was submitted to USEPA on August 26, 2021.

2.4.2 CAPA Soil Cap Inspections

Semiannual inspections of the CAPA soil cap were conducted during 2021. Inspection records are contained in Appendix B2. Vegetation continues to be controlled to maintain cap integrity.

2.4.3 Witco Area Inspections

Semiannual inspections were conducted at the Witco Area in 2021. Inspection records are contained in Appendix B3.

Conclusions of the 2021 inspections are as follows:

- No DNAPL has been observed in the collection sump since its installation. Several methods have been used to detect the presence of DNAPL, including the use of an interface probe, a weighted bailer, and weighted rope (to check for visual evidence of dark or oily substances).
- The soil caps are functioning well, and no damage has been observed. Mowing is performed on a regular basis.

2.5 Sediment Trends and Observations

2.5.1 Spatial and Temporal Trends in Total Mercury Sediment Concentrations from the Open Water Closed Area

The long-term sediment monitoring program includes the collection of samples from open water and marsh sediment within the Closed Area. Open water sampling has been focused in the northern part of the Closed Area since 2004[3] and marsh sediment samples were not collected as described in Section 1.7.

Figure 1 in Appendix C shows the spatial distribution of open water sediment mercury concentrations for 2021. Average THg concentrations are 0.29 mg/kg and 0.11 mg/kg in in the eastern and western areas of Causeway Cove, respectively.

To assess temporal trends in the open water sediment mercury concentrations, the Closed Area was previously divided into 10 sub-areas shown on Figure 2.5-1.[4] Surface sediment sampling depths have been modified over time (Table 2.4-1). All surface sediment samples since 2015 were collected in the 0 to 2 cm depth interval. Temporal trend analyses include samples taken after 2015 in the 0 to 2 cm depth interval and those before 2015 that were in the 0 to 5 cm depth interval (THg concentrations do not show significant variability over this depth range).

Figure 2.5-2 shows trends in the surface sediment mercury concentrations for the sampled Causeway Cove sub-areas. Causeway Cove East shows continued recovery with a half-time of 15 years. The average THg concentration measured in Causeway Cove East in 2021 is approximately 0.06 mg/kg higher than the previous sampling year (i.e., THg average was 0.23 mg/kg in 2019). However, it is within the range of the sampling that occurred in 2016 and 2017. As noted in prior RAAERs, Causeway Cove West has a longer recovery half-time due to the lower starting concentration in this area (concentrations in the western sub-areas are closer to background concentrations than the eastern sub-areas). The average THg concentration measured in Causeway Cove West in 2021 is the lowest in the period of record.

[3] Sampling locations that have exhibited consistent recovery in the western Causeway Cove were dropped from the routine sampling program in 2015, as discussed in the 2016 RAAER (Alcoa 2017b).
[4] The tenth closed sediment sub-area is represented by samples collected in the West Open Water, which is located in the bottom left side of the figure.

2.6 Routine Finfish and Shellfish Monitoring Results

This section provides an evaluation of red drum mercury monitoring data, including a review of temporal trends and a statistical comparison of mean red drum concentrations in the Closed Area and Adjacent Open Area.

2.6.1 Closed Area Red Drum Trends

Mean mercury concentrations in red drum tissue samples collected during each fall monitoring event since 1996 are provided in Table 2.6-1, and box-and-whisker plots[5] of the data are shown in Figure 2.6-1. Although the period of record includes a wide range of concentrations for each year and there is considerable overlap of concentration ranges between the years, the Closed Area trend from 2015 to 2020 was consistently downward. Red drum concentrations in 2021 are higher than 2020 but are within the range that has been observed over the last 4 years (Figure 2.6-2). While there is an increase in 2021, it may simply reflect natural environmental conditions specific to the past year and are not necessarily reflective of a change in exposure concentrations. Additional data in future years may confirm the downward trend that has been evident over the previous years.

Additionally, variability in concentration has lessened since 2015; in 2015, the difference between the highest and lowest mercury concentrations in Closed Area red drum was more than 2 micrograms per gram (µg/g) whereas in 2021, the difference was 1.03 µg/g (Figure 2.6-3). As summarized in Section 1.3.1, various remedial/removal actions have been performed (Marsh 14 removal in 2014, dredging of Witco Channel and removal of marsh along the eastern Causeway Cove and MS3 in 2017, and ongoing control of emergent marsh vegetation via herbicide application).

The geographic distribution of average mercury concentrations measured in red drum samples for each 2021 sampling station is shown in Figure 2.6-4. The highest average concentration (1.03 µg/g) was reported for the station on the northeast corner of Dredge Island (near the Witco Channel), the same location as the previous year. The next highest average concentrations (0.78 and 0.88 µg/g) were reported from stations located in Witco Harbor and north of Dredge Island, respectively, similar to the prior year. The 2021 dataset indicates an area of average red drum concentrations that are higher compared to other red drum averages in the Closed Area (Figure 2.6-5). From 2010 to 2021,[6] the highest red drum mercury concentrations were reported from the Causeway Cove and the Alcoa Channel. Future monitoring will be required to confirm this trend, as the historical record indicates that interannual variability can be significant in data from specific stations.

[5] Box-and-whisker plots were used to display the distribution of concentrations obtained each year. The box extends from the 25th to 75th percentile values of the data, with a line at the median. Whiskers or the vertical lines extend to the most extreme, non-outlier data points, representing the 10th and 90th percentile of the data. Outlier points are those past the end of the whiskers. Points inside the box represent the mean values.

[6] Stations were included for either of the following scenarios: if they were sampled in 2021; or if they were not sampled in 2021, but were sampled in 2016, 2017, 2018, and/or 2019.

To provide a perspective on how the Closed Area red drum mercury concentrations at each station compare to those of the Adjacent Open Area, the 2021 average concentration at each capture station in the Closed Area is shown as a ratio to the average of all samples from the Adjacent Open Area (Figure 2.6-6). The change in this ratio from the 2020 data is also shown in Figure 2.6-6. The highest ratios are observed primarily in the areas north of Dredge Island, Witco Harbor, and Witco Channel. These ratios at locations in Witco Harbor, and the northern and eastern margins of Dredge Island, increased by 0.18 to 0.5 between 2020 and 2021. Further monitoring is needed to understand the role of interannual variability in this 1-year change.

2.6.2 Statistical Comparison of Mean Red Drum Mercury Concentrations in the Closed and Adjacent Open Areas

In accordance with the methods prescribed in the Lavaca Bay Finfish and Shellfish OMMP, statistical analyses were conducted to determine if the hypothesis that the Closed Area red drum mercury concentrations for 2021 reached levels statistically indistinguishable from the red drum mercury concentrations in the Adjacent Open Area in 2021. The hypothesis is stated as follows:

Null Hypothesis: $[Hg_{Closed}] = [Hg_{Open}]$ or $[Hg_{Closed}] - [Hg_{Open}] = 0$

Alternative Hypothesis: $[Hg_{Closed}] > [Hg_{Open}]$ or $[Hg_{Closed}] - [Hg_{Open}] > 0$

To support the test, the Lavaca Bay Finfish and Shellfish OMMP specifies the following:

- Sample up to 30 red drum from the Adjacent Open Area and 30 red drum from the Closed Area for mercury analysis. Due to logistical constraints, this target number may not be achievable. As long as the total sample sizes from each area are reasonably close to the target, the statistical test can accommodate the variability from the ideal target sample size.
- Evaluate assumptions of normality using normal quantile plots and a Kolmogorov-Smirnov goodness-of-fit test. Evaluate equality of variance using a Bartlett test.
  - Transformations to the data should be made as appropriate. If the data are better fitted to a log-normal distribution, a logarithmic transformation may be appropriate prior to conducting the means testing. Quantile plots and a Kolmogorov-Smirnov goodness-of-fit test will be used to determine whether the untransformed or transformed data are more appropriate for use in the means test.
- If data are normally distributed, conduct a parametric means test (e.g., t-test). If the data are not normally distributed, conduct a nonparametric means test (Wilcoxon/Mann-Whitney or equivalent). A p-value less than 0.05 is treated as statistically significant. It indicates there is less than a 5% likelihood the null hypothesis is correct. Therefore, we reject the null hypothesis and accept the alternative hypothesis.
- Conduct a post-hoc power analysis using the variance, mean differences, and sample size from the data to establish the event-specific decision error rates.

- If necessary, discuss deviations from the statistical test assumptions.
- For years that [Hg $_{Closed}$] > [Hg $_{Open}$], the post-hoc power analysis will not inform decision-making.
- For years when [Hg $_{Closed}$] = [Hg $_{Open}$], the post-hoc power analysis will provide the probability that a false positive error might have been made. To ensure that a Type II error has not been made when the null hypothesis is not rejected, statistical test assumptions should be met, and the test power should be greater than 95%.

Sixty red drum tissue samples were analyzed for mercury in 2021: 30 from the Closed Area and 30 from the Adjacent Open Area (Appendix D1). The conformance of the distributions of the two sample sets with a theoretical normal probability distribution was evaluated visually and statistically.

Goodness-of-fit tests (Shapiro-Wilk and Kolmogorov-Smirnov) indicate that the Adjacent Open Area and Closed Area are not similarly distributed. Adjacent Open Area data better track a normal distribution, and the Closed Area data better track a log-normal distribution.

The equality of the variance of the Adjacent Open Area and Closed Area was assessed using a Levene test, which is a modern replacement for the Bartlett test. This test rejected the hypothesis of equal variance ($p = 0.00005$).

Because the Closed Area sample set does not conform to a normal distribution, the hypothesis of equal means was evaluated using the nonparametric Mann-Whitney U test in addition to a t-test. Both tests reject the null hypothesis of equal means and indicate that the mean of the Closed Area samples is higher than the mean of the Adjacent Open Area samples (Table 2.6-2; $p<0.000006$). The RAO of having the mean mercury concentrations in the Closed Area and Adjacent Open Area be comparable has not been achieved.

2.6.3 Results of 2021 Gut Content Survey

The 2021 gut content survey provided qualitative information about the biota consumed by red drum and contributed to the assessment of spatial and seasonal trends in the red drum diet. The contents of the stomachs of each red drum were removed, sorted, and identified to the extent practicable.

Legal-sized red drum (508 to 711 millimeters in total length) were collected from established and supplemental sample stations in the Closed Area and Adjacent Open Area and processed by Benchmark Ecological Services, Inc., at the clean laboratory in the Alcoa PCO facility. A detailed description of the methods for collecting red drum is provided in Appendix D1, and detailed results of the gut content survey are provided in Appendix D2.

Based on the results for 2021, the following observations can be made:

- Finfish (including hardhead catfish and mullet) were the most abundant prey item observed in fish from the Adjacent Open and Closed Areas.
- Blue crabs were observed in fish collected from all habitat types except for the Adjacent Area flats.
- The most common prey item observed in the Closed Area reefs was hardhead catfish.
- The most common gut contents from fish caught in Closed Area flats were blue crabs, hardheads, and other unidentifiable finfish, each observed twice.
- The most common prey item in fish from Adjacent Area marshes was unidentifiable finfish.
- The most common identifiable prey item in red drum from Adjacent Area flats was mullet.
- Fewer than one-third of the 60 fish sampled (18 fish) were found with gut content present in 2021. This is compared to 34 fish with gut content in 2020, 35 with gut content in 2019, and 31 with gut content in 2018.

2.6.4 Juvenile Blue Crab Analysis

Mercury concentrations are monitored in juvenile blue crabs because they are an important prey item for red drum and reflect exposure conditions in the areas where they are captured.

2.6.5 Temporal and Spatial Trends in Juvenile Blue Crab Averages

Box-and-whisker plots of the annual juvenile blue crab data from the Closed Area (Figure 2.6-7) show a long-term downward trend, evident in narrowing distributions and declining median and maximum values, with interannual variability. In the period 2017 to 2020, the difference in the mean concentrations of Closed Area and Adjacent Open Area samples has decreased from 0.8 µg/g to 0.03 µg/g. The difference in the mean concentration of Closed Area and Adjacent Open Area samples for 2021 has increased slightly to 0.04 µg/g.

Mercury concentrations in juvenile blue crab (Figure 2.6-8) exhibit a geographic pattern somewhat similar to the red drum patterns. In 2021, the highest THg concentrations in juvenile blue crab were reported in the areas north of Dredge Island, Witco Channel, and Alcoa Channel. Lower concentrations of mercury in juvenile blue crab were reported at the other Closed Area stations.

The spatial patterns in the ratios between 2021 Closed Area blue crab concentrations and the 2021 Adjacent Open Area-wide average (Figure 2.6-9) are similar to the patterns observed in red drum ratios. The highest juvenile blue crab ratios are found at locations north of Dredge Island, Witco Harbor, and the Witco and Alcoa channels. As in prior years, in 2021, stations with lower blue crab THg concentrations generally coincided with stations with lower red drum THg concentrations (Figure 2.6-10).

2.6.6 Trends at Individual Juvenile Blue Crab Stations

Juvenile blue crab samples collected over the last few years within the Closed Area show low and stable or declining mercury concentration trends relative to the Adjacent Open Area trends (Figures 2.6-11a through 2.6-11d). When compared to the annual average mercury concentration in the Adjacent Open Area over the past 3 years, juvenile blue crabs at most Closed Area stations exhibit mercury concentrations close to the Adjacent Open Area average (i.e., CLO5814, CLO5815, CLO6802,and LVB5517). Three stations exhibit some variability in mercury concentrations over the last 3 years but generally are declining (i.e., CLO5802, CLO5900, and LVB5513); at three other stations, the average mercury concentration increased in 2021 compared to 2020 (i.e., CLO5803, LVB5504, and LVB5508). Significant multiyear increases in juvenile blue crab concentrations are not observed at any Closed Area station. Continued annual sampling will further inform the understanding of long-term trends and effectiveness of marsh removal and dredging activities.

3 CONCLUSIONS

This section provides conclusions based on a comparison of 2021 monitoring data and O&M activities to performance standards, the plans for continued response actions and monitoring in 2022, and a summary of overall remedy effectiveness.

3.1 Comparison to Performance Standards

Assessment of monitoring data and O&M activities during 2021 support the following conclusions:

- The CAPA groundwater extraction and treatment system continues to effectively control the discharge of mercury to Lavaca Bay from groundwater beneath CAPA.
- The 2021 inspections of Dredge Island continue to indicate that the island is in stable condition and performance objectives are being met. Design, fabrication, and installation activities for replacement of the decant structures continued into 2021, with construction of the replacement structures completed in October 2021.
- No significant maintenance issues were noted for the CAPA soil cap.
- Inspections of the Witco Area indicate that soil caps are functioning as intended and no DNAPL has accumulated.
- Temporal trends of THg concentrations in open water sediment from the Closed Area indicate that natural recovery continues to occur.
- The increase in mean concentration of mercury measured in Closed Area red drum in 2021 (0.60 mg/kg) is part of the variability in the overall decline seen since 2015.
- The mean concentration of mercury measured in Adjacent Open Area red drum in 2021 (0.29 mg/kg) is similar to previous years, indicating that the Adjacent Open Area red drum concentrations continue to be lower than historically observed levels.
- At most stations, the mean concentrations of mercury measured in juvenile blue crab during 2021 are approaching the Adjacent Open Area average.
- The concentrations of mercury in Closed Area red drum in 2021 remain statistically elevated relative to concentrations of Adjacent Open Area red drum, although the differences in the mean concentrations of the Closed and Adjacent Open Area datasets are consistently decreasing. Restrictions for the Closed Area remain.

3.2 Planned 2022 Response Actions

In 2022, Alcoa will continue to monitor the effects of response actions conducted to date and perform O&M activities in areas where the response actions have occurred.

Public outreach efforts will continue to be impacted for as long as in-person meeting and travel restrictions remain in place. The sixth CAB meeting will be scheduled for the third quarter of 2022, and the meeting will be held virtually if necessary. All community outreach and response efforts will

continue as needed throughout the duration of the project as directed by USEPA. Implementation of institutional controls required by the CD will continue.

3.3 Continued Monitoring

Monitoring activities for 2022 will proceed according to the inspection and maintenance schedule provided in *Updates to Operations, Maintenance, and Monitoring Plans* (Alcoa 2019a).

3.4 Summary of Overall Remedy Effectiveness

Completed and ongoing remedial actions, O&M activities, and natural recovery processes have resulted in downward trends in open water and marsh sediment mercury concentrations in most parts of the Closed Area. Overall, a significant degree of sediment recovery has occurred since RI sampling began in 1996.

Although the mercury concentrations of red drum collected in the Closed Area remain statistically elevated relative to red drum collected in the Adjacent Open Area, the trend in average mercury concentrations of red drum measured in the Closed Area since 2015 is generally downward. While there is an increase in 2021, it may simply reflect natural environmental conditions specific to the past year and are not necessarily reflective of a change in exposure concentrations. Additional data in future years may confirm the downward trend that has been evident over the previous years. The trends of generally declining red drum mercury concentrations in the Closed Area are supported by similar trends in juvenile blue crab mercury concentrations.

Future monitoring programs will document the overall effectiveness of response actions, O&M activities, and institutional controls in meeting the RAOs for the Site.

4 REFERENCES

Alcoa, 1997. *Engineering Evaluation/Cost Analysis (EE/CA) for a Non-Time Critical Removal Action at the Dredge Island.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. July 1997.

Alcoa, 1998. *Chlor-Alkali Process Area Focused Investigation Data Report (Volume B6L).* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. July 1998.

Alcoa, 1999. *Chlor-Alkali Process Area Groundwater Treatability Study Data Report (Volume M3).* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. October 1999.

Alcoa, 2002. *Dredge Island Removal Action Plan, Volume 4 – Phase 1 Dredge Island Stabilization Completion Report.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. August 2002.

Alcoa, 2005. *Remedial Action Work Plan.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. August 2005.

Alcoa, 2006. *2005 Remedial Action Annual Effectiveness Report*. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 3, 2006.

Alcoa, 2007a. *2006 Remedial Action Annual Effectiveness Report*. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 30, 2007.

Alcoa, 2007b. *Construction Completion Report, Witco Area Remedial Actions*. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. June 2007.

Alcoa, 2008. *Amended 2007 Remedial Action Annual Effectiveness Report.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. October 23, 2008.

Alcoa, 2013. *2012 Remedial Action Annual Effectiveness Report.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 2013.

Alcoa, 2014. *2013 Remedial Action Annual Effectiveness Report*. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 31, 2014.

Alcoa, 2015. *2014 Remedial Action Annual Effectiveness Report.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 31, 2015.

Alcoa, 2016a. *Final Lavaca Bay Methylation Special Study – Phase 2. Study 4 – Update the Understanding of Methylation Processes and Uptake in the Closed Area – Spring 2016.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. October 2016.

Alcoa, 2016b. *Final Report on Lavaca Bay High Resolution Water Column Monitoring Program.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. October 2016.

Alcoa, 2016c. *Response Action Plan Witco Channel and Harbor Dredging and MS3 Excavation*. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. October 2016.

Alcoa, 2016d. *Witco Channel and Harbor Dredging, MS3 Excavation and Causeway Cove Response Action Plan – Response Action Plan Addendum* (Appendix C). Alcoa (Point Comfort)/Lavaca Bay Superfund Site. December 2016.

Alcoa, 2017a. *Response Action Plan Addendum 2 to the Channel and Harbor Dredging and MS3 Excavation Response Action Plan for the South MS3 Dredging Response Action.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. April 2017.

Alcoa, 2017b. *2016 Remedial Action Annual Effectiveness Report.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 2017.

Alcoa, 2019a. *Updates to Operations, Maintenance, and Monitoring Plans.* Alcoa (Point Comfort)/Lavaca Bay Superfund Site. February 2019.

Alcoa, 2019b. *2019 Remedial Action Annual Effectiveness Report*. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 23, 2020.

United States et al. v. Alcoa Inc., et al., 2005. Consent Decree for CERCLA Response Actions and Response Costs (Civil Action Number V: 04-CV-119). February.

USEPA (U.S. Environmental Protection Agency), 2001a. Record of Decision for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site. December 2001.

USEPA, 2001b. *Data Quality Objectives Decision Error Feasibility Trials Software (DEFT) – User's Guide*. EPA/240/B-01/007. September 2001.

USEPA, 2007a. *Explanation of Significant Differences for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. May 23, 2007.

USEPA, 2007b. *Preliminary Close Out Report for the Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. July 23, 2007.

USEPA, 2011. *Five-Year Review Report, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. June 2011.

USEPA, 2016. *Second Five-Year Review Report, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. June 2016.

USEPA, 2019a. *Addendum to Second Five-Year Review Report, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. December 2019.

USEPA, 2019b. Letter to: Ronald Morosky, Alcoa. Regarding: Consent Decree for CERCLA Response Actions and Response Costs, Dredge Island Decant Structures, Operations and Maintenance Update and Approval Request, Dredge Island. May 22, 2019.

USEPA, 2021. *Third Five-Year Review Report, Alcoa (Point Comfort)/Lavaca Bay Superfund Site, Calhoun County, Texas*. August 2, 2021.

TABLES

Table 2.4-1
Summary of Annual Sediment Monitoring Protocols

Year of Sample Collection	Date of RAAER	Open Water Sediment Sample Depth Interval		Marsh Sediment Sample Depth Interval		Open Water Sediment Analytes		Marsh Sediment Analytes	
		0 – 5 cm	0 – 2 cm	0 – 5 cm	0 – 2 cm	Hg	Hg, meHg, TOC	Hg	Hg, meHg, TOC
Fall 2005	March 2006	X		X		X		X	
Fall 2006	March 2007	X		X		X		X	
Fall 2007	March 2008	X		X		X		X	
Fall 2008	March 2009	X		X					X
Fall 2009	March 2010			X					X
Fall 2010	March 2011	X		X		X			X
Fall 2011	March 2012		X		X		X		X
Fall 2012	March 2013	X	X		X		X		X
N/A	March 2014								
Fall 2014	March 2015	X			X	X		X	
Fall 2015	March 2016		X		X		X		X
Fall 2016	March 2017		X		X		X		X
Fall 2017	March 2018		X		X	X			X
Fall 2019	March 2020		X			X			
N/A	March 2021								
Fall 2021	March 2022		X			X			

Notes:
Detailed sampling protocol provided in Appendix C1.
cm = centimeter
Hg = mercury
meHg = methylmercury
N/A = not applicable
TOC = total organic carbon

Table 2.6-1
Summary of Red Drum and Juvenile Blue Crab Tissue Data 1997-2021

Red Drum Sampling Event	Closed Area		Adjacent Open Area	
	Number of Samples	Mean THg (mg/kg ww)	Number of Samples	Mean THg (mg/kg ww)
4Q 1997	34	1.41	27	0.51
2001 Annual	30	1.33	15	0.49
2002 Annual	22	1.03	8	0.64
2003 Annual	29	1.09	30	0.48
2004 Annual	29	0.76	32	0.47
2005 Annual	30	0.86 *(0.87)*	36	0.48
2006 Annual	30	1.17	30	0.43
2007 Annual	30	1.29	30	0.65
2008 Annual	30	0.89 *(0.9)*	30	0.40
2009 Annual	30	0.85	30	0.38
2010 Annual	30	0.88	30	0.38
2011 Annual	30	1.17	30	0.33
2012 Annual	30	1.06	30	0.40
2014 Annual	30 *(29)*	1.14 *(1.06)*	30 *(28)*	0.45 *(0.40)*
2015 Annual	30	1.32	30	0.42
2016 Annual	30	0.75	30	0.37
2017 Annual	30	0.71	30	0.30
2018 Annual	30	0.64	30	0.27
2019 Annual	30	0.54	30	0.33
2020 Annual	30	0.42	30	0.26
2021 Annual	30	0.60	30	0.29
Juvenile Blue Crab Sampling Event	**Number of Samples**	**Mean THg (mg/kg ww)**	**Number of Samples**	**Mean THg (mg/kg ww)**
4Q 1997	49	0.59	27	0.19
2001 Annual	33	0.48	16	0.22
2002 Annual	71	0.26	26	0.11
2003 Annual	30	0.25	30	0.07
2004 Annual	31	0.14	30	0.07
2005 Annual	27	0.22	30	0.05
2006 Annual	30	0.21	30	0.08
2007 Annual	30	0.18	30	0.08
2008 Annual	30	0.16	30	0.06
2009 Annual	30	0.22	30	0.09
2010 Annual	30	0.23	30	0.09
2011 Annual	30	0.17	30	0.06
2012 Annual	30	0.14	30	0.06
2014 Annual	30	0.18	30	0.07
2015 Annual	30	0.10	30	0.04
2016 Annual	30	0.12	30	0.05
2017 Annual	30	0.14	30	0.06
2018 Annual	30	0.10	30	0.04
2019 Annual	30	0.07	30	0.04
2020 Annual	30	0.08	30	0.05
2021 Annual	30	0.10	30	0.05

Notes:
Corrections were made during the analyses performed for this 2021 RAAER. Italized values were reported in previous RAAERs.
THg = total mercury
mg/kg ww = milligrams per kilogram wet weight

Table 2.6-2
Summary of 2021 Red Drum Tissue Mercury Results

Area	Sample Size	Mean THg (mg/kg ww)[1]	Standard Deviation
Closed	30	0.60	0.300
Adjacent Open	30	0.29	0.100

Notes:
1 = Basic data are presented in Appendix D1.
THg = total mercury
mg/kg ww = milligrams per kilogram wet weight

FIGURES

Sediment Sub Group Areas

0 500 1,000 Feet

2021 RAAER

Closed Area Sediment Sub-areas

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 01/30/2022

Figure 2.5-1

\\orcas\gis\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\2021\AQ_Fig02_5_1_ClosedArea_SedimentSubGroups.mxd dnangju 1/30/2022 5:25:19 PM

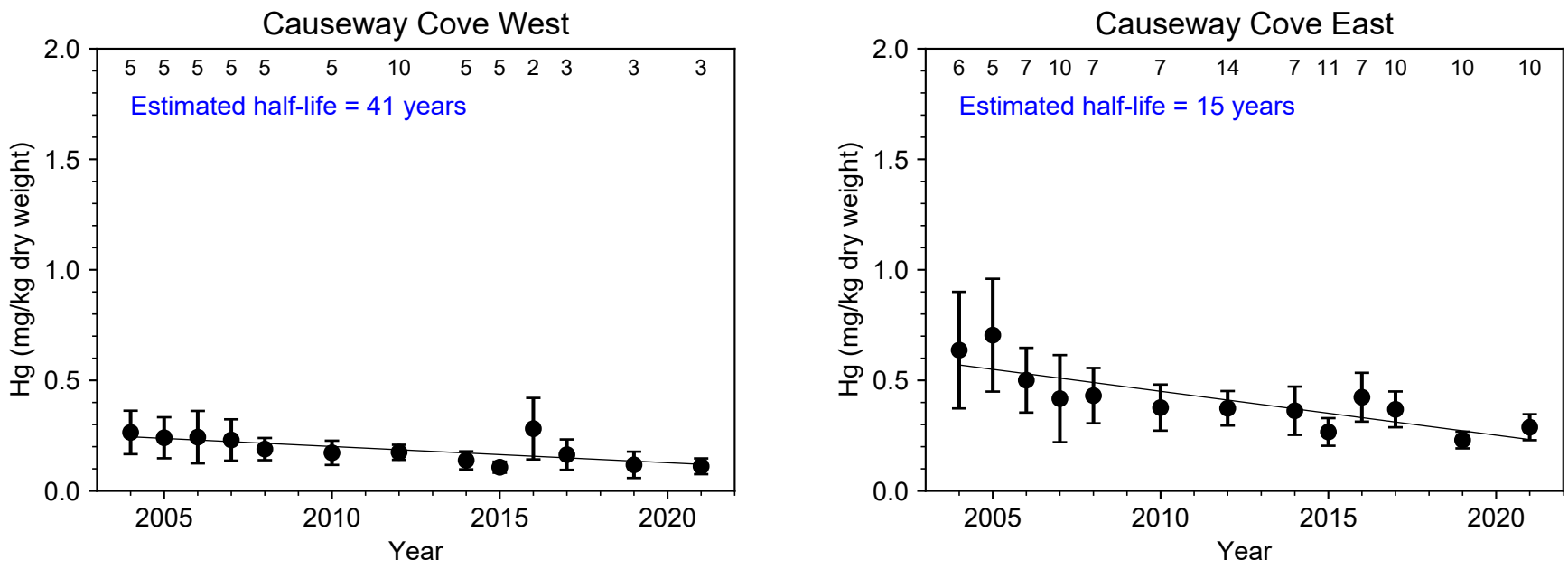


Figure 2.5-2

Closed Area Open-water Sediment Sub-area Total Mercury Trends

Notes: Non-detect values set to MDL. Surface samples 0-2 cm and 0-5 cm included in averaging.
Values at the top of the panel represent number of samples.

ANCHOR QEA

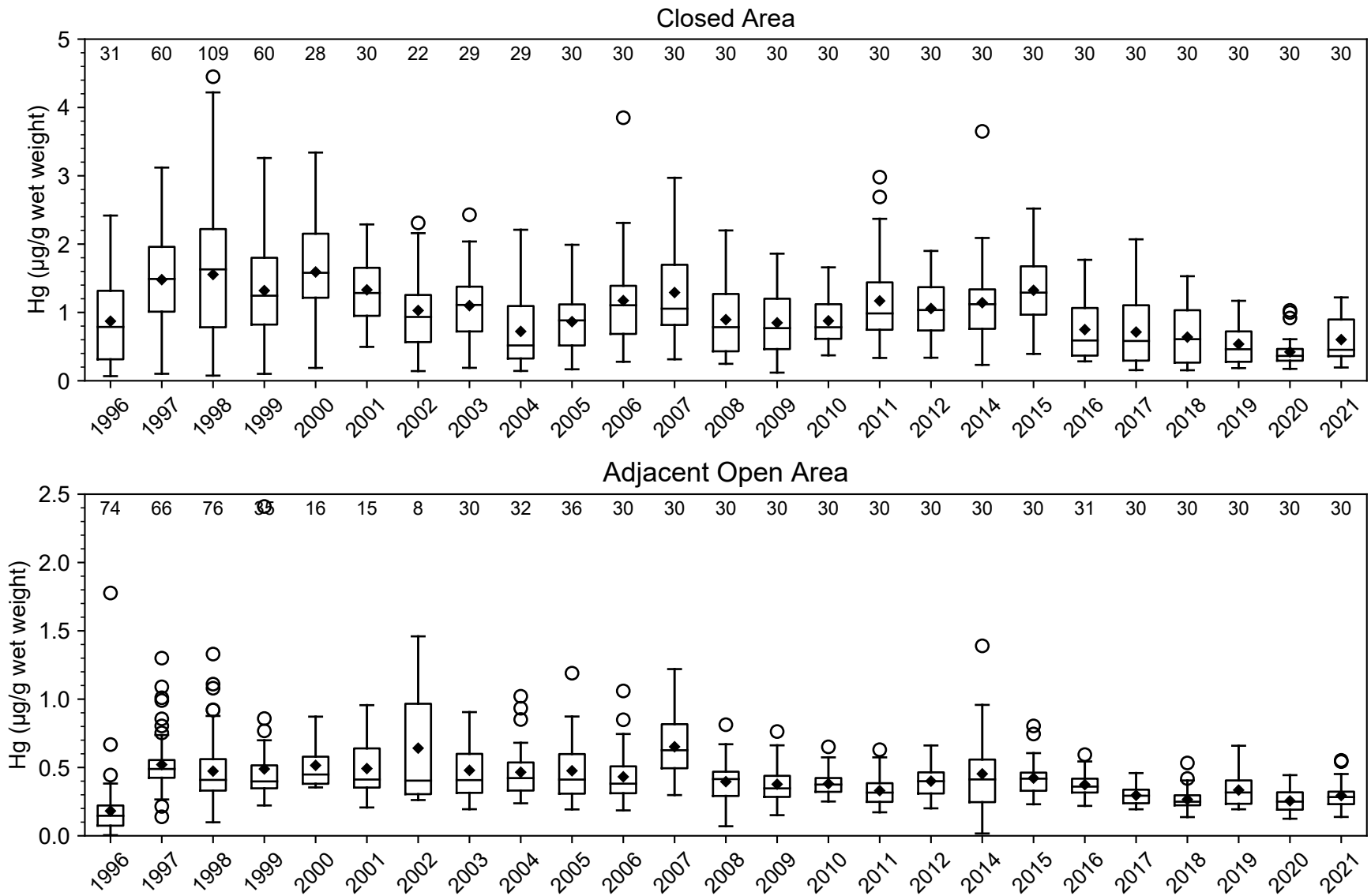


Figure 2.6-1

Lavaca Bay Red Drum Tissue Mercury Concentrations by Year, 1996-2021

The box extends from the 25th to 75th percentile values of the data, with a line at the median. Whiskers or the vertical lines extend to the most extreme, non-outlier data points, representing the 10th and 90th percentile of the data. Outlier points are those past the end of the whiskers. Points inside the box represent the means.

Prepared for Alcoa Corporation

ANCHOR QEA

EC - \\fuji\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Biota\python\RD_temporal_boxplot_Closed_and_AdjOpen.py 12/15/2021 12:54:5

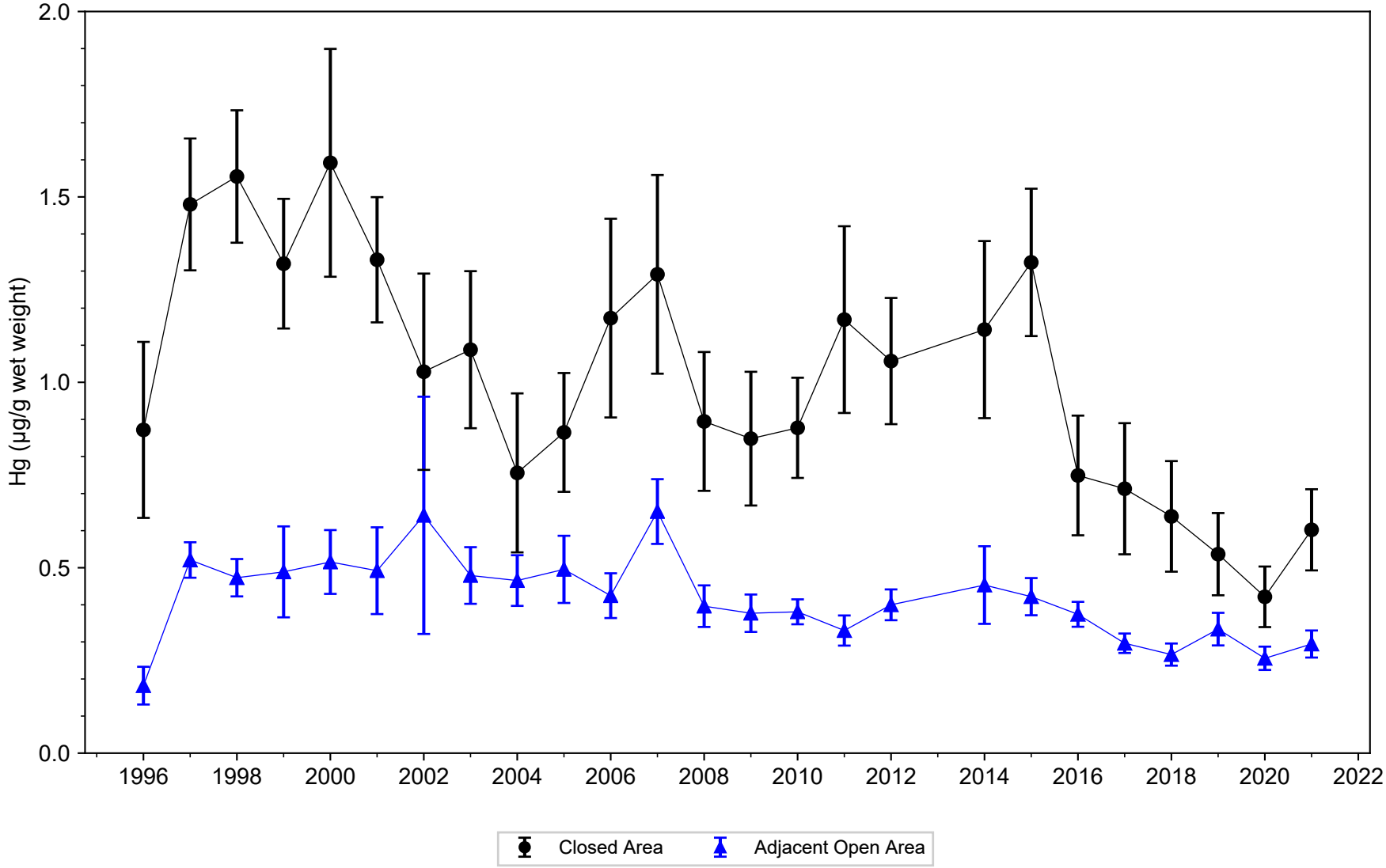


Figure 2.6-2

Average Total Mercury Concentrations in Lavaca Bay Red Drum Tissue by Year, 1996-2021

Notes: Symbols represent mean concentrations and error bars show two standard errors above and below the mean.

Prepared for Alcoa Corporation

ANCHOR QEA

EC/MM - \\fuji\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Biota\python\RD_temporal_Closed_and_AdjOpen.py 12/14/2021 15:20:38

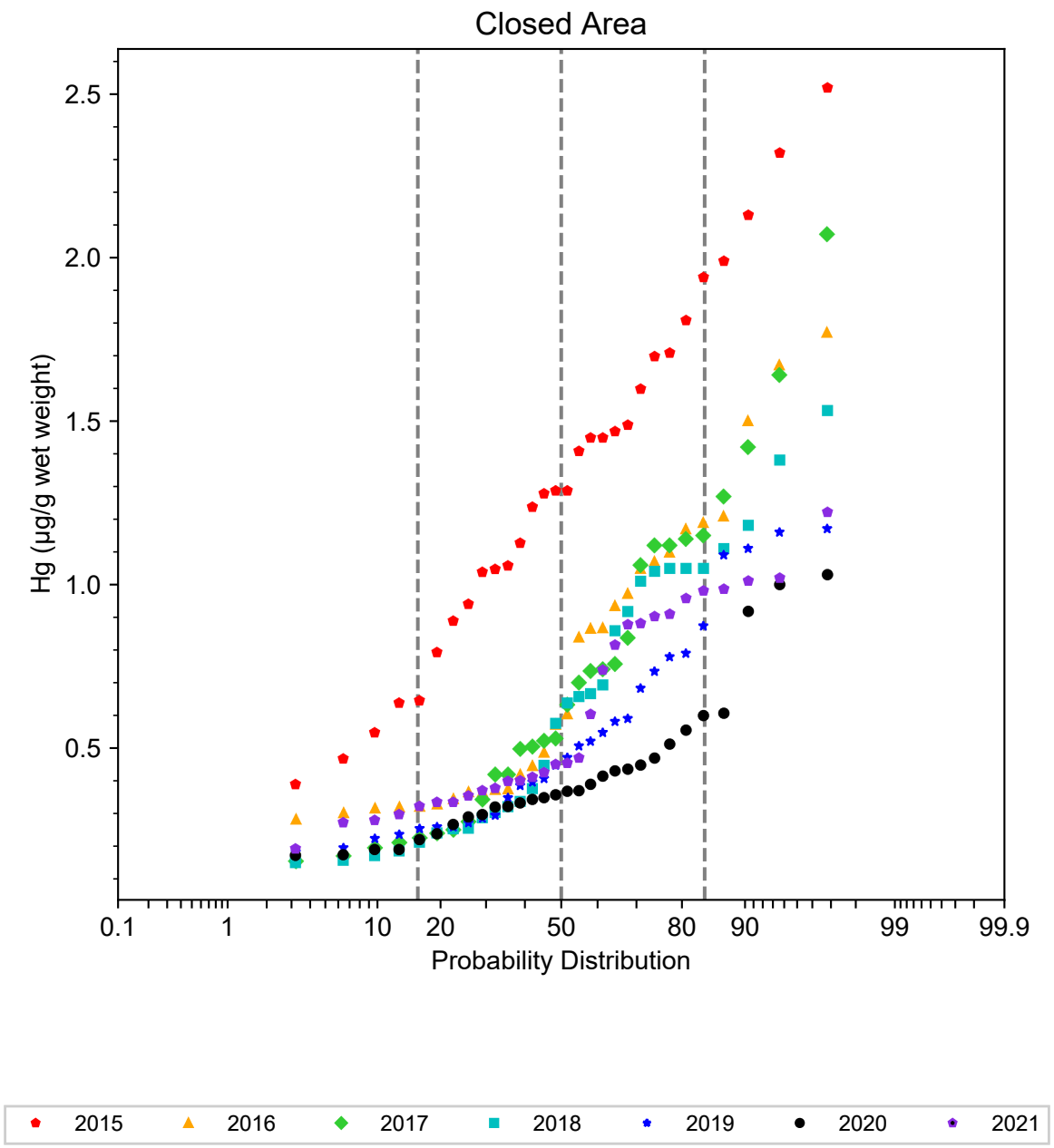
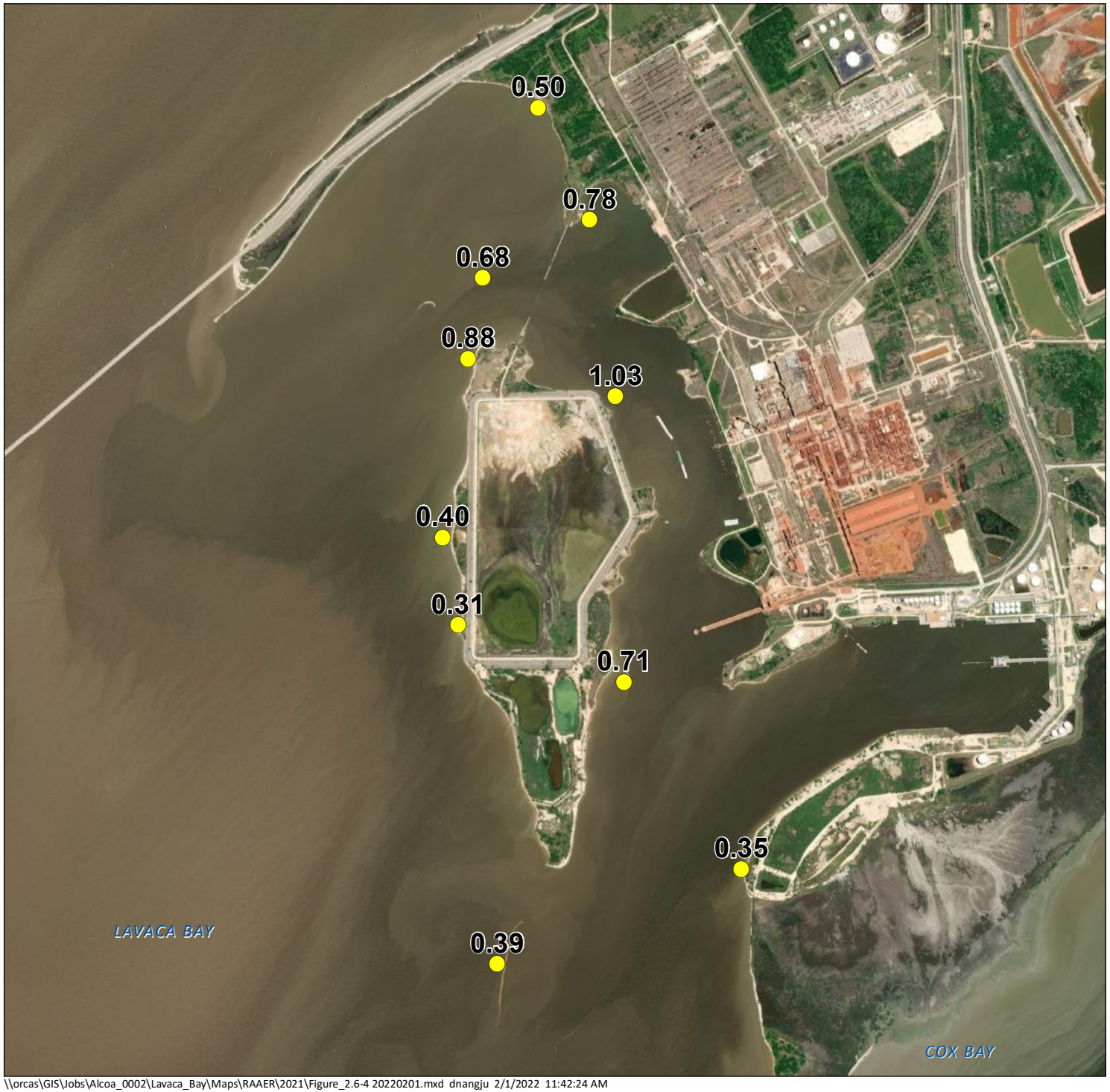


Figure 2.6-3
Lavaca Bay Red Drum Mercury Distributions from 2015 to 2021
Prepared for Alcoa Corporation

ANCHOR QEA



Red Drum Stations (2020)

0 1,000 2,000 Feet

NOTES:
1. Total mercury (Hg) results are shown in µg/g wet weight.
2. Values are the average Hg of three samples collected at each station.

2021 RAAER

Closed Area Average Red Drum Total Hg (2021)

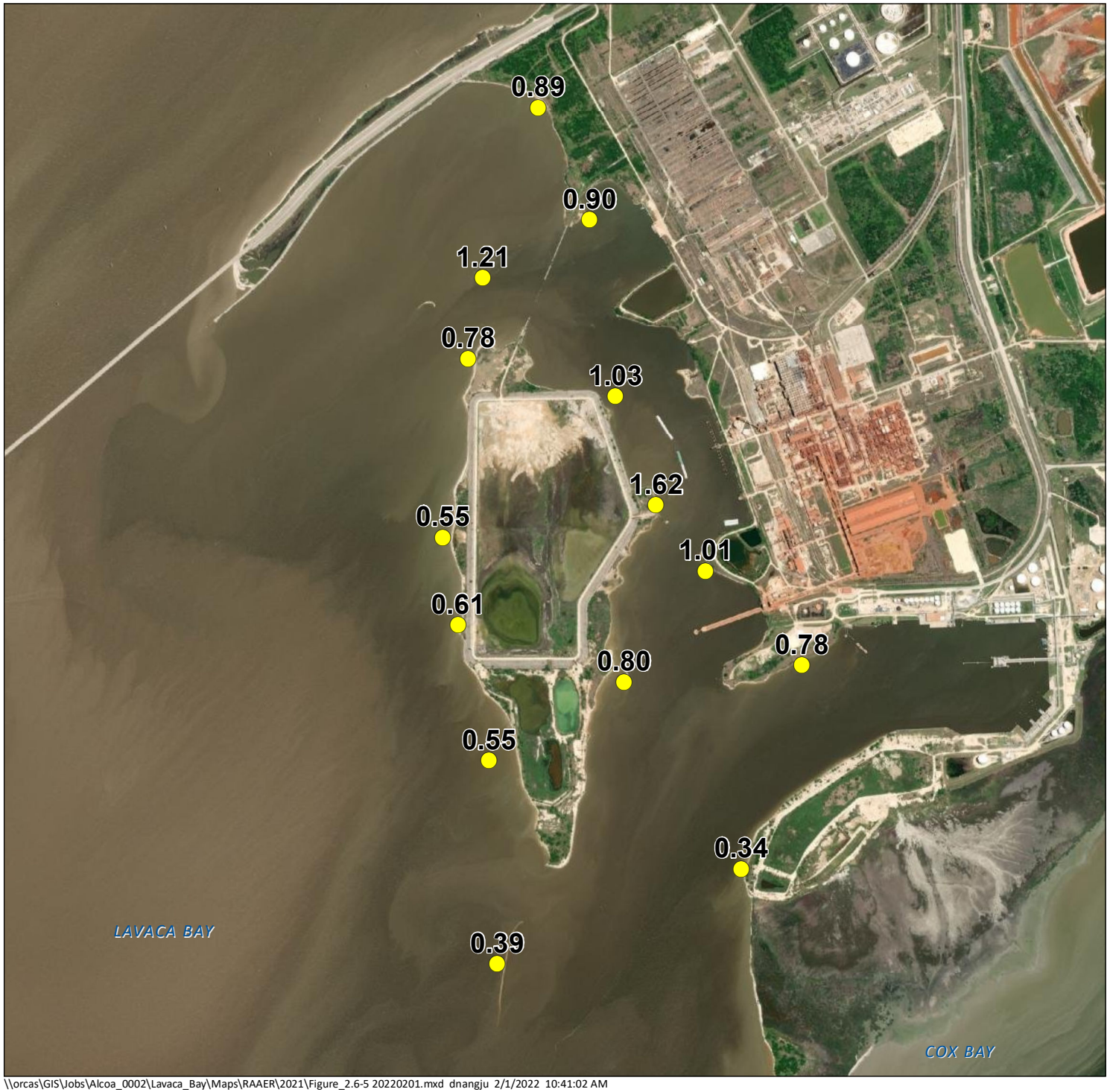
Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/01/2022

Figure 2.6-4

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\2021\Figure_2.6-4 20220201.mxd dnangju 2/1/2022 11:42:24 AM



Red Drum Stations

0 1,000 2,000 Feet

NOTES:
1. Total mercury (Hg) results are shown in µg/g wet weight.
2. Stations were included for either of the following scenarios: if they were sampled in 2021; or if they were not sampled in 2021, but were sampled in 2016, 2017, and/or 2018.

2021 RAAER

Average Red Drum Total Hg 2010-2021

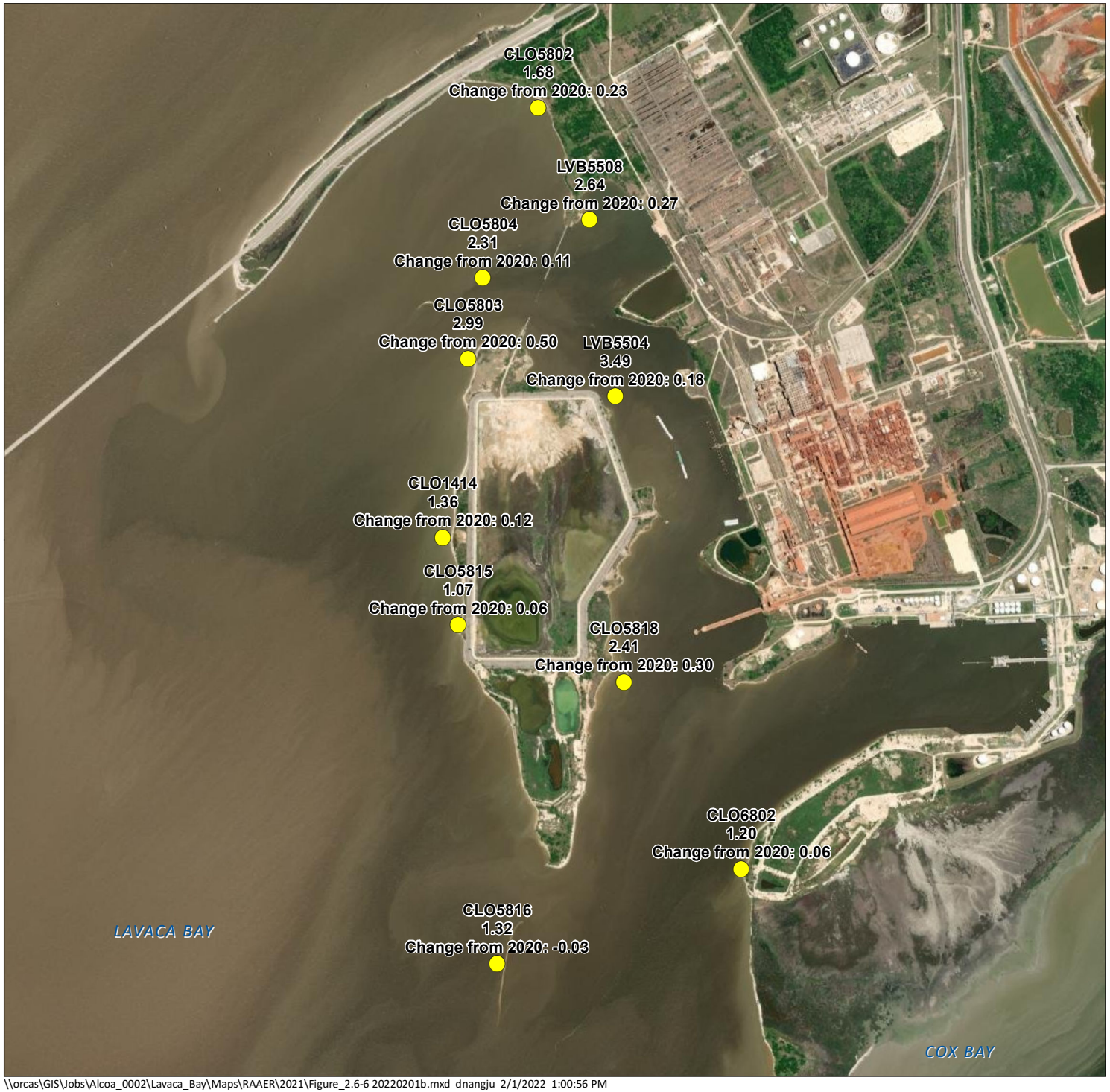
Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/01/2022

Figure 2.6-5

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\2021\Figure_2.6-5 20220201.mxd dnangju 2/1/2022 10:41:02 AM



Red Drum Stations

0 1,000 2,000 Feet

NOTES:
1. Total mercury (Hg) results are shown in µg/g wet weight.

2021 RAAER

Ratio of Closed Area Red Drum Station 2021 Average to Average in Adjacent Open Area

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/01/2022

Figure 2.6-6

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\2021\Figure_2.6-6 20220201b.mxd dnangju 2/1/2022 1:00:56 PM

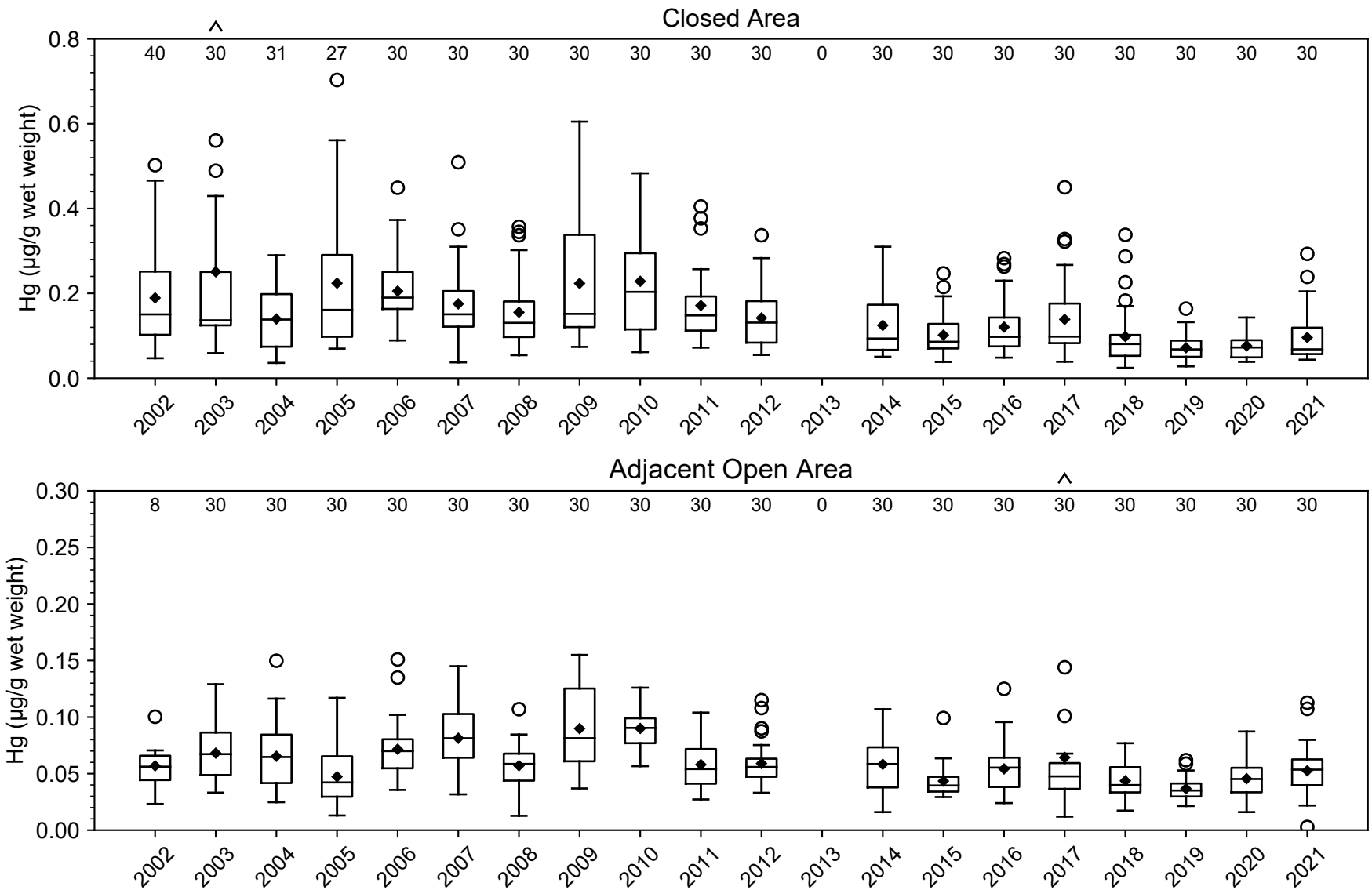
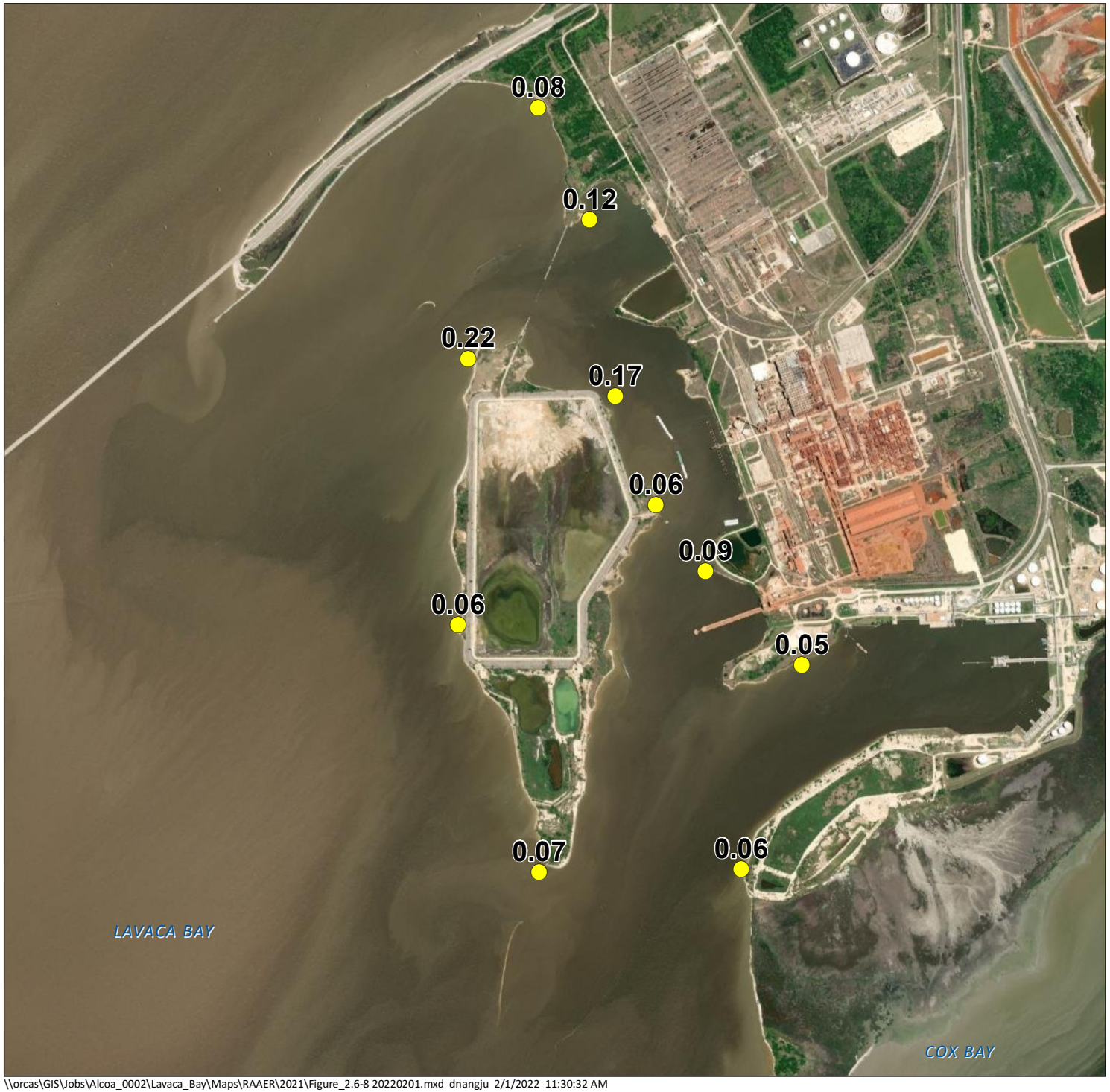


Figure 2.6-7

Lavaca Bay Juvenile Blue Crab Tissue Mercury Concentrations by Year, 2002-2021

The box extends from the 25th to 75th percentile values of the data, with a line at the median.
Whiskers or the vertical lines extend to the most extreme, non-outlier data points, representing the 10th and 90th percentile of the data.
Outlier points are those past the end of the whiskers. Points inside the box represent the means.
Prepared for Alcoa Corporation

ANCHOR QEA



Juvenile Blue Crab Stations (2021)

0 1,000 2,000 Feet

NOTES:
1. Total mercury (Hg) results are shown in µg/g wet weight.

2021 RAAER

Closed Area Average Juvenile Blue Crab Total Hg (2021)

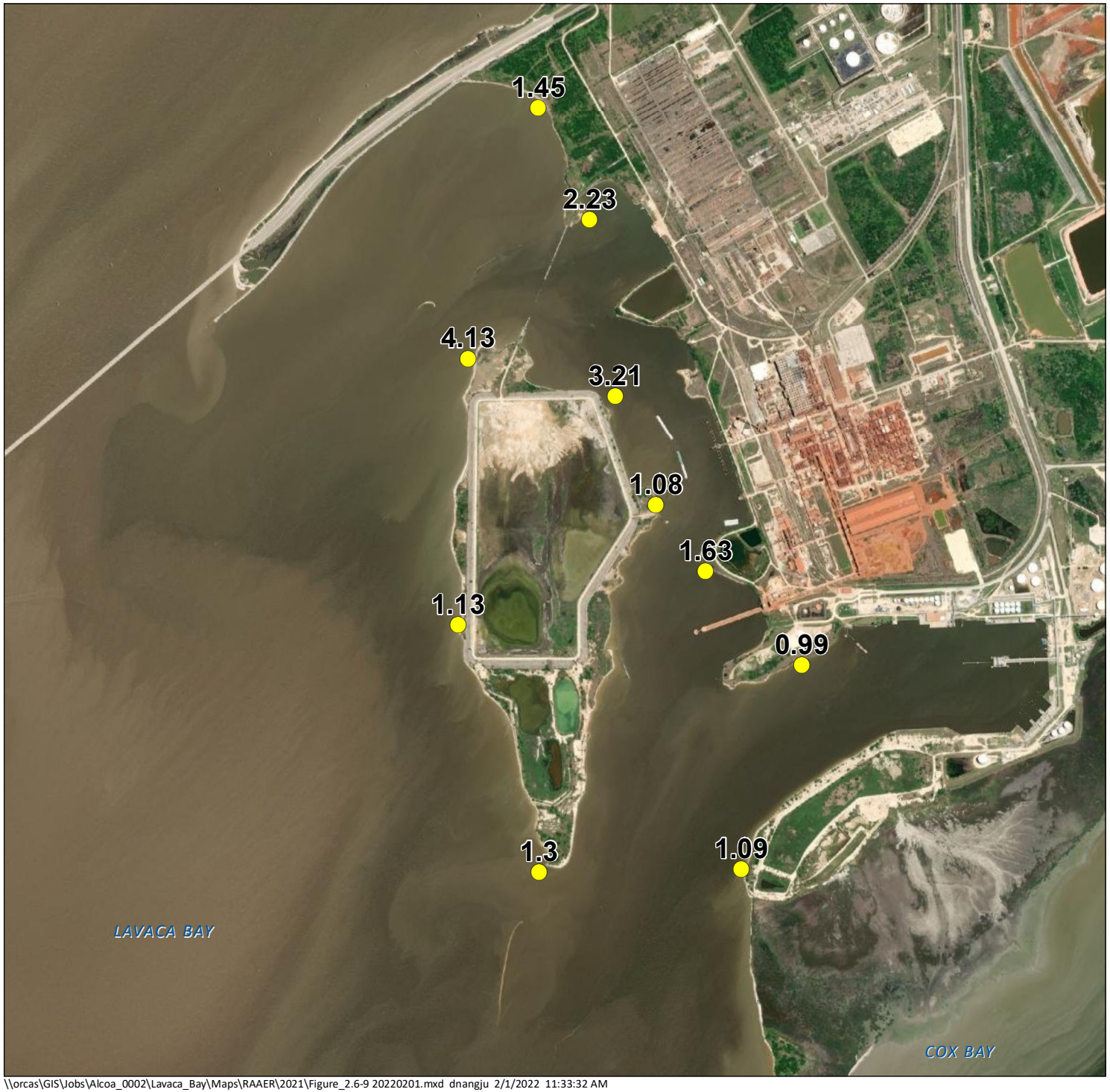
Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/01/2022

Figure 2.6-8

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\2021\Figure_2.6-8 20220201.mxd dnangju 2/1/2022 11:30:32 AM



Juvenile Blue Crab Stations

0 1,000 2,000 Feet

NOTES:
1. Total mercury (Hg) results are shown in µg/g wet weight.

2021 RAAER

Ratio of Closed Area Juvenile Blue Crab Station 2021 Average to Average in Adjacent Open Area

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/01/2022

Figure 2.6-9

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\2021\Figure_2.6-9 20220201.mxd dnangju 2/1/2022 11:33:32 AM

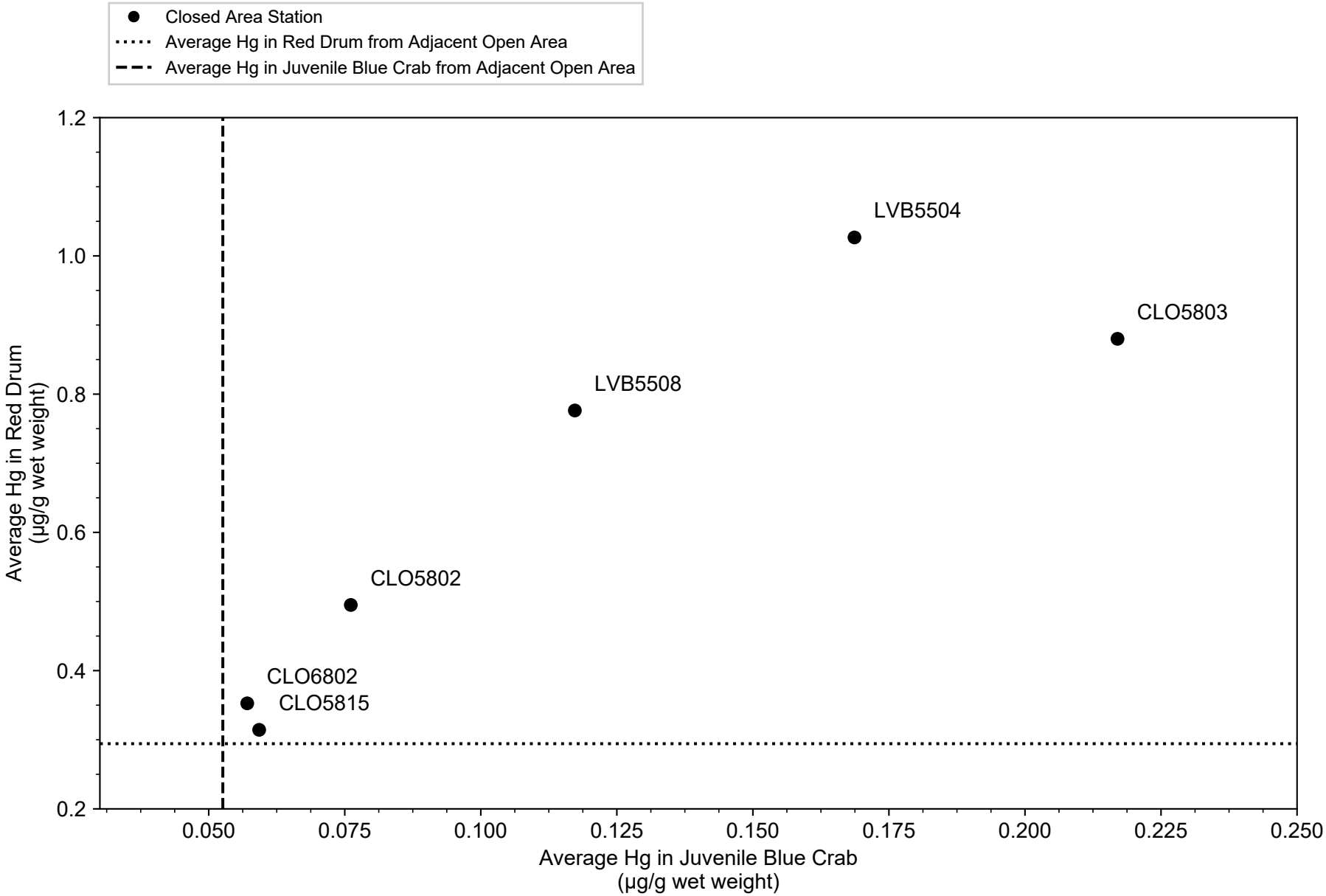


Figure 2.6-10

Comparison of Mercury in Red Drum and Juvenile Blue Crab Collected in Closed Area in 2021

Prepared for Alcoa Corporation

ANCHOR QEA

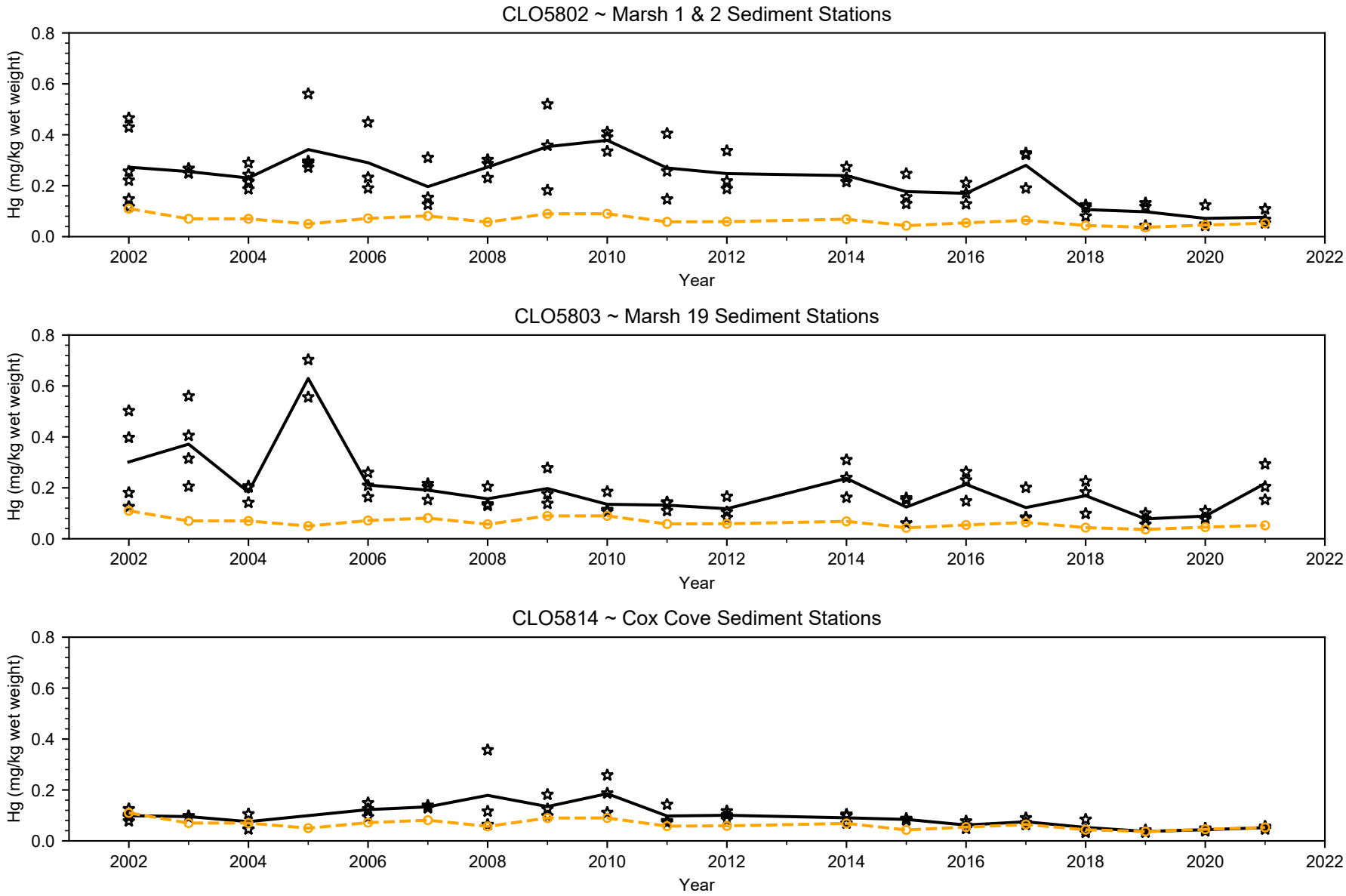


Figure 2.6-11a

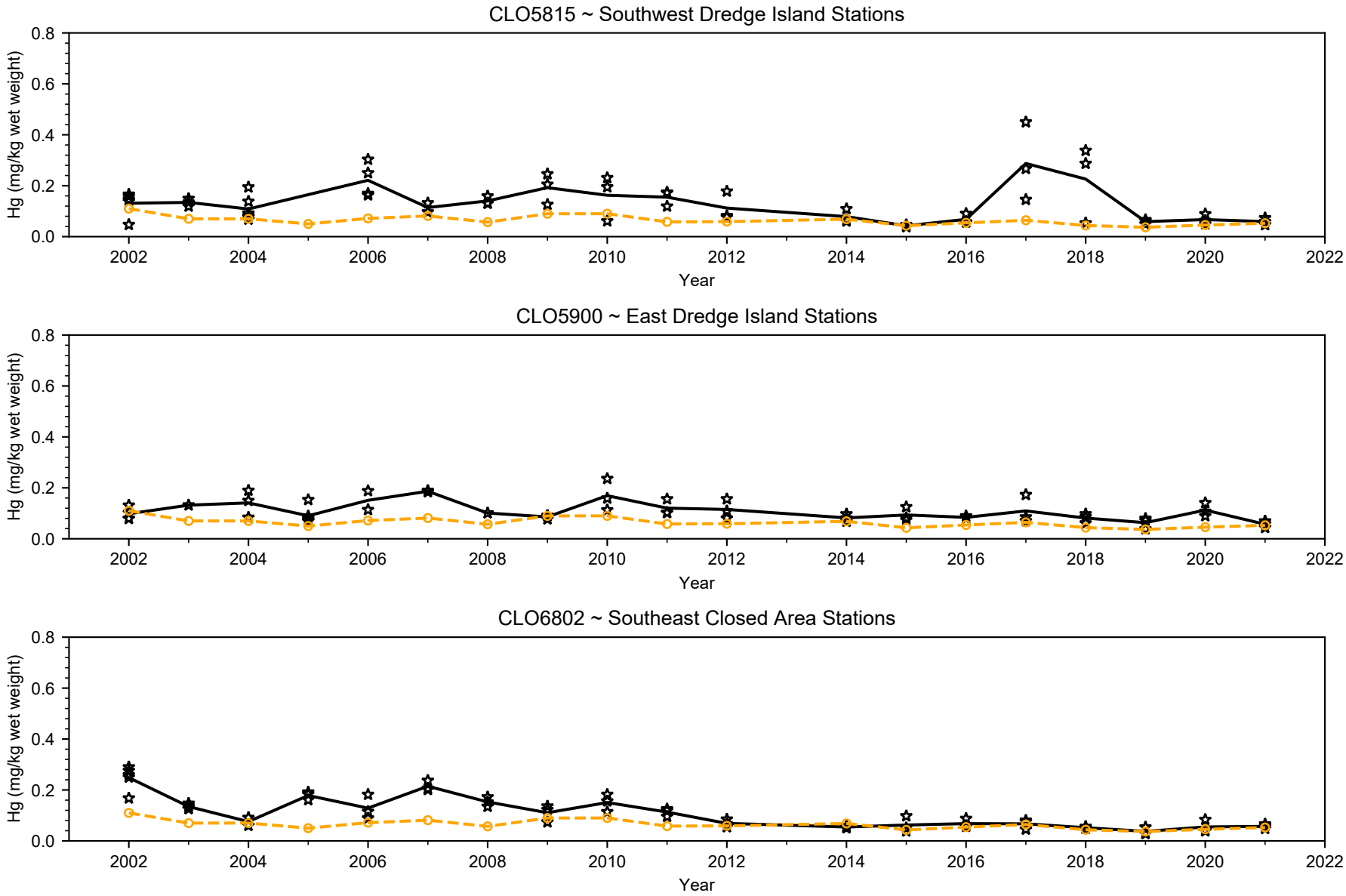
Closed Area Blue Crab Mercury Trends by Station

Closed Area Station

Average of Adjacent Open Area

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.

Prepared for Alcoa Corporation



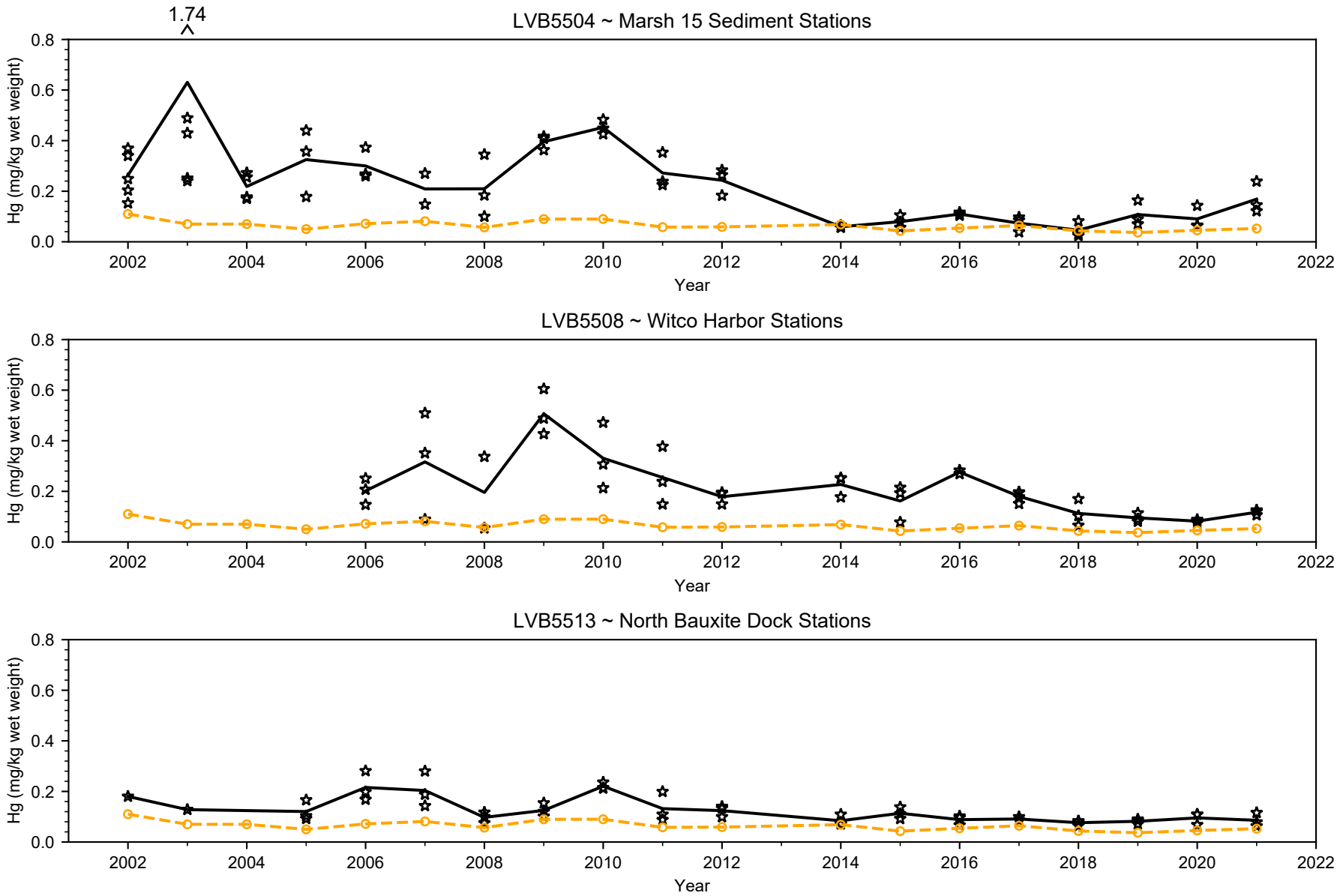
Closed Area Station
Average of Adjacent Open Area

Figure 2.6-11b

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.

Prepared for Alcoa Corporation



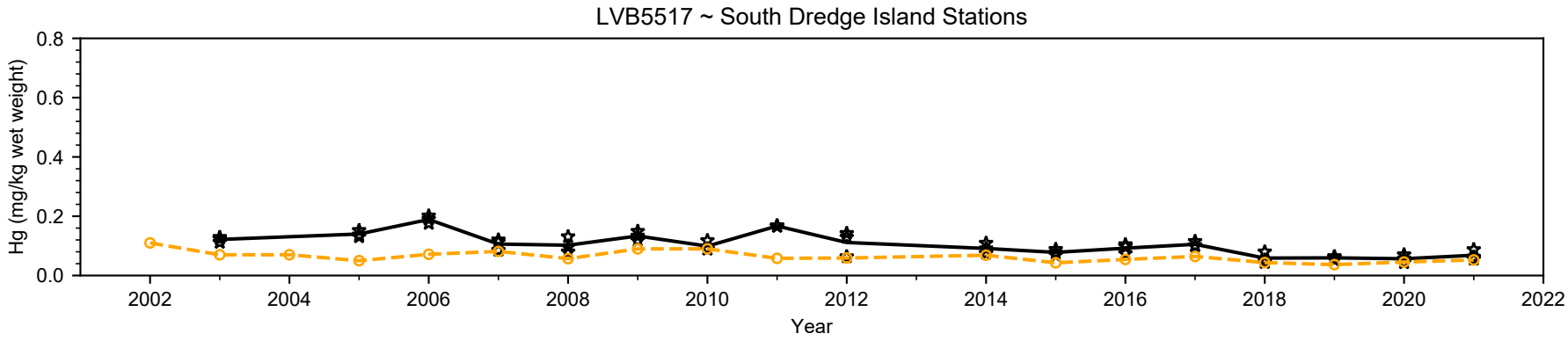
Closed Area Station
Average of Adjacent Open Area

Figure 2.6-11c

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.

Prepared for Alcoa Corporation



Closed Area Station
Average of Adjacent Open Area

Figure 2.6-11d

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.

Prepared for Alcoa Corporation

APPENDIX A
CAPA GROUNDWATER DATA

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C[7]	5/18/98		0.0019		<	0.001		<	0.001		<	0.001		<	0.001		<	0.001			
	5/29/98		0.00035		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	6/4/98		0.00021		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	6/9/98																			7.00	
	6/10/98		0.00041		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	6/18/98		0.00021		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	6/24/98		0.00027		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	7/1/98		0.00017			0.00041	J	<	0.001		<	0.002		<	0.001		<	0.001			
	7/1/98		0.0009																		Duplicate
	7/2/98																			5.17	
	7/8/98		0.00016		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		5.20	
	7/15/98		0.00018		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.00	
	7/22/98		0.00027		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	7/28/98		0.00042		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.45	
	8/5/98		0.00047		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.42	
	8/12/98		0.00042		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.52	
	8/19/98		0.00075		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	8/25/98		0.00052		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.86	
	9/2/98		-0.0007	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.73	
	9/9/98		0.00027	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.82	
	9/16/98		0.0010		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	9/23/98		0.0010		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.10	
	10/1/98		0.00076		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001			
	10/7/98		0.00090		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.12	
	10/14/98		0.00173		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.40	
	10/21/98		0.00053		<	0.001		<	0.001		<	0.002			0.0001	J	<	0.001		6.23	
	10/28/98		0.00050		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.31	
	11/4/98		0.00053		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.41	
	11/11/98		0.00007		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.45	
	11/18/98		0.00045		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.56	
	11/24/98		0.00012	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.51	
	12/2/98		0.00034		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.64	
	12/9/98		0.00038		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.85	
	12/16/98		0.00070		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.89	
	12/22/98		0.0010		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.92	
	12/29/98		0.0008			0.00028	J	<	0.001		<	0.002		<	0.001		<	0.001		5.53	
	1/6/99		0.00073		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		6.03	
	1/13/99		0.00033	J	<	0.001		<	0.001			0.00008	J	<	0.001		<	0.001		5.74	
	1/20/99																				
	1/26/99		0.00048		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		5.70	
	2/3/99		0.00058		<	0.001		<	0.001			0.001	J		0.00029	J	<	0.001		7.08	
	2/17/99		0.00078	J	<	0.001		<	0.001			0.0012	J		0.00036	J	<	0.001		7.13	
	2/24/99		0.00128		<	0.001		<	0.001			0.0019	J		0.00037	J	<	0.001		6.63	
	3/5/99		0.00159		<	0.001		<	0.001			0.0018	J		0.00036	J	<	0.001		6.65	
	3/10/99		0.00116		<	0.001		<	0.001			0.0017	J	<	0.001		<	0.001		6.68	
	3/17/99		0.00064		<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.08	
	3/24/99		0.00002	J	<	0.001		<	0.001			0.0016	J		0.000042	J	<	0.001		7.06	
	4/1/99		0.00023	J	<	0.001			0.00027	J		0.0022			0.00014	J	<	0.001		6.96	
	4/6/99		0.00020	J	<	0.001		<	0.001			0.0019	J	<	0.001		<	0.001		6.87	
	4/13/99		0.00070	J	<	0.001			0.00075	J		0.002	J	<	0.001		<	0.001		6.98	
	4/21/99		0.00120		<	0.001			0.00104			0.0018	J	<	0.001		<	0.001		6.98	
	4/28/99		0.00110		<	0.001			0.00224		<	0.002			0.00037	J	<	0.001		6.97	
	5/5/99		0.00066		<	0.001			0.00363		<	0.002			0.00029	J	<	0.001		7.00	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C Continued	5/12/99		0.00143			0.00065	J		0.00644		<	0.002		<	0.001		<	0.001		7.15	
	5/19/99		0.00169			0.00039	J		0.00482			0.00076	J	<	0.001		<	0.001		6.82	
	5/26/99		0.00135			0.00131			0.00884			0.00051	J	<	0.001		<	0.001		7.25	
	6/2/99		0.00201			0.00261			0.01224			0.00046	J	<	0.001		<	0.001		6.93	
	6/9/99		0.00181			0.00915			0.01922			0.000302	J	<	0.001		<	0.001		7.02	
	6/16/99		0.00148			0.01192			0.02667			0.00022	J	<	0.001		<	0.001		6.92	
	6/23/99		0.00228			0.0214			0.03472			0.000117	J	<	0.001		<	0.001		7.23	
	6/30/99		0.00076			0.01999			0.03766		<	0.002		<	0.001		<	0.001		6.68	
	7/14/99																			7.04	
ST-A	7/22/99																			7.82	Carbon change out
	7/28/99																			7.82	
	8/4/99																			7.23	
	8/11/99																			7.51	
	8/18/99																			6.92	
	8/25/99		0.00086			0.004364			0.000146	J	<	0.002		<	0.001		<	0.001		6.94	
	9/1/99		0.00014	J		0.00486		<	0.001		<	0.002		<	0.001		<	0.001		6.95	
	9/8/99		0.000425	J		0.003008		<	0.001		<	0.002		<	0.001		<	0.001		7.21	
	9/15/99		0.00043	J		0.002892			0.000185	J	<	0.002		<	0.001		<	0.001		7.06	
	9/22/99		0.00089			0.002616			0.000152	J	<	0.002		<	0.001		<	0.001		7.21	
	9/29/99		0.00006	J		0.003224		<	0.001		<	0.002		<	0.001		<	0.001		7.27	
	10/6/99		0.00018	J		0.002757			0.000408		<	0.002		<	0.001		<	0.001		7.49	
	10/13/99		0.00021	J		0.00291			0.000788	J	<	0.002		<	0.001		<	0.001		7.36	
	10/20/99		0.00059			0.00136			0.001111		<	0.002		<	0.001		<	0.001		7.28	
	10/27/99		0.00033	J		0.003327			0.00275		<	0.002		<	0.001		<	0.001		7.22	
	11/3/99		0.00002	J		0.003567			0.004421		<	0.002		<	0.001		<	0.001		7.61	
	11/10/99		0.00118	J		0.003112			0.00622		<	0.002		<	0.001		<	0.001		7.50	
	11/17/99		0.00089	J		0.004599			0.009552		<	0.002		<	0.001		<	0.001		7.65	
	11/23/99		0.00062	J		0.007814			0.012587		<	0.002		<	0.001		<	0.001		7.22	
	12/2/99		0.00072	J		0.012289			0.016635		<	0.002		<	0.001		<	0.001		7.14	
	12/8/99		0.00072	J		0.011109			0.017479		<	0.002		<	0.001		<	0.001		7.33	
	12/15/99		0.00041	J		0.014068			0.013601		<	0.002		<	0.001		<	0.001		7.37	
	12/22/99		0.00040	J		0.01353			0.013122		<	0.002		<	0.001		<	0.001		7.40	
	12/29/99		0.00013	J		0.010233			0.016454		<	0.002		<	0.001		<	0.001		7.00	
	1/5/00		0.00074	J		0.021707			0.025836		<	0.002		<	0.001		<	0.001		7.41	
	1/12/00		0.00011	J		0.035346			0.036077		<	0.002		<	0.001		<	0.001		7.38	
	1/19/00		0.00061	J		0.062926			0.048082		<	0.002		<	0.001		<	0.001		7.06	
	1/26/00		0.00044	J		0.07067			0.042044		<	0.002		<	0.001		<	0.001		6.86	
	2/2/00		0.00010	J		0.115509			0.052529		<	0.002		<	0.001		<	0.001		6.82	
	2/9/00		0.00014	J		0.155503			0.059467		<	0.002		<	0.001		<	0.001		7.01	
	2/16/00		0.00016	J		0.177621			0.060686		<	0.002		<	0.001		<	0.001		6.80	
	2/24/00		0.00097			0.00194		<	0.001		<	0.002		<	0.001		<	0.001		7.66	
ST-B	3/3/00		0.00026	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		8.90	Carbon change out
	3/9/00		0.00011	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.20	
	3/15/00		0.00034	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.70	
	3/22/00		0.00002	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.10	
	3/29/00		0.00030	J	<	0.001		<	0.001		<	0.002		<	0.001		<	0.001		7.05	
	4/4/00		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.58	
	4/12/00		0.00060			0.008		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	4/19/00	<	0.00020		<	0.001		<	0.001		<	0.005			0.004		<	0.001		7.06	
	4/26/00	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.60	
	5/3/00	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.57	
	5/10/00	<	0.00040		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.49	
	5/17/00	<	0.00040		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.55	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B Continued	5/24/00		0.00110		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.45	
	5/31/00	<	0.00020		<	0.001			0.003		<	0.005		<	0.001		<	0.001		6.80	
	6/7/00	<	0.00020			0.01			0.005		<	0.005		<	0.001		<	0.001		6.87	
	6/14/00	<	0.00020		<	0.001			0.011		<	0.005		<	0.001		<	0.001			
	6/21/00		0.00030		<	0.001			0.019		<	0.005		<	0.001		<	0.001			
	6/29/00	<	0.00020			0.01			0.022		<	0.005		<	0.001		<	0.001			
	7/6/00		0.00020			0.013			0.029		<	0.005		<	0.001		<	0.001		6.75	
	7/12/00	<	0.00040			0.012			0.026		<	0.005		<	0.001		<	0.001		6.57	
	7/19/00	<	0.00020			0.02			0.032		<	0.005		<	0.001		<	0.001		7.05	
	7/26/00	<	0.00020			0.026			0.041		<	0.005		<	0.001		<	0.001		6.58	
	8/2/00		0.00030			0.038			0.037		<	0.005		<	0.001		<	0.001		6.35	
	8/9/00		0.00020			0.055			0.042		<	0.005		<	0.001		<	0.001			
	8/16/00		0.00030			0.07			0.05		<	0.005		<	0.001		<	0.001		6.41	
	8/23/00		0.00030			0.076			0.051		<	0.005		<	0.001		<	0.001		6.80	
	8/29/00		0.00020			0.095			0.052		<	0.005		<	0.001		<	0.001		6.43	
ST-C	9/6/00		0.00580		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.43	Carbon change out
	9/12/00	<	0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.91	
	9/19/00	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.27	
	9/27/00		0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.12	
	10/3/00	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.97	
	10/11/00	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.21	
	10/18/00		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.88	
	10/25/00		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.95	
	11/1/00		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.13	
	11/8/00		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.18	
	11/15/00		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.40	
	11/21/00		0.00040		<	0.001			0.001		<	0.005		<	0.001		<	0.001		7.36	
	11/28/00		0.00040		<	0.001			0.002		<	0.005		<	0.001		<	0.001		7.01	
	12/6/00		0.00040		<	0.001			0.002		<	0.005		<	0.001		<	0.001		7.56	
	12/13/00		0.00030			0.001			0.002		<	0.005		<	0.001		<	0.001		6.98	
	12/20/00		0.00040			0.002			0.003		<	0.005		<	0.001		<	0.001		7.34	
	12/27/00		0.00030			0.003			0.004		<	0.005		<	0.001		<	0.001		7.64	
	1/3/01		0.00020			0.003			0.003		<	0.005		<	0.001		<	0.001		7.14	
	1/10/01		0.0004			0.007			0.005		<	0.005		<	0.001		<	0.001		7.20	
	1/17/01		0.0004			0.011			0.006		<	0.005		<	0.001		<	0.001		7.48	
	1/24/01		0.00030			0.014			0.007		<	0.005		<	0.001		<	0.001		7.27	
	1/30/01		0.00040			0.018			0.008		<	0.005		<	0.001		<	0.001		7.29	
	2/6/01		0.00030			0.021			0.009		<	0.005		<	0.001		<	0.001		7.30	
	2/14/01		0.00040			0.026			0.01		<	0.005		<	0.001		<	0.001		7.36	
	2/22/01		0.00030			0.032			0.011		<	0.005		<	0.001		<	0.001		7.40	
	2/28/01		0.00030			0.033			0.011		<	0.005		<	0.001		<	0.001		7.38	
	3/7/01		0.00630			0.039			0.013		<	0.005		<	0.001		<	0.001		7.48	
	3/15/01		0.00040			0.071			0.02		<	0.005		<	0.001		<	0.001		7.16	
	3/21/01		0.00040			0.087			0.023		<	0.005		<	0.001		<	0.001		6.89	
	3/28/01		0.00040			0.087			0.02		<	0.005		<	0.001		<	0.001		6.79	
	4/4/01		0.00050			0.12			0.025		<	0.005		<	0.001		<	0.001		6.54	
	4/11/01		0.00040			0.14			0.03		<	0.005		<	0.001		<	0.001		7.49	
ST-A	4/19/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.98	Carbon change out
	4/26/01	<	0.00020			0.0001		<	0.001		<	0.005		<	0.001		<	0.001		8.71	
	5/2/01	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.80	
	5/9/01		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.08	
	5/16/01	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.95	
	5/23/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	5/30/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.92	
	6/7/01	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.05	
	6/13/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.85	
	6/20/01	<	0.00020			0.002		<	0.001		<	0.005		<	0.001		<	0.001		7.04	
	6/27/01	<	0.00020			0.002		<	0.001		<	0.005		<	0.001		<	0.001		6.94	
	7/3/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.96	
	7/11/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.94	
	7/17/01	<	0.00200			0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	7/25/01	<	0.00020			0.18			0.01		<	0.005		<	0.001		<	0.001		6.99	
	8/1/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.01	
	8/9/01	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.93	
	8/15/01		0.00020			0.001			0.002		<	0.005		<	0.001		<	0.001		6.80	
	8/21/01	<	0.00020			0.001			0.003		<	0.005		<	0.001		<	0.001		6.90	
	8/30/01		0.00030			0.001			0.004		<	0.005		<	0.001		<	0.001		6.96	
	9/5/01		0.00020			0.002			0.005		<	0.005		<	0.001		<	0.001		6.98	
	9/14/01	<	0.00020			0.003			0.009		<	0.005		<	0.001		<	0.001			
	9/21/01	<	0.00020			0.005			0.012		<	0.005		<	0.001		<	0.001		6.94	
	9/24/01		0.00020			0.006			0.012		<	0.005		<	0.001		<	0.001		6.98	
	10/1/01	<	0.00020			0.006			0.01		<	0.005		<	0.001		<	0.001		7.01	
	10/9/01	<	0.00100			0.006			0.011		<	0.005		<	0.001		<	0.001		6.91	
	10/15/01	<	0.00100			0.008			0.011		<	0.005		<	0.001		<	0.001		6.94	
	10/22/01	<	0.00020			0.009			0.013		<	0.005		<	0.001		<	0.001		7.44	
	10/29/01		0.00050			0.014			0.013		<	0.005		<	0.001		<	0.001		7.03	
	11/5/01	<	0.00100			0.16			0.015		<	0.005		<	0.001		<	0.001		7.07	
	11/12/01	<	0.00100			0.019			0.015		<	0.005		<	0.001		<	0.001		7.51	
	11/20/01	<	0.00100			0.015			0.012		<	0.005		<	0.001		<	0.001		7.73	
	11/28/01		0.00100			0.014			0.011		<	0.005		<	0.001		<	0.001		7.30	
	12/4/01	<	0.00100			0.02			0.013		<	0.005		<	0.001		<	0.001		7.49	
	12/10/01		0.00020			0.022			0.013		<	0.005		<	0.001		<	0.001		7.44	
	12/21/01		0.00020			0.038			0.015		<	0.005		<	0.001		<	0.001		7.26	
	12/27/01		0.00030			0.046			0.015		<	0.005		<	0.001		<	0.001		7.21	
	1/2/02	<	0.00020			0.0039			0.014		<	0.005		<	0.001		<	0.001		7.20	
	1/7/02	<	0.00020			0.038			0.013		<	0.005		<	0.001		<	0.001		7.20	
	1/14/02		0.00030			0.055			0.17		<	0.005		<	0.001		<	0.001		7.14	
	1/21/02		0.00020			0.066			0.017		<	0.005		<	0.001		<	0.001		7.18	
	1/29/02		0.00030			0.066			0.017		<	0.005		<	0.001		<	0.001		7.11	
	2/4/02	<	0.00020			0.066			0.016		<	0.005		<	0.001		<	0.001		7.11	
	2/11/02	<	0.00020			0.069			0.014		<	0.005		<	0.001		<	0.001		7.15	
ST-B	2/21/02		0.07500		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.11	Carbon change out
	2/25/02		0.03100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.69	
	3/4/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.32	
	3/11/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.17	
	3/18/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.14	
	3/25/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.07	
	4/2/02	<	0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.09	
	4/8/02	<	0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.07	
	4/15/02		0.02200		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.08	
	4/22/02		0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.11	
	4/30/02	<	0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.92	
	5/6/02		0.04800		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.98	
	5/13/02		0.14		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.03	
	5/20/02	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	5/29/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.14	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B	6/3/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.11	
	6/10/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.02	
	6/18/02		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	6/24/02		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.07	
	7/1/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.05	
	7/8/02		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.13	
	7/15/02		0.00040		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.02	
	7/23/02		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	7/29/02		0.00050		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.00	
	8/5/02		0.00050		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	8/12/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.16	
	8/19/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	8/26/02		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.04	
	9/3/02	<	0.00020		<	0.001			0.001		<	0.005		<	0.001		<	0.001		7.16	
	9/11/02	<	0.00020		<	0.001			0.001		<	0.005		<	0.001		<	0.001		7.04	
	9/16/02	<	0.00020		<	0.001			0.002		<	0.005		<	0.001		<	0.001		7.06	
	9/23/02	<	0.00020		<	0.001			0.003		<	0.005		<	0.001		<	0.001		6.96	
	9/30/02	<	0.00020			0.002			0.005		<	0.005		<	0.001		<	0.001		6.99	
	10/8/02	<	0.00020			0.002			0.006		<	0.005		<	0.001		<	0.001			
	10/15/02	<	0.00020			0.002			0.006		<	0.005		<	0.001		<	0.001			
	10/22/02		0.00020			0.005			0.008		<	0.005		<	0.001		<	0.001		6.77	
	10/28/02		0.00040			0.008			0.01		<	0.005		<	0.001		<	0.001		7.13	
	11/4/02		0.00060			0.009			0.011		<	0.005		<	0.001		<	0.001		7.07	
	11/13/02	<	0.00020			0.013			0.011		<	0.005		<	0.001		<	0.001		6.80	
	11/20/02		0.00030			0.017			0.011		<	0.005		<	0.001		<	0.001		6.73	
	11/25/02		0.00020			0.018			0.013		<	0.005		<	0.001		<	0.001		6.91	
	12/2/02	<	0.00020			0.02			0.014		<	0.005		<	0.001		<	0.001		6.95	
	12/9/02	<	0.00020			0.027			0.014		<	0.005		<	0.001		<	0.001		7.20	
ST-C	12/16/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.91	Carbon change out
	12/23/02	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.22	
	1/3/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.13	
	1/6/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.04	
	1/14/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.21	
	1/22/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.43	
	1/27/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.15	
	2/3/03		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	2/11/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.22	
	2/18/03		0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.04	
	2/24/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.15	
	3/3/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.11	
	3/10/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.17	
	3/18/03		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	3/24/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.20	
	4/3/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.88	
	4/8/03	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.15	
	4/15/03		0.00060		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.12	
	4/22/03	<	0.00020		<	0.001			0.001		<	0.005		<	0.001		<	0.001		6.61	
	4/29/03	<	0.00020		<	0.001			0.001		<	0.005		<	0.001		<	0.001		7.12	
	5/5/03	<	0.00020		<	0.001			0.002		<	0.005		<	0.001		<	0.001		7.01	
	5/13/03	<	0.00020		<	0.001			0.002		<	0.005		<	0.001		<	0.001			
	5/19/03	<	0.00020		<	0.001			0.003		<	0.005		<	0.001		<	0.001		7.10	
	5/28/03	<	0.00020		<	0.001			0.003		<	0.005		<	0.001		<	0.001		7.24	
	6/2/03	<	0.00020		<	0.001			0.004		<	0.005		<	0.001		<	0.001		7.21	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C Continued	6/9/03		0.00060		<	0.001			0.004		<	0.005		<	0.001		<	0.001		6.97	
	6/17/03		0.00040		<	0.001			0.005		<	0.005		<	0.001		<	0.001		6.84	
	6/23/03		0.00030		<	0.001			0.005		<	0.005		<	0.001		<	0.001		7.06	
	6/30/03	<	0.00020		<	0.001			0.005		<	0.005		<	0.001		<	0.001		7.14	
	7/8/03	<	0.00020		<	0.001			0.005		<	0.005		<	0.001		<	0.001		7.04	
	7/14/03	<	0.00020		<	0.001			0.005		<	0.005		<	0.001		<	0.001		7.03	
	7/21/03	<	0.00020		<	0.001			0.006		<	0.005		<	0.001		<	0.001		7.14	
	7/28/03	<	0.00020			0.001			0.007		<	0.005		<	0.001		<	0.001		7.12	
	8/5/03	<	0.00020			0.003			0.008		<	0.005		<	0.001		<	0.001		6.99	
	8/11/03	<	0.00020			0.003			0.008		<	0.005		<	0.001		<	0.001		6.93	
	8/20/03	<	0.00020			0.006			0.011		<	0.005		<	0.001		<	0.001		7.10	
	8/29/03	<	0.00020			0.006			0.01		<	0.005		<	0.001		<	0.001		7.24	
	9/1/03	<	0.00020			0.006			0.01		<	0.005		<	0.001		<	0.001		8.61	
	9/8/03	<	0.0002			0.011			0.009		<	0.005		<	0.001		<	0.001		6.89	
	9/17/03	<	0.0002			0.011			0.009		<	0.005		<	0.001		<	0.001		6.95	
	9/22/03	<	0.00020			0.016			0.01		<	0.005		<	0.001		<	0.001		6.90	
	9/29/03	<	0.00020			0.017			0.01		<	0.005		<	0.001		<	0.001		6.88	
	10/6/03	<	0.00020			0.025			0.013		<	0.005		<	0.001		<	0.001		6.98	
	10/13/03	<	0.00020			0.027			0.011		<	0.005		<	0.001		<	0.001		6.92	
	10/20/03	<	0.00020			0.03			0.011		<	0.005		<	0.001		<	0.001		7.00	
	10/27/03	<	0.00020			0.033			0.01		<	0.005		<	0.001		<	0.001		7.00	
	11/3/03	<	0.00020			0.041			0.012		<	0.005		<	0.001		<	0.001		6.97	
	11/11/03		0.00030			0.036			0.01		<	0.005		<	0.001		<	0.001		6.68	
	11/17/03	<	0.00020			0.046			0.011		<	0.005		<	0.001		<	0.001		6.70	
	11/25/03	<	0.00020			0.036			0.008		<	0.005		<	0.001		<	0.001		6.95	
ST-A	12/2/03		0.00140		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.01	Carbon change out
	12/8/03		0.00170		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.04	
	12/15/03		0.00140		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.73	
	12/22/03		0.00200		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.95	
	1/1/04		0.00220		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	
	1/7/04		0.00150		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.97	
	1/13/04		0.00220		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.86	
	1/21/04		0.00180		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.85	
	1/27/04		0.00140		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	
	2/4/04		0.00170		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.88	
	2/10/04		0.00140		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.89	
	2/17/04		0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.87	
	2/23/04		0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.88	
	3/1/04		0.00080		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.88	
	3/8/04		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.10	
	3/19/04	<	0.00020			0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.32	
	3/22/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.74	
	4/2/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.87	
	4/5/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.18	
	4/12/04		0.00060		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.00	
	4/20/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.72	
	5/5/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.68	
	5/10/04		0.00040		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.56	
	5/20/04		0.00030		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.83	
	5/24/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.15	
	6/1/04	<	0.00020		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	6/8/04		0.00050		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.80	
	6/14/04		0.00070		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.67	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	6/22/04		0.00070		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.87	
	6/30/04		0.00130		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	7/7/04		0.00140		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.92	
	7/13/04		0.00060		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.00	
	7/22/04		0.00100		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.70	
	7/27/04		0.00060		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.86	
	8/2/04		0.00100		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.89	
	8/10/04		0.00120		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.73	
	8/18/04		0.00150		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.68	
	8/25/04		0.00150		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.60	
	9/3/04		0.00120		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.78	
	9/8/04		0.00140		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.79	
	9/13/04		0.00040		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.82	
	9/20/04		0.00070		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.80	
	9/27/04		0.00120		<	0.001			0.002		<	0.005		<	0.001		<	0.001		6.88	
	10/6/04		0.00170			0.001			0.002		<	0.005		<	0.001		<	0.001		6.83	
	10/11/04		0.00100			0.001			0.002		<	0.005		<	0.001		<	0.001		7.02	
	10/21/04		0.00050			0.001			0.002		<	0.005		<	0.001		<	0.001		6.79	
	10/26/04	<	0.00020		<	0.005		<	0.005		<	0.05		<	0.005		<	0.005		6.73	
	11/1/04		0.00210			0.001			0.002		<	0.005		<	0.001		<	0.001		6.77	
	11/8/04		0.00120			0.002			0.003		<	0.005		<	0.001		<	0.001		6.71	
	11/15/04		0.00160			0.003			0.004		<	0.005		<	0.001		<	0.001		6.52	
	11/22/04		0.00160			0.004			0.003		<	0.005		<	0.001		<	0.001		7.03	
ST-B	11/29/04		0.00130		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.35	Carbon change out
	12/8/04		0.00070		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.80	
	12/13/04		0.00090		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.13	
	12/20/04		0.00130		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.95	
	12/28/04		0.00080		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.87	
	1/3/05		0.0022		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.69	
	1/11/05		0.003		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.66	
	1/17/05		0.0003		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.73	
	1/25/05		0.0005		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.14	
	2/1/05		0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.60	
	2/9/05		0.0003		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.00	
	2/14/05		0.0002		<	0.005		<	0.005		<	0.005		<	0.005		<	0.005		6.94	
	2/21/05		0.0004		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.91	
	2/28/05		0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.98	
	3/7/05		0.00028		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.08	
	3/14/05	B	0.00013		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.05	
	3/21/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.84	
	3/29/05		0.00029		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.15	
	4/5/05		0.00023		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.87	
	4/11/05		0.00033		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.84	
	4/19/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.72	
	4/27/05	B	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.12	
	5/2/05	B	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.14	
	5/9/05		0.00051		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	
	5/16/05	B	0.00026		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.71	
	5/24/05		0.00051		<	0.001		J	0.0002		<	0.005		<	0.001		<	0.001		6.83	
	5/30/05		0.00074		<	0.001		J	0.0002		<	0.005		<	0.001		<	0.001		6.83	
	6/6/05		0.00035		<	0.001		J	0.0004		<	0.005		<	0.001		<	0.001		6.88	
	6/13/05	<	0.0002	B	<	0.001		J	0.0004		<	0.005		<	0.001		<	0.001		7.00	
	6/23/05	<	0.0002		<	0.001		J	0.0003		<	0.005		<	0.001		<	0.001		6.40	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B	6/27/05		0.0005		J	0.0002		J	0.0006		<	0.005		<	0.001		<	0.001		7.82	
ST-C	7/7/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.40	Carbon change out 6/29/05
	7/11/05		0.00032		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.07	
	7/18/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.82	
	7/25/05		0.00037		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.85	
	8/2/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	8/9/05	B	0.00014		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.36	
	8/15/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.68	
	8/23/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.89	
	8/29/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.80	
	9/6/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	
	9/13/05		0.00065		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	9/20/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.59	
	9/30/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.76	
	10/4/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.91	
	10/12/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.68	
	10/17/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	10/25/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.78	
	11/2/05	B	0.00011		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.79	
	11/9/05	B	0.00018		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.56	
	11/14/05		0.0004		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	11/23/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	11/29/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.68	
	12/5/05	<	0.0001		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.55	
	12/16/05	<	0.0001		<	0.001		<	0.001		J	0.0005		<	0.001		<	0.001		6.75	
	12/19/05	<	0.0001		<	0.001		<	0.001		J	0.0002		<	0.001		<	0.001		7.60	
	12/28/05	<	0.0001	Y	<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.60	
	1/5/06	B	0.0001		<	0.001		<	0.001		J	0.0002		<	0.001		<	0.001		6.63	
	1/10/06	B	0.0001		<	0.001		<	0.001		J	0.0003		<	0.001		<	0.001		6.68	
	1/17/06		0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	1/25/06	B	0.00017		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.89	
	1/31/06		0.00024		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.79	
	2/6/06	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.85	
	2/13/06	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.78	
	2/24/06	J	0.00019		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		6.42	
	2/27/06	<	0.0001		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		7.36	
	3/6/06	<	0.0001		H, <	0.0001		H, <	0.0002		H, <	0.0002		H, <	0.0002		H, <	0.0002		6.75	
	3/13/06		0.00057		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		6.77	
	3/20/06		0.00032		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		7.00	
	3/27/06	<	0.0001		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		6.66	
	4/3/06	J	0.00018		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		7.23	
	4/11/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.86	
	4/18/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.40	
	4/25/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.76	
	5/3/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.30	
	5/11/06		0.00052		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.86	
	5/17/06		0.00038		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.82	
	5/22/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		7.06	
	5/30/06	J	0.00015		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.95	
	6/5/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		7.14	
	6/12/06	B	0.00038		<	0.00025		J	0.00026		<	0.00053		<	0.0002		<	0.00032		6.81	
	6/23/06	J	0.00016		<	0.00025		J	0.00039		<	0.00053		<	0.0002		<	0.00032		6.97	
	6/27/06	J	0.00018		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		7.24	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C Continued	7/6/06	<	0.00013		<	0.00025		J	0.00048		<	0.00053		<	0.0002		<	0.00032		6.96	
	7/11/06	<	0.00013		<	0.00025		J	0.00053		<	0.00053		<	0.0002		<	0.00032		6.96	
	7/17/06	<	0.00013		<	0.00025			0.001		<	0.00053		<	0.0002		<	0.00032		7.01	
	7/24/06	B	0.00028		<	0.00025			0.001		<	0.00053		<	0.0002		<	0.00032		6.81	
	7/31/06		0.00026		J	0.00031			0.0017		<	0.00053		<	0.0002		<	0.00032		6.90	
	8/7/06		0.00022		J	0.00042			0.0017		<	0.00053		<	0.0002		<	0.00032		6.98	
	8/16/06	<	0.00013		J	0.0007			0.0024		<	0.00053		<	0.0002		<	0.00032		6.64	
	8/23/06	J	0.00018		J	0.00069			0.0026		<	0.00053		<	0.0002		<	0.00032		6.80	
	8/29/06	<	0.00013		J	0.00088			0.0029		<	0.00053		<	0.0002		<	0.00032		6.73	
	9/6/06	J	0.00017		J	0.00057			0.0022		<	0.00053		<	0.0002		<	0.00032		6.77	
	9/13/06	J	0.00017		J	0.00095			0.0027		<	0.00053		<	0.0002		<	0.00032		6.58	
	9/18/06	<	0.00013			0.001			0.0033		<	0.00053		<	0.0002		<	0.00032		6.94	
	9/26/06	<	0.00013			0.0015			0.0038		<	0.00053		<	0.0002		<	0.00032		6.88	
	10/3/06	<	0.00013			0.0017			0.0037		<	0.00053		<	0.0002		<	0.00032		6.78	
	10/9/06		0.00046			0.0015			0.0031		<	0.00053		<	0.0002		<	0.00032		6.88	
	10/17/06		0.00022		J	0.00084			0.0026		<	0.00053		<	0.0002		<	0.00032		6.58	
	10/24/06		0.00026			0.0013			0.0038		<	0.00053		<	0.0002		<	0.00032		7.06	
	11/2/06		0.00024			0.0016			0.0036		<	0.00053		<	0.0002		<	0.00032		6.67	
	11/8/06	<	0.00013			0.0015			0.004		<	0.00053		<	0.0002		<	0.00032		7.04	
	11/15/06	<	0.00013			0.0014		B	0.0035		<	0.00053		<	0.0002		<	0.00032		6.78	
	11/21/06	<	0.00013			0.0016			0.0031		<	0.00053		<	0.0002		<	0.00032		7.00	
	11/27/06		0.00034			0.0019			0.0039		<	0.00053		<	0.0002		<	0.00032		7.26	
	12/5/06		0.00071			0.0021			0.0034		<	0.00053		<	0.0002		<	0.00032		6.67	
	12/14/06	<	0.00013			0.0027			0.0037		<	0.00053		<	0.0002		<	0.00032		6.93	
	12/20/06		0.00022			0.0032			0.0034		<	0.00053		<	0.0002		<	0.00032		7.08	
	12/27/06		0.00051			0.0029			0.003		<	0.00053		<	0.0002		<	0.00032		7.04	
	1/2/07	<	0.00013			0.0026			0.0026		<	0.00053		<	0.0002		<	0.00032		6.70	
	1/11/07	<	0.00013			0.0029			0.003		<	0.00053		<	0.0002		<	0.00032		6.88	
	1/18/07	J	0.00016			0.0023			0.0022		<	0.00053		<	0.0002		<	0.00032		6.40	
	1/25/07		0.00023			0.0026			0.0025		<	0.00053		<	0.0002		<	0.00032		6.58	
	2/1/07	<	0.00013			0.0023			0.0023		<	0.00053		<	0.0002		<	0.00032		6.63	
	2/8/07		0.00025			0.003			0.0028		<	0.00053		<	0.0002		<	0.00032		6.70	
	2/13/07		0.00023			0.0026			0.0023		<	0.00053		<	0.0002		<	0.00032		6.90	
	2/20/07		0.00035			0.0045			0.0032		<	0.00053		<	0.0002		<	0.00032		6.96	
	3/1/07	<	0.00013			0.0036			0.0029		<	0.00053		<	0.0002		<	0.00032		6.65	
	3/8/07	<	0.00013			0.0039			0.0032		<	0.00053		<	0.0002		<	0.00032		6.58	
	3/16/07	<	0.00013			0.003			0.0027		<	0.00053		<	0.0002		<	0.00032		6.61	
	3/19/07	<	0.00013			0.0034			0.0032		<	0.00053		<	0.0002		<	0.00032		6.56	
	3/27/07	<	0.00013			0.0026			0.0026		<	0.00053		<	0.0002		<	0.00032		6.86	
	4/3/07	<	0.00013			0.0045			0.0031		<	0.00053		<	0.0002		<	0.00032		6.40	
	4/12/07	<	0.00013			0.0036			0.0025		<	0.00053		<	0.0002		<	0.00032		6.36	
	4/19/07	<	0.00013			0.0042			0.0024		<	0.00053		<	0.0002		<	0.00032		6.29	
	4/24/07	J	0.00013			0.005			0.0031		<	0.00053		<	0.0002		<	0.00032		6.30	
	5/1/07	<	0.00013			0.0051			0.0026		<	0.00053		<	0.0002		<	0.00032		6.80	
	5/10/07	<	0.00013			0.0032			0.0025		<	0.00053		<	0.0002		<	0.00032		6.63	
	5/18/07	<	0.00013			0.0032			0.0023		<	0.00053		<	0.0002		<	0.00032		6.50	
	5/25/07	B	0.00033			0.0038			0.0029		<	0.00053		<	0.0002		<	0.00032		5.49	
	5/31/07	B	0.00073			0.0047			0.0022		<	0.00053		<	0.0002		<	0.00032		6.51	
	6/6/07		0.00031			0.0039			0.0021		<	0.00053		<	0.0002		<	0.00032		6.32	
	6/15/07		0.00038			0.0058			0.0022		<	0.00053		<	0.0002		<	0.00032		6.19	
	6/21/07		0.00038			0.0066			0.0024		<	0.00053		<	0.0002		<	0.00032		6.90	
	6/25/07	<	0.00013			0.0056			0.0025		<	0.00053		<	0.0002		<	0.00032		6.87	
	7/6/07		0.00027			0.0053			0.0019		<	0.00053		<	0.0002		<	0.00032		6.88	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C	7/11/07		0.0002			0.0055			0.0021		<	0.00053		<	0.0002		<	0.00032		6.89	
ST-A	7/20/07		0.00096		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		7.32	Carbon change out 7/16/07
	7/23/07		0.00027		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.82	
	7/30/07		0.00027		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		7.38	
	8/6/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.48	
	8/13/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.93	
	8/20/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.38	
	8/29/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.93	
	9/5/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.92	
	9/12/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.93	
	9/20/07	J	0.00019		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.19	
	9/26/07		0.00021		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.78	
	10/1/07	J	0.00014		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.78	
	10/10/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.78	
	10/18/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.78	
	10/25/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.97	
	10/29/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.65	
	11/7/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.20	
	11/16/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		5.98	
	11/19/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.81	
	11/29/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.28	
	12/3/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.30	
	12/11/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.38	
	12/17/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.66	
	12/26/07	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.38	
	1/3/08	J	0.0014		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.99	
	1/9/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.20	
	1/14/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.35	
	1/23/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.43	
	2/1/08		0.00027		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.22	
	2/7/08		0.00023		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.47	
	2/13/08		0.00031	B	<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.22	
	2/22/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032			
	2/27/08		0.00024		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		5.68	
	3/5/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		7.47	
	3/11/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.38	
	3/20/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.33	
	3/26/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.60	
	4/4/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.68	
	4/10/08	J	0.00017		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.65	
	4/18/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.49	
	4/24/08		0.00027		<	0.00025		<	0.0002		<	0.001		J,B	0.00089		<	0.00032		6.32	
	4/28/08		0.00022		<	0.00025		<	0.0002		<	0.001		J,B	0.00049		<	0.00032		6.33	
	5/8/08		0.00021		<	0.00025		J	0.00038		<	0.001		<	0.0002		<	0.00032		6.56	
	5/15/08	J	0.00019		<	0.00025		J	0.00048		<	0.001		<	0.0002		<	0.00032		6.35	
	5/22/08		0.00021		<	0.00025		J	0.00061		<	0.001		<	0.0002		<	0.00032		6.19	
	5/28/08	<	0.00013		<	0.00025		J	0.00071		<	0.001		<	0.0002		<	0.00032		6.05	
	6/4/08	<	0.00013		<	0.00025		<	0.0002		<	0.001		<	0.0002		<	0.00032		6.96	
	6/11/08	<	0.00013		<	0.00025		J	0.00097		<	0.001		<	0.0002		<	0.00032		6.88	
	6/20/08	<	0.00013		<	0.00025			0.0011		<	0.001		<	0.0002		<	0.00032		6.88	
	6/27/08		0.00049		<	0.00025			0.0012		<	0.001		<	0.0002		<	0.00032		6.76	
	7/2/08	<	0.00013		<	0.00025			0.0013		<	0.001		<	0.0002		<	0.00032		6.75	
	7/8/08	J	0.00016		<	0.00025			0.0013		<	0.002		<	0.0002		<	0.00032		6.75	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	7/14/08		0.00033		<	0.00025			0.0014		<	0.002		<	0.0002		<	0.00032		7.07	
	7/22/08	J	0.00016		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.88	
	7/31/08	<	0.00013			0.0011			0.0016		<	0.002		<	0.0002		<	0.00032		6.74	
	8/4/08		0.00021		J	0.00083			0.0021		<	0.002		<	0.0002		<	0.00032		6.74	
	8/11/08	<	0.00013			0.0011			0.0019		<	0.002		<	0.0002		<	0.00032		6.34	
	8/21/08		0.00026			0.0018			0.002		<	0.002		<	0.0002		<	0.00032		6.74	
	8/25/08		0.00028			0.0036			0.0018		<	0.002		<	0.0002		<	0.00032		6.55	
	9/4/08		0.00051			0.033			0.0033		<	0.002		<	0.0002		<	0.00032		6.77	
	9/8/08		0.00038			0.057			0.005		<	0.002		<	0.0002		<	0.00032		6.74	
	9/19/08	<	0.00013			0.065			0.0071		<	0.002		<	0.0002		<	0.00032		6.67	
	9/25/08	<	0.00013			0.09			0.0089		<	0.002		<	0.0002		<	0.00032		6.93	
ST-B	10/3/08		0.00072			0.0017		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.64	Carbon change out 10/2/08
	10/9/08		0.00086		J	0.00096		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.64	
	10/13/08		0.00091		J	0.00059		<	0.0002		<	0.002		<	0.0002		<	0.00032		7.01	
	10/22/08		0.00071		J	0.00062		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.95	
	10/27/08		0.00093		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.95	
	11/6/08		0.00048		J	0.0007		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.93	
	11/14/08		0.00038		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.44	
	11/21/08		0.00027		J	0.00043		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.93	
	11/26/08		0.00055		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.66	
	12/3/08		0.00032		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.77	
	12/11/08		0.00029		J	0.00044		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.60	
	12/19/08		0.00025		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.90	
	12/22/08		0.00033		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		7.01	
	12/31/08		0.00022		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.84	
	1/7/09		0.000419		U	0.0005		U	0.0005		J	0.00076		U	0.0006		U	0.0005		6.70	ALS Laboratory Group (2009)
	1/13/09		0.00026		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.97	
	1/23/09		0.00119		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.97	
	1/29/09		0.000288		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.07	
	2/4/09		0.000282		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.04	
	2/10/09	J	0.00009		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.72	
	2/19/09	J	0.000091		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.59	
	2/26/09	J	0.000079		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.98	
	3/4/09	J	0.0016		J	0.0017		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.77	
	3/10/09	J	0.00012		J	0.0022		J	0.00069		U	0.0005		U	0.0006		U	0.0005		6.90	
	3/19/09	J	0.000057		J	0.0025		J	0.00079		U	0.0005		U	0.0006		U	0.0005		6.60	
	3/26/09	J	0.000191		U	0.0005		J	0.0013		U	0.0005		U	0.0006		U	0.0005		6.65	
	4/2/09		0.000213			0.0072		J	0.0018		U	0.0005		U	0.0006		U	0.0005		7.11	
	4/7/09	J	0.000196			0.0074		J	0.0018		U	0.0005		U	0.0006		U	0.0005		6.61	
	4/17/09	J	0.000155			0.0099		J	0.0024		U	0.0005		U	0.0006		U	0.0005		6.75	
	4/23/09		0.00021			0.014		J	0.0031		U	0.0005		U	0.0006		U	0.0005		6.67	
	5/1/09	J	0.000045			0.012		J	0.0032		U	0.0005		U	0.0006		U	0.0005		6.72	
	5/5/09	J	0.000151			0.015		J	0.0034		U	0.0005		U	0.0006		U	0.0005		7.18	
	5/15/09	J	0.00017			0.019		J	0.0044		U	0.0005		U	0.0006		U	0.0005		6.90	
	5/21/09		0.000357			0.023		J	0.0041		U	0.0005		U	0.0006		U	0.0005		7.16	
	5/29/09		0.000266			0.018		J	0.0044		U	0.0005		U	0.0006		U	0.0005		7.01	
	6/1/09		0.000251			0.025			0.0051		U	0.0005		U	0.0006		U	0.0005		6.98	
	6/8/09		0.000379			0.031			0.0056		U	0.0005		U	0.0006		U	0.0005		6.87	
	6/18/09		0.000284			0.03			0.0059		U	0.0005		J	0.00065		U	0.0005		7.13	
	6/22/09		0.000222			0.03			0.0059		U	0.0005		U	0.0006		U	0.0005		7.20	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C	7/3/09	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.94	
	7/9/09	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.40	
	7/15/09	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.95	
	7/22/09	J	0.000074		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.93	
	7/31/09	J	0.000065		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.05	
	8/7/09	J	0.000074		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.03	
	8/13/09	J	0.000082		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.59	
	8/20/09	J	0.000096		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.38	
	8/26/09	J	0.000094		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.40	
	9/3/09	J	0.000111		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.18	
	9/11/09	J	0.00014		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.09	
	9/15/09	J	0.000158		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.20	
	9/25/09	J	0.000126		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.36	
	10/1/09	J	0.000127		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.93	
	10/6/09	J	0.000188		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.76	
	10/16/09	J	0.000096		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.90	
	10/22/09	J	0.00014		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.04	
	10/28/09	J	0.000176		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.99	
	11/4/09	J	0.000156		J	0.0027		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.00	
	11/10/09	J	0.000106		U	0.0005		J	0.0005		U	0.0005		U	0.0006		U	0.0005		7.09	
	11/16/09	J	0.000122		U	0.0005		J	0.00061		U	0.0005		U	0.0006		U	0.0005		6.99	
	11/24/09	J	0.000132		U	0.0005		J	0.00065		U	0.0005		U	0.0006		U	0.0005		7.05	
	11/30/09	J	0.000165		J	0.0027		J	0.00091		U	0.0005		U	0.0006		U	0.0005		6.97	
	12/8/09	J	0.00014		J	0.0015		J	0.0011		U	0.0005		U	0.0006		U	0.0005		7.04	
	12/15/09	J	0.00014		U	0.005		J	0.0013		U	0.0005		U	0.0006		U	0.0005		7..05	
	12/21/09	J	0.000096			0.0052		J	0.0014		U	0.0005		U	0.0006		U	0.0005		6.97	
	12/28/09	J	0.000165		J	0.0045		J	0.0016		U	0.0005		U	0.0006		U	0.0005		7.17	
	1/5/10	J	0.000096			0.0063		J	0.0017		U	0.0005		U	0.0006		U	0.0005		7.08	
	1/12/10	J	0.000131			0.0116		J	0.0046		J	0.002		U	0.0006		U	0.0005		6.42	
	1/19/10	J	0.000131			0.0069		J	0.0026		U	0.0005		U	0.0006		U	0.0005		6.18	
	1/25/10	J	0.000092		J	0.0039		J	0.0018		U	0.0005		U	0.0006		U	0.0005		6.38	
	2/1/10	J	0.000139			0.013		J	0.0037		U	0.0005		U	0.0006		U	0.0005		7.73	
	2/11/10	J	0.000141			0.033			0.0076		U	0.0005		U	0.0006		U	0.0005		6.60	
	2/17/10	J	0.000144			0.036			0.0082		U	0.0005		U	0.0006		U	0.0005		7.32	
	2/22/10	J	0.000108			0.032			0.0089		U	0.0005		U	0.0006		U	0.0005		6.77	
	3/2/10	J	0.000145			0.038			0.0083		U	0.0005		U	0.0006		U	0.0005		7.03	
	3/10/10	J	0.00016			0.044			0.009		U	0.0005		U	0.0006		U	0.0005		6.39	
ST-A	3/17/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.14	Carbon change out
	3/22/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.46	
	3/31/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.03	
	4/6/10	J	0.000084		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.20	
	4/12/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.63	
	4/22/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.44	
	4/28/10	J	0.000083		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.87	
	5/4/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.62	
	5/10/10	J	0.000081		U	0.0005		J	0.00078		U	0.0005		U	0.0006		U	0.0005		6.75	
	5/20/10	U	0.000042		U	0.0005		J	0.0014		J	0.00077		U	0.0006		U	0.0005		6.58	
	5/24/10	J	0.000149		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.76	
	6/2/10	U	0.000042		U	0.0005		J	0.0017		U	0.0005		U	0.0006		U	0.0005		7.02	
	6/7/10	J	0.000066		J	0.0043		J	0.0019		U	0.0005		U	0.0006		U	0.0005		7.00	
	6/14/10	J	0.000088		J	0.0011		J	0.0021		U	0.0005		U	0.0006		U	0.0005		7.28	
	6/23/10	J	0.000159		J	0.0025		J	0.0032		U	0.0005		U	0.0006		U	0.0005		6.71	
	7/1/10	U	0.000042		J	0.0032		J	0.0044		U	0.0005		U	0.0006		U	0.0005		6.51	
	7/6/10	J	0.000049			0.066		J	0.0042		U	0.0005		U	0.0006		U	0.0005		6.48	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	7/12/10	U	0.000042			0.0061			0.0055		U	0.0005		U	0.0006		U	0.0005		6.99	
	7/22/10	J	0.000092			0.0084			0.007		U	0.0005		U	0.0006		U	0.0005		7.64	
	7/26/10	J	0.000069			0.0085			0.0071		U	0.0005		U	0.0006		U	0.0005		7.61	
	8/2/10	J	0.000069			0.015			0.0076		U	0.0005		U	0.0006		U	0.0005		7.40	
	8/12/10	U	0.000042			0.012			0.0081		U	0.0005		U	0.0006		U	0.0005		6.39	
	8/18/10	J	0.000078			0.016			0.0082		U	0.0005		U	0.0006		U	0.0005		6.51	
	8/23/10	J	0.00008			0.021			0.0096		U	0.0005		U	0.0006		U	0.0005		6.79	
	8/30/10	J	0.000075			0.02			0.0096		U	0.0005		U	0.0006		U	0.0005		6.85	
	9/8/10	U	0.000042			0.021			0.0092		U	0.0005		U	0.0006		U	0.0005		6.34	Carbon change out 9/10/10
ST-C	9/14/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.53	
	9/20/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		J	0.0011		U	0.0005		7.37	
	9/27/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.12	
	10/4/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.15	
	10/12/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.13	
	10/18/10		0.000439		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.18	
	10/28/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.86	
	11/4/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.62	
	11/8/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.15	
	11/15/10	J	0.000048		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.43	
	11/23/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.33	
	11/29/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.96	
	12/6/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.11	
	12/14/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.83	
	12/21/10	J	0.000075		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.88	
	12/28/10	J	0.000061		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		4.78	
	1/3/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.16	
	1/13/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.86	
	1/17/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.78	
	1/24/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.53	
	1/31/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.51	
	2/7/11	J	0.000058		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.58	
	2/14/11	J	0.000052		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.63	
	2/24/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.79	
	3/1/11	J	0.000057		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.36	
	3/11/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.80	
	3/18/11	J	0.000060		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.66	
	3/25/11	J	0.000054		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.10	
	4/1/11	J	0.000084		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.22	
	4/6/11	J	0.000055		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.44	
	4/13/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.36	
	4/19/11	J	0.000055		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.07	
	4/25/11	J	0.000076		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.04	
	5/3/11	J	0.000049		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.18	
	5/13/11	J	0.000045		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.73	
	5/20/11	J	0.000048		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.75	
	5/26/11	J	0.000047		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.81	
	6/2/11	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.02	
	6/8/11	J	0.000060		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.60	
	6/16/11	J	0.000079		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.43	
	6/22/11	J	0.000084		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.23	
	6/30/11	J	0.000104		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.32	
	7/7/11	J	0.000078		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.50	
	7/11/11	J	0.000126		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.25	
	7/22/11	J	0.000092		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.38	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C Continued	7/29/11	J	0.000101		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.38	
	8/4/11	J	0.000079		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.27	
	8/8/11	J	0.000082		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.34	
	8/19/11	J	0.000104		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.14	
	8/25/11	J	0.000108		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.39	
	9/1/11	J	0.000077		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.17	
	9/6/11	J	0.000102		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.00	
	9/12/11	J	0.000110		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		6.82	
	9/19/11		0.00195		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.26	
	9/26/11	J	0.000049		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		6.99	
	10/3/11	J	0.000084		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.22	
	10/10/11	J	0.000051		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.24	
	10/17/11	J	0.000091		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.20	
	10/27/11	J	0.001100		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.18	
	11/4/11	U	0.000042		U	0.0018		J	0.0015		U	0.0013		U	0.0017		U	0.0011		6.58	
	11/11/11	J	0.000084		U	0.0018		J	0.0013		U	0.0013		U	0.0017		U	0.0011		6.85	
	11/16/11	J	0.000071		U	0.0018		J	0.0016		U	0.0013		U	0.0017		U	0.0011		6.50	
	11/20/11	J	0.000063		U	0.0018		J	0.0017		U	0.0013		U	0.0017		U	0.0011		6.35	
	12/2/11	U	0.000042		U	0.0018		J	0.0014		U	0.0013		U	0.0017		U	0.0011		6.58	
	12/9/11	J	0.000052		U	0.0018		J	0.0014		U	0.0013		U	0.0017		U	0.0011		6.58	
	12/16/11		0.001480		U	0.0018		J	0.0015		U	0.0013		U	0.0017		U	0.0011		6.42	
	12/20/11	J	0.000048		U	0.0018		J	0.0016		U	0.0013		U	0.0017		U	0.0011		6.64	
	12/30/11	J	0.000046		U	0.0018		J	0.0013		U	0.0013		U	0.0017		U	0.0011		7.25	
	1/5/12	J	0.000113		U	0.0018		J	0.0012		U	0.0013		U	0.0017		U	0.0011		7.02	
	1/12/12	J	0.000097		U	0.0018		J	0.0010		U	0.0013		U	0.0017		U	0.0011		6.90	
	1/17/12	J	0.000150		U	0.0018		J	0.0016		U	0.0013		U	0.0017		U	0.0011		7.39	
	1/23/12	J	0.000094		U	0.0018		J	0.0015		U	0.0013		U	0.0017		U	0.0011		7.20	
	2/1/12	J	0.000138		U	0.0018		J	0.0022		U	0.0013		U	0.0017		U	0.0011		7.48	
	2/6/12	J	0.000063			0.0400		J	0.0150		U	0.0013		U	0.0017		U	0.0011		8.66	
	2/15/12	J	0.000180			0.0240		J	0.0049		U	0.0013		U	0.0017		U	0.0011		7.41	
	2/22/12	J	0.000169			0.0390			0.0063		U	0.0013		U	0.0017		U	0.0011		7.65	
	2/27/12	J	0.000152			0.0540			0.0068		U	0.0013		U	0.0017		U	0.0011		7.14	
ST-A	3/9/12	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.20	Carbon change out 3/8/12
	3/12/12	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.30	
	3/23/12	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.41	
	3/28/12	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		7.32	
	4/4/12	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		6.82	
	4/12/12	U	0.000042		U	0.0018		U	0.0010		U	0.0013		U	0.0017		U	0.0011		6.69	
ST-B	4/17/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.74	Carbon change out 4/16/12
	4/25/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.96	
	5/2/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.68	
	5/10/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.79	
	5/18/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.68	
	5/25/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.64	
	5/31/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.26	
	6/6/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.23	
	6/11/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.62	
	6/18/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.71	
	6/27/12	U	0.000042		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.54	
	7/2/12	J	0.000059		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		6.64	
	7/13/12	J	0.000048		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.62	
	7/20/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.46	
	7/24/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.62	
	8/2/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.53	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B Continued	8/10/12	See Note 8 below			U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.43	
	8/15/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.43	
	8/23/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.28	
	8/29/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		7.27	
	9/7/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		7.27	
	9/13/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		7.88	
	9/21/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.36	
	9/28/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.72	
	10/3/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.35	
	10/10/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.05	
	10/18/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.16	
	10/26/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.21	
	11/2/12	J	0.000056		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.15	
	11/8/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.46	
	11/15/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.67	
	11/19/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.51	
	11/29/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		7.33	
	12/6/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		7.00	
	12/13/12	J	0.000052		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.59	
	12/19/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.14	
	12/28/12	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.18	
	1/3/13	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.56	
	1/10/13	J	0.000052		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.44	
	1/14/13	J	0.000046		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.38	
	1/25/13	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.21	
	2/1/13	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.25	
	2/5/13	J	0.000044		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.28	
	2/11/13	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.44	
	2/18/13	J	0.000046		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.24	
	2/24/13	U	0.000042		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.45	
	3/7/13	J	0.000044		U	0.001		J	0.0013		U	0.001		U	0.001		U	0.001		6.41	
	3/15/13	J	0.000044		U	0.001		J	0.0020		U	0.001		U	0.001		U	0.001		6.36	
	3/21/13	J	0.000068		U	0.001		J	0.0023		U	0.001		U	0.001		U	0.001		7.15	
	3/27/13	J	0.000056		U	0.001		J	0.0022		U	0.001		U	0.001		U	0.001		8.08	
	4/4/13	U	0.000042		U	0.001		J	0.0033		U	0.001		U	0.001		U	0.001		7.80	
	4/11/13	U	0.000042		U	0.001		J	0.0028		U	0.001		U	0.001		U	0.001		7.29	
	4/17/13	J	0.000086		U	0.001		J	0.0039		U	0.001		U	0.001		U	0.001		7.17	
	4/26/13	J	0.000046		U	0.001		J	0.0045		U	0.001		U	0.001		U	0.001		7.15	
	5/2/13	J	0.000118		U	0.001		J	0.0046		U	0.001		U	0.001		U	0.001		7.16	
	5/9/13	J	0.000047		U	0.001		J	0.0049		U	0.001		U	0.001		U	0.001		7.15	
	5/15/13	U	0.000042		U	0.001		J	0.0045		U	0.001		U	0.001		U	0.001		7.20	
	5/23/13	U	0.000042		J	0.0012		J	0.0047		U	0.001		U	0.001		U	0.001		6.90	
	5/28/13	U	0.000042		J	0.0015		J	0.0044		U	0.001		U	0.001		U	0.001		7.13	
	6/4/13	U	0.000042		J	0.0021		J	0.0042		U	0.001		U	0.001		U	0.001		7.19	
	6/11/13	J	0.000073		J	0.0025		J	0.0037		U	0.001		U	0.001		U	0.001		7.05	
	6/19/13	J	0.000075		J	0.0032		J	0.0042		U	0.001		U	0.001		U	0.001		7.68	
	6/24/13	J	0.000074		J	0.0032		J	0.0040		U	0.001		U	0.001		U	0.001		7.15	
	7/2/13	J	0.000061		J	0.0034		J	0.0039		U	0.001		U	0.001		U	0.001		7.30	
	7/10/13	J	0.000043		J	0.0041		J	0.0037		U	0.001		U	0.001		U	0.001		6.91	
	7/16/13	J	0.000091		J	0.0048		J	0.0037		U	0.001		U	0.001		U	0.001		6.87	
	7/23/13	J	0.000061		J	0.0061		J	0.0039		U	0.001		U	0.001		U	0.001		6.81	
	8/2/13	U	0.000040		J	0.0065		J	0.0041		U	0.001		U	0.001		U	0.001		6.83	
	8/6/13	J	0.000086			0.0078		J	0.0045		U	0.001		U	0.001		U	0.001		6.68	
	8/15/13	J	0.000075			0.0086		J	0.0037		U	0.001		U	0.001		U	0.001		6.76	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B Continued	8/22/13	J	0.000074			0.0083		J	0.0042		U	0.001		U	0.001		U	0.001		6.79	
	8/26/13	J	0.000093			0.0082		J	0.0041		U	0.001		U	0.001		U	0.001		6.81	
	9/5/13	J	0.000092			0.011		J	0.0043		U	0.001		U	0.001		U	0.001		6.74	
	9/13/13	J	0.000072			0.014		J	0.0039		U	0.001		U	0.001		U	0.001		6.70	
ST-C	9/20/13	J	0.000086		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.84	Carbon change out 9/16/13
	9/26/13	J	0.000053		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.77	
	10/1/13	U	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.61	
	10/7/13	U	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.67	
	10/17/13	U	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.43	
	10/25/13	J	0.000076		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.56	
	10/31/13	J	0.000059		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.39	
	11/7/13	J	0.000095		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.48	
	11/15/13	J	0.000105		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.44	
	11/18/13	J	0.00006		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.42	
	11/25/13	J	0.000057		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.39	
	12/5/13	J	0.000069		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.40	
	12/13/13	J	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.43	
	12/17/13	J	0.000054		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.44	
	12/23/13	J	0.000052		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.41	
	1/3/14	J	0.000123		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.36	
	1/9/14	J	0.000111		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.26	
	1/16/14	J	0.000075		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.29	
	1/23/14	J	0.000081		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.41	
	1/26/14	J	0.00006		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.43	
	2/7/14	J	0.000064		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.40	
	2/10/14	J	0.000066		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	2/18/14	J	0.000047		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.36	
	2/24/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	3/4/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.44	
	3/10/14	J	0.000042		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.37	
	3/20/14	J	0.000044		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	3/24/14	J	0.000062		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.35	
	4/3/14	J	0.000048		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.25	
	4/10/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.25	
	4/17/14	J	0.000081		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.34	
	4/23/14	J	0.000086		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.22	
	4/29/14	J	0.000042		U	0.0005		U	0.0002		U	0.0004		U	0.0003		U	0.0002		6.25	
	5/7/14	J	0.000084		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.25	
	5/13/14	J	0.000058		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.28	
	5/22/14	J	0.000097		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	5/27/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.27	
	6/6/14	J	0.000047		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.24	
	6/11/14	J	0.000067		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.20	
	6/19/14	J	0.000083		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.14	
	6/23/14	J	0.000097		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.36	
	6/30/14	J	0.000127		U	0.0006		J	0.0008		U	0.001		U	0.0006		U	0.0005		6.46	
	7/9/14	J	0.000055		U	0.0006		J	0.0008		U	0.001		U	0.0006		U	0.0005		6.27	
	7/15/14	J	0.000126		U	0.0006		J	0.0010		U	0.001		U	0.0006		U	0.0005		6.25	
	7/21/14	J	0.000095		U	0.0006		J	0.0011		U	0.001		U	0.0006		U	0.0005		6.91	
	7/29/14	U	0.000040		U	0.0006		J	0.0010		U	0.001		U	0.0006		U	0.0005		6.93	
	8/4/14	U	0.000040		U	0.0006		J	0.0014		U	0.001		U	0.0006		U	0.0005		7.07	
	8/15/14	J	0.000063		U	0.0006		J	0.0021		U	0.001		U	0.0006		U	0.0005		7.10	
	8/18/14	J	0.000097		J	0.00067		J	0.0026		U	0.001		U	0.0006		U	0.0005		7.21	
	8/25/14	J	0.000074		U	0.0006		J	0.0020		U	0.001		U	0.0006		U	0.0005		7.11	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C Continued	9/3/14	J	0.000107		U	0.0006		J	0.0023		U	0.001		U	0.0006		U	0.0005		6.42	
	9/12/14	J	0.000040		J	0.0013		J	0.0021		U	0.001		U	0.0006		U	0.0005		6.55	
	9/15/14	J	0.000129		U	0.0006		J	0.0007		U	0.001		U	0.0006		U	0.0005		6.39	
	9/23/14	J	0.000113		J	0.00084		J	0.0019		U	0.001		U	0.0006		U	0.0005		6.31	
	9/30/14	J	0.000102		J	0.00086		J	0.0021		U	0.001		U	0.0006		U	0.0005		6.73	
	10/8/14	J	0.000099		J	0.0009		J	0.0023		U	0.001		U	0.0006		U	0.0005		6.36	
	10/17/14	J	0.000113		J	0.00077		J	0.0018		U	0.001		U	0.0006		U	0.0005		6.34	
	10/23/14	J	0.000127		J	0.0012		J	0.0020		U	0.001		U	0.0006		U	0.0005		6.32	
	10/31/14	J	0.000091		J	0.0035		J	0.0027		U	0.001		U	0.0006		U	0.0005		6.29	
	11/3/14	J	0.000095		J	0.0039		J	0.0030		U	0.001		U	0.0006		U	0.0005		6.28	
	11/14/14	J	0.000078		J	0.0025		J	0.0028		U	0.001		U	0.0006		U	0.0005		6.28	
	11/21/14	J	0.000141		J	0.0038		J	0.0033		U	0.001		U	0.0006		U	0.0005		6.27	
	11/26/14	J	0.000100		J	0.0046		J	0.0032		U	0.001		U	0.0006		U	0.0005		6.34	
	12/4/14	J	0.000156			0.0052		J	0.0036		U	0.001		U	0.0006		U	0.0005		6.45	
	12/12/14	J	0.000152			0.0055		J	0.0037		U	0.001		U	0.0006		U	0.0005		6.27	
	12/15/14	J	0.000151			0.0056		J	0.0039		U	0.001		U	0.0006		U	0.0005		6.32	
	12/26/14	J	0.000064		J	0.0041		J	0.0034		U	0.001		U	0.0006		U	0.0005		6.37	
	12/31/14	J	0.000112		J	0.0046		J	0.0031		U	0.001		U	0.0006		U	0.0005		6.33	
	1/8/15	J	0.000113			0.0059		J	0.0033		U	0.010		U	0.0050		U	0.0050		6.20	
	1/15/15	J	0.000107			0.0063		J	0.0029		U	0.0010		U	0.00060		U	0.00050		6.19	
	1/21/15	J	0.000112			0.0058		J	0.0035		U	0.0010		U	0.00060		U	0.00050		6.22	
	1/27/15	J	0.000164			0.0086		J	0.0038		U	0.0010		U	0.00060		U	0.00050		6.16	
	2/4/15	J	0.000162			0.0094		J	0.0034		U	0.0010		U	0.00060		U	0.00050		6.08	
	2/11/15	J	0.000136			0.0098		J	0.0038		U	0.0010		U	0.00060		U	0.00050		6.28	
	2/19/15	J	0.000116			0.0096		J	0.0034		U	0.0010		U	0.00060		U	0.00050		6.38	
	2/27/15	J	0.0000520			0.0066		J	0.0027		U	0.0010		U	0.00060		U	0.00050		6.35	
	3/6/15	J	0.000139			0.011		J	0.0029		U	0.0010		U	0.00060		U	0.00050		NM[9]	pH probe not working properly
	3/10/15	J	0.000132			0.011		J	0.0030		U	0.0010		U	0.00060		U	0.00050		6.47	
	3/18/15	J	0.0000760			0.012		J	0.0038		U	0.0010		U	0.00060		U	0.00050		6.34	
	3/26/15	J	0.0000670			0.012		J	0.0035		U	0.0010		U	0.00060		U	0.00050		6.60	
	4/3/15	J	0.0000970			0.013		J	0.0036		U	0.0010		U	0.00060		U	0.00050		6.62	
	4/6/15	J	0.0001380			0.013		J	0.0036		U	0.0010		U	0.00060		U	0.00050		6.55	
	4/14/15	J	0.0000400			0.012		J	0.0026		U	0.0010		U	0.00060		U	0.00050		6.37	
	4/22/15	J	0.0000840			0.015		J	0.0029		U	0.0010		U	0.00060		U	0.00050		6.53	
	4/28/15	J	0.000153			0.012		J	0.0026		U	0.0010		U	0.00060		U	0.00050		6.64	
	5/7/15	J	0.000150			0.014		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.72	
	5/13/15	J	0.000113			0.011		J	0.0023		U	0.0010		U	0.00060		U	0.00050		6.51	
	5/21/15	J	0.000104			0.011		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.67	
	5/27/15	J	0.000126			0.011		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.47	
	6/5/15	J	0.000126			0.016		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.62	
	6/12/15	J	0.0000880			0.015		J	0.0024		U	0.0010		U	0.00060		U	0.00050		7.25	
	6/19/15	J	0.000132			0.016		J	0.0023		U	0.0010		U	0.00060		U	0.00050		7.46	
	6/24/15	J	0.000155			0.017		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.82	
	7/2/15	J	0.0001440			0.015		J	0.0021		U	0.0010		U	0.00060		U	0.00050		6.67	
	7/6/15	J	0.000163		U	0.00060		J	0.0022		U	0.0010		U	0.00060		U	0.00050		6.80	
	7/15/15	J	0.0000480			0.013		J	0.0024		U	0.0010		U	0.00060		U	0.00050		NM	
	7/24/15	J	0.0000720			0.016		J	0.0022		U	0.0010		U	0.00060		U	0.00050		6.89	
	7/28/15	J	0.000101			0.015		J	0.0020		U	0.0010		U	0.00060		U	0.00050		6.88	
	8/3/15	J	0.000165			0.014		J	0.0019		U	0.0010		U	0.00060		U	0.00050		7.36	
	8/10/15		0.000233			0.014		J	0.0020		U	0.0010		U	0.00060		U	0.00050		7.50	
	8/21/15	J	0.0000640			0.013		J	0.0021		U	0.0010		U	0.00060		U	0.00050		7.28	
	8/26/15	J	0.0000610			0.013		J	0.0020		U	0.0010		U	0.00060		U	0.00050		6.52	
	9/3/15	U	0.0000400			0.013		J	0.0017		U	0.0010		U	0.00060		U	0.00050		7.45	
	9/11/15	J	0.0000820			0.014		J	0.0019		U	0.0010		U	0.00060		U	0.00050		7.13	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-C Continued	9/18/15	J	0.000133			0.014		J	0.0021		U	0.0010		U	0.00060		U	0.00050		7.18	
	9/25/15	J	0.000117			0.013		J	0.0019		U	0.0010		U	0.00060		U	0.00050		7.31	
	9/29/15		0.000228			0.013		J	0.0016		U	0.0010		U	0.00060		U	0.00050		7.32	
	10/8/15	J	0.000132			0.012		J	0.0020		U	0.0010		U	0.00060		U	0.00050		7.41	
	10/16/15	J	0.000127			0.012		J	0.0014		U	0.0010		U	0.00060		U	0.00050		7.39	
	10/21/15	J	0.000141			0.012		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.70	
	10/28/15		0.000202			0.012		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.90	
	11/5/15	J	0.000175			0.015		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.76	
	11/13/15	J	0.000160			0.011		J	0.0013		U	0.0010		U	0.00060		U	0.00050		7.08	
	11/19/15	J	0.000184			0.013		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.71	
	11/23/15	J	0.000190			0.012		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.79	
	12/4/15	J	0.000136			0.012		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.65	
	12/11/15	J	0.000127			0.013		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.27	
	12/15/15	J	0.000157			0.014		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.29	
	12/23/15	J	0.000171			0.015		J	0.0011		U	0.0010		U	0.00060		U	0.00050		6.88	
	12/31/15	J	0.0000960			0.011		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.40	
	1/7/16		0.000227			0.013		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.03	
	1/13/16		0.000253			0.017		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.90	
	1/20/16		0.000266			0.014		J	0.0018		U	0.0010		U	0.00060		U	0.00050		7.00	
	1/25/16		0.000225			0.023		J	0.0014		U	0.0010		U	0.00060		U	0.00050		6.85	
	2/1/16	J	0.000160			0.022		J	0.0011		U	0.0010		U	0.00060		U	0.00050		6.64	
	2/9/16	J	0.000195			0.025		J	0.0015		U	0.0010		U	0.00060		U	0.00050		6.49	
	2/16/16	J	0.000183			0.022		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.41	
	2/25/16		0.000236			0.023		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.59	
	3/3/16	J	0.000183			0.021		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.91	
	3/11/16	J	0.000177			0.021		J	0.0015		U	0.0010		U	0.00060		U	0.00050		6.35	
	3/18/16	J	0.000155			0.025		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.39	
	3/21/16	J	0.000119			0.018		J	0.00092		U	0.0010		U	0.00060		U	0.00050		6.18	
	3/31/16	J	0.000130			0.024		J	0.0015		U	0.0010		U	0.00060		U	0.00050		8.38	
	4/8/16	J	0.000108			0.025		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.59	
	4/14/16	J	0.0000860			0.020		J	0.0006		U	0.0010		U	0.00060		U	0.00050		6.17	
	4/21/16	J	0.000179			0.022		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.32	
	4/28/16	J	0.000180			0.024		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.89	
	5/3/16		0.000209			0.019		J	0.0014		U	0.0010		U	0.00060		U	0.00050		6.33	
	5/9/16	J	0.000161			0.022		U	0.0006		U	0.0010		U	0.00060		U	0.00050		7.41	
	5/18/16	J	0.000184			0.017		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.43	
	5/23/16	J	0.000189			0.019		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.35	
	6/3/16	J	0.000147			0.021		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.61	
	6/10/16		0.000228			0.020		J	0.0011		U	0.0010		U	0.00060		U	0.00050		6.54	
	6/14/16	J	0.000139			0.023		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.14	
ST-A	6/24/16	J	0.0000870		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.36	Carbon change out 6/17/16
	6/30/16	J	0.0000860		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.34	
	7/8/16	J	0.0001100		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.98	
	7/15/16	J	0.0000870		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.29	
	7/18/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.35	
	7/26/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.21	
	8/4/16	J	0.0000670		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.00	Issues noted with pH meter
	8/8/16	J	0.0000660		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.38	
	8/16/16	J	0.0000620		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.21	
	8/23/16	J	0.0000600		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.14	
	9/1/16	J	0.0000700		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.47	
	9/9/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.41	
	9/16/16	J	0.0000760		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.57	
	9/20/16	J	0.0000450		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.21	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	9/27/16	J	0.0000660		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.79	
	10/6/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.10	
	10/10/16	J	0.0000450		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.32	
	10/17/16	J	0.0000830		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.08	
	10/26/16	J	0.0000610		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.79	
	11/1/16	J	0.0000500		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.64	
	11/8/16	J	0.0000550		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.45	
	11/16/16	J	0.0000440		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.74	
	11/23/16	J	0.0000800		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.95	
	12/2/16	J	0.0000770		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.43	
	12/9/16	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.61	Mislabeled on Lab Report as ST-B
	12/14/16	J	0.0000690		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.34	
	12/21/16	J	0.0000810		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.52	
	12/29/16	J	0.0000620		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.23	
	1/6/17	J	0.0000810		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.53	
	1/10/17	J	0.0000870		J	0.0017		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.81	
	1/19/17	J	0.0000730		J	0.0021		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.92	
	1/27/17	J	0.000160		J	0.0038		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.60	
	2/2/17	J	0.0000830		J	0.0046		J	0.00086		U	0.0010		U	0.00060		U	0.00050		6.67	
	2/10/17	J	0.000101			0.0053		J	0.00090		U	0.0010		U	0.00060		U	0.00050		6.24	
	2/16/17	J	0.000113			0.0078		J	0.0011		U	0.0010		U	0.00060		U	0.00050		NM	
	2/24/17	J	0.000106			0.0094		J	0.0015		U	0.0010		U	0.00060		U	0.00050		6.88	
	3/3/17	J	0.000117			0.011		J	0.0016		U	0.0010		U	0.00060		U	0.00050		7.05	
	3/9/17	J	0.000118			0.013		J	0.0019		U	0.0010		U	0.00060		U	0.00050		6.89	
	3/14/17	J	0.0000880			0.016		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.87	
	3/23/17	J	0.0000320			0.013		J	0.0015		U	0.0010		U	0.00060		U	0.00050		6.08	
	3/31/17	J	0.0000600			0.027		J	0.0034		U	0.0010		U	0.00060		U	0.00050		6.04	
	4/5/17	J	0.0000860			0.023		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.03	
	4/13/17	J	0.0000960			0.065			0.0067		U	0.0010		U	0.00060		U	0.00050		6.67	
	4/19/17	J	0.0000810			0.120			0.0160		U	0.0010		U	0.00060		U	0.00050		6.88	
	4/28/17	J	0.0000720			0.180			0.0250		U	0.0010		U	0.00060		U	0.00050		6.97	
	5/3/17	J	0.0000700			0.200			0.0270		U	0.0010		U	0.00060		U	0.00050		6.96	
	6/21/18	J	0.0000910			0.045		U	0.0006		U	0.0010		U	0.00060		U	0.00050		7.28	
ST-B	5/12/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.43	Carbon change out 5/11/17
	5/19/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	5/26/17	U	0.0000300		J	0.00073		J	0.00064		U	0.0010		U	0.00060		U	0.00050		7.22	
	5/31/17	U	0.0000300		J	0.0019		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.02	
	6/7/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.16	
	6/15/17		0.000284		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	6/21/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.62	
	6/29/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	7/5/17	J	0.0000320		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.02	
	7/14/17	J	0.0000420		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.98	
	7/19/17	J	0.0000530		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.49	
	7/25/17	J	0.0000390		J	0.0025		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.26	
	8/3/17	J	0.0000690		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.28	
	8/10/17	J	0.0000760		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.26	
	8/17/17	J	0.000117		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.54	
	8/24/17	J	0.0000500		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.77	
	8/31/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.77	
	9/8/17	J	0.0000670		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.71	
	9/12/17	J	0.000111		J	0.0021		J	0.00063		U	0.0010		U	0.00060		U	0.00050		6.63	
	9/12/17	J	0.0000900																		Additional EPA Sampling
	9/22/17	J	0.0000850		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.35	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B Continued	9/29/17	J	0.000100			0.0059		J	0.0010		U	0.0010		U	0.00060		U	0.00050		6.77	
	10/4/17	J	0.000150			0.0080		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.93	
	10/13/17	J	0.000136			0.011		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.63	
	10/19/17		0.000205			0.016		J	0.0017		U	0.0010		U	0.00060		U	0.00050		6.67	
	10/25/17		0.000244			0.017		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.45	
	11/2/17		0.000272			0.022		J	0.0019		U	0.0010		U	0.00060		U	0.00050		6.63	
	11/10/17	J	0.000103			0.022		J	0.0021		U	0.0010		U	0.00060		U	0.00050		7.17	
	11/14/17	J	0.000121			0.027		J	0.0021		U	0.0010		U	0.00060		U	0.00050		6.81	
	11/22/17		0.000266			0.032		J	0.0023		U	0.0010		U	0.00060		U	0.00050		7.04	
	11/29/17		0.000192			0.028		J	0.0022		U	0.0010		U	0.00060		U	0.00050		6.44	
	12/7/17	J	0.000119			0.035		J	0.0023		U	0.0010		U	0.00060		U	0.00050		6.78	
	12/14/17	J	0.000141			0.045		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.59	
	12/19/17	J	0.0000890			0.054		J	0.0027		U	0.0010		U	0.00060		U	0.00050		6.55	
	12/28/17		0.000221			0.053		J	0.0027		U	0.0010		U	0.00060		U	0.00050		7.34	
	1/3/18	J	0.000138			0.053		J	0.0019		U	0.0010		U	0.00060		U	0.00050		7.60	
ST-C	1/12/18	J	0.0000600		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		8.21	Carbon change out 1/10/18
	1/18/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		8.51	Issues noted with pH meter
	1/26/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.33	
	2/1/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.61	
	2/9/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.41	
	2/16/18	J	0.0000820		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.20	
	2/21/18	J	0.0000650		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.89	
	3/2/18	J	0.0000440		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.30	
	3/8/18	J	0.0000710		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.53	
	3/16/18	J	0.0000630		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.27	
	3/22/18	J	0.0000510		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.57	
	3/30/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.32	
	4/5/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.71	
	4/12/18	J	0.0001140		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.39	
	4/19/18	J	0.0001260		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.33	
	4/26/18	J	0.0001730		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.53	
	5/3/18		0.0002410		J	0.00370		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.64	
	5/9/18		0.0003610		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.57	
	5/16/18	J	0.0000840		J	0.00330		J	0.00110		U	0.0010		U	0.00060		U	0.00050		6.17	
	5/22/18	J	0.0001290		J	0.00360		J	0.00110		U	0.0010		U	0.00060		U	0.00050		6.47	
	6/1/18		0.0002180			0.00700		J	0.00190		U	0.0010		U	0.00060		U	0.00050		6.32	
	6/8/18	J	0.0001530			0.01000		J	0.00290		U	0.0010		U	0.00060		U	0.00050		7.07	
	6/15/18	J	0.0000700		U	0.00060		J	0.00240		U	0.0010		U	0.00060		U	0.00050		7.65	
	6/21/18	J	0.0000970			0.01200		J	0.00230		U	0.0010		U	0.00060		U	0.00050		7.25	
	6/29/18	J	0.0000370			0.01400		J	0.00260		U	0.0010		U	0.00060		U	0.00050		6.51	
	7/5/18	J	0.0001660			0.01600		J	0.00310		U	0.0010		J	0.00120		U	0.00050		6.48	
	7/12/18	J	0.0000520			0.09800		J	0.00240		U	0.0010		U	0.00060		U	0.00050		6.53	
	7/18/18		0.0004510			0.01300		J	0.00300		U	0.0010		U	0.00060		U	0.00050		6.38	
	7/26/18	J	0.0001090			0.03900			0.00650		U	0.0010		U	0.00060		U	0.00050		5.98	
	8/2/18	J	0.0001950			0.03900			0.00710		U	0.0010		U	0.00060		U	0.00050		6.63	
	8/10/18		0.0005070			0.03700			0.00790		U	0.0010		U	0.00060		U	0.00050		6.20	
	8/16/18	J	0.0001960			0.05500			0.00910		U	0.0010		U	0.00060		U	0.00050		6.19	
ST-A	8/23/18		0.0002500		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.80	Carbon change out 8/17/2018
	8/31/18		0.0002360		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.10	
	9/7/18		0.0002370		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.37	
	9/11/18		0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.43	
	9/21/18	J	0.0000660		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.52	
	9/28/18	J	0.0000520		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.58	
	10/5/18	U	0.0000300		J	0.00098		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.73	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	10/11/18	J	0.0000460		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.02	
	10/16/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.31	
	10/25/18	J	0.0000380		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.67	
	11/2/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.22	
	11/8/18	U	0.0000300		U	0.00060		J	0.00061		U	0.0010		U	0.00060		U	0.00050		7.31	
	11/16/18	J	0.0000790		U	0.00060		J	0.0011		U	0.0010		U	0.00060		U	0.00050		6.82	
	11/20/18	J	0.0000430		U	0.00060		J	0.0017		U	0.0010		U	0.00060		U	0.00050		6.96	
	11/29/18	U	0.0000300		J	0.0014		J	0.0019		U	0.0010		U	0.00060		U	0.00050		6.74	
	12/7/18	J	0.0000360		J	0.0025		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.80	
	12/13/18	J	0.0000470		J	0.0013		J	0.0014		U	0.0010		U	0.00060		U	0.00050		6.59	
	12/19/18	J	0.0000370		J	0.0048		J	0.0025		U	0.0010		U	0.00060		U	0.00050		7.71	
	12/26/18	J	0.0000370			0.0051		J	0.0037		U	0.0010		U	0.00060		U	0.00050		7.51	
	1/4/19	J	0.0000530			0.0065		J	0.0035		U	0.0010		U	0.00060		U	0.00050		7.23	
	1/10/19	U	0.0000300			0.0090		J	0.0031		U	0.0010		U	0.00060		U	0.00050		7.32	
	1/17/19	U	0.0000300			0.015		J	0.0049		U	0.0010		U	0.00060		U	0.00050		6.64	
	1/25/19	U	0.0000300			0.016		J	0.0047		U	0.0010		U	0.00060		U	0.00050		6.78	
	2/1/19	U	0.0000300			0.014		J	0.0043		U	0.0010		U	0.00060		U	0.00050		7.21	
	2/6/19	U	0.0000300			0.014		J	0.0045		U	0.0010		U	0.00060		U	0.00050		7.19	
	2/13/19	U	0.0000300			0.016			0.0043		U	0.0010		U	0.00060		U	0.00050		7.09	
	2/22/19	U	0.0000300			0.020			0.0053		U	0.0010		U	0.00060		U	0.00050		7.25	
	2/28/19	U	0.0000300			0.020			0.0042		U	0.0010		U	0.00060		U	0.00050		6.91	
	3/6/19	U	0.0000300			0.021			0.0036		U	0.0010		U	0.00060		U	0.00050		7.33	
	3/15/19	U	0.0000300			0.020		J	0.0048		U	0.0010		U	0.00060		U	0.00050		7.38	
	3/22/19	U	0.0000300			0.024		J	0.0046		U	0.0010		U	0.00060		U	0.00050		6.78	
	3/28/19	U	0.0000300			0.029		J	0.0056		U	0.0010		U	0.00060		U	0.00050		7.67	
	4/4/19	U	0.0000300			0.027		J	0.0049		U	0.0010		U	0.00060		U	0.00050		7.10	
	4/10/19	U	0.0000300			0.023		J	0.0037		U	0.0010		U	0.00060		U	0.00050		6.71	
ST-B	4/18/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.45	Carbon change out 4/11/2019
	4/25/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.22	
	5/2/19	J	0.0000430		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.13	
	5/9/19	J	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.42	
	5/15/19	J	0.0000350		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		8.07	
	5/23/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.35	
	5/31/19	J	0.0000650		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		8.44	
	6/6/19	J	0.0000310		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.33	
	6/13/19	J	0.0000430		J	0.0018		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.11	
	6/19/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.45	
	6/28/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	7/1//2019	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.65	
	7/12/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.53	
	7/18/19		0.000214			0.097		J	0.0028		U	0.0010		U	0.00060		U	0.00050		7.15	Sampled from ST-C
	7/25/19		0.000160			0.079		J	0.0023		U	0.0010		U	0.00060		U	0.00050		7.15	Sampled from ST-C
	8/1/19	J	0.000380		J	0.00070		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.67	
	8/8/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.56	
	8/16/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.57	
	8/23/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.69	
	8/27/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.05	
	9/6/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.21	
	9/12/19	J	0.000176		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.89	
	9/20/19	J	0.0000350		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.72	
	9/26/19	J	0.0000380		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.81	
	10/4/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.24	
	10/10/19	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.50	
	10/16/19	J	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.67	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B Continued	10/25/19	U	0.0000300		U	0.00060		J	0.0010		U	0.0010		U	0.00060		U	0.00050		6.66	
	11/1/19	U	0.0000300		J	0.0010		J	0.00081		U	0.0010		U	0.00060		U	0.00050		6.78	
	11/8/19	U	0.0000300		J	0.0017		J	0.0017		U	0.0010		U	0.00060		U	0.00050		7.79	
	11/14/19	J	0.0000560		U	0.00060		J	0.0031		U	0.0010		U	0.00060		U	0.00050		6.90	
	11/22/19	J	0.0000310			0.0077		J	0.0032		U	0.0010		U	0.00060		U	0.00050		6.50	
	11/27/19	U	0.0000300			0.0097		J	0.0032		U	0.0010		U	0.00060		U	0.00050		6.40	
	12/4/19	J	0.0000310			0.0092		J	0.0027		U	0.0010		U	0.00060		U	0.00050		6.50	
	12/13/19	J	0.000149			0.014		J	0.0043		U	0.0010		U	0.00060		U	0.00050		7.38	
	12/20/19	J	0.0000890			0.019		J	0.0047		U	0.0010		U	0.00060		U	0.00050		-	System Power Outage
	12/27/19	J	0.0000930			0.012		J	0.0034		U	0.0010		U	0.00060		U	0.00050		6.72	
	1/3/20	J	0.0000880			0.023		J	0.0049		U	0.0010		U	0.00060		U	0.00050		6.65	
	1/8/20	J	0.0001220			0.021		J	0.0043		U	0.0010		U	0.00060		U	0.00050		6.32	
	1/15/20		0.0002150			0.039			0.0081		U	0.0010		U	0.00060		U	0.00050		6.60	
	1/23/20	J	0.0000680			0.031			0.0054		U	0.0010		U	0.00060		U	0.00050		6.88	
	1/28/20	J	0.0001070			0.041			0.0068		U	0.0010		U	0.00060		U	0.00050		6.72	
	2/7/20	J	0.0000910			0.035			0.0061		U	0.0010		U	0.00060		U	0.00050		6.45	
	2/14/20	J	0.0000710			0.042			0.0060		U	0.0010		U	0.00060		U	0.00050		6.73	
ST-C	2/21/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.75	Carbon change out 2/18/20
	2/28/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.80	
	3/6/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.73	
	3/13/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.72	
	3/20/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.71	
	3/26/20	J	0.0000770		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.67	
	4/1/20	J	0.0000490		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.63	
	4/8/20	J	0.0000520		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.56	
	4/15/20	J	0.0000310		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.67	
	4/24/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.73	
	4/29/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.73	
	5/7/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.22	
	5/15/20	J	0.0000480		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.60	Rearrangement of carbon canisters
	5/22/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.80	
	5/26/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.18	
	5/29/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.54	
	6/1/20	J	0.0000560		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.60	
	6/4/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		J	0.00110		U	0.00050		7.71	
	6/8/20	U	0.0000300		U	0.00060		J	0.00073		U	0.0010		U	0.00060		U	0.00050		7.67	
	6/11/20	J	0.0000630		J	0.00064		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.71	
	6/15/20	J	0.0000300		J	0.00064		J	0.00100		U	0.0010		U	0.00060		U	0.00050		7.43	
	6/18/20	J	0.0000340		J	0.00062		J	0.00073		U	0.0010		U	0.00060		U	0.00050		6.80	
	6/24/20	U	0.0000300		J	0.00090		J	0.00130		U	0.0010		U	0.00060		U	0.00050		7.29	
	7/1/20	J	0.0000300		J	0.00085		J	0.00120		U	0.0010		U	0.00060		U	0.00050		6.75	
	7/9/20	J	0.0000700		J	0.00120		J	0.00120		U	0.0010		U	0.00060		U	0.00050		7.34	
	7/16/20	U	0.0000300		J	0.00180		J	0.00170		U	0.0010		U	0.00060		U	0.00050		7.41	
	7/22/20	J	0.0000590		J	0.00340		J	0.00240		U	0.0010		U	0.00060		U	0.00050		7.43	
	7/30/20	J	0.0000630		J	0.00260		J	0.00240		U	0.0010		U	0.00060		U	0.00050		6.60	
	8/6/20	J	0.0000830		J	0.00370		J	0.00250		U	0.0010		U	0.00060		U	0.00050		7.57	
	8/11/20	J	0.0001010			0.00660		J	0.00350		U	0.0010		U	0.00060		U	0.00050		7.30	
	8/18/20	J	0.0000500			0.00980		J	0.00360		U	0.0010		U	0.00060		U	0.00050		7.22	
	8/25/20	J	0.0000550			0.00930		J	0.00400		U	0.0010		U	0.00060		U	0.00050		7.36	
ST-A	9/3/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.99	Carbon change out 9/1/20
	9/9/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.26	
	9/16/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.25	
	9/23/20	J	0.0000630		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.70	
	9/30/20	J	0.0000330		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.74	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-A Continued	10/7/20	J	0.0000790		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.08	
	10/16/20	J	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.00	
	10/21/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.78	
	10/30/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.12	
	11/6/20	J	0.0000920		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.45	
	11/13/20	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.11	
	11/20/20	U	0.0000300		J	0.00064		J	0.00100		U	0.0010		U	0.00060		U	0.00050		6.97	
	11/24/20	U	0.0000300		J	0.00120		J	0.00120		U	0.0010		U	0.00060		U	0.00050		7.15	
	12/3/20	U	0.0000300		J	0.00200		J	0.00190		U	0.0010		U	0.00060		U	0.00050		7.12	
	12/10/20	J	0.0000560		J	0.00610		J	0.00320		U	0.0010		U	0.00060		U	0.00050		7.52	
	12/16/20	J	0.0000560		J	0.01100		J	0.00390		U	0.0010		U	0.00060		U	0.00050		7.42	
	12/22/20	J	0.000114			0.01900			0.00530		U	0.0010		U	0.00060		U	0.00050		7.43	
	12/30/20	J	0.0000890			0.02500			0.00520		U	0.0010		U	0.00060		U	0.00050		6.98	
	1/6/21	J	0.0000330			0.03100			0.00610		U	0.0010		U	0.00060		U	0.00050		6.89	
	1/15/21		0.000287		U	0.00060		J	0.00410		U	0.0010		U	0.00060		U	0.00050		7.20	
	1/20/21	J	0.000146		U	0.00060			0.00650		U	0.0010		U	0.00060		J	0.00088		7.05	
	1/25/21	J	0.0000590			0.02000			0.00600		U	0.0010		U	0.00060		U	0.00050		6.82	
	2/5/21	J	0.000113			0.01900			0.00580		U	0.0010		U	0.00060		U	0.00050		6.83	
	2/12/21	J	0.0000890			0.02900			0.00700		U	0.0010		U	0.00060		U	0.00050		6.50	
	2/19/21	J	0.000114			0.02400			0.00510		U	0.0010		U	0.00060		U	0.00050		6.61	
	2/26/21	J	0.000103			0.04700			0.01400		U	0.0010		U	0.00060		U	0.00050		6.45	
	3/4/21	J	0.0000660			0.06200			0.01100		U	0.0010		U	0.00060		U	0.00050		6.51	
	3/12/21	J	0.000121			0.11000			0.01600		U	0.0010		U	0.00060		U	0.00050		6.20	
	3/19/21	J	0.0000480			0.11000			0.01700		U	0.0010		U	0.00060		U	0.00050		6.77	
	3/24/21	U	0.0000300			0.13000			0.02000		U	0.0010		U	0.00060		U	0.00050		7.43	
	4/2/21	J	0.0000530			0.12000			0.01700		U	0.0010		U	0.00060		U	0.00050		7.40	
																					System shut down this week for maintenance; no sample collected
ST-B	4/16/21	J	0.0000410		J	0.00068		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.49	Carbon changeout on 4/14/21
	4/21/21	J	0.0000500			0.00760		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.66	
	4/29/21	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.09	
	5/5/21	J	0.0001810		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.97	
	5/12/21	U	0.0000300		J	0.00250		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.46	
	5/20/21	U	0.0000300			0.00640		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.88	
	5/26/21	U	0.0000300		J	0.00240		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.79	
	6/1/21	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.83	
	6/10/21	J	0.0000310		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.34	
	6/17/21	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.60	
	6/23/21	J	0.0000330		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00060		7.36	
	6/30/21	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00060		7.21	
	7/6/21	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.77	
	7/14/21	J	0.0001110		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.43	
	7/18/21	J	0.0000530		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.04	
	8/12/21	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.20	Samples not collected during weeks of July 26 and August 2 due to power outage.
	8/16/21	J	0.0000530		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.81	
	8/24/21	J	0.0000330		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.72	
	9/1/21	J	0.0000550		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.42	
	9/8/21	J	0.0000559		J	0.00160		J	0.00110		U	0.0010		U	0.00060		U	0.00050		7.17	
	9/13/21	J	0.0000470		J	0.00078		J	0.00110		U	0.0010		U	0.00060		U	0.00050		7.07	
	9/23/21	J	0.0000410		J	0.00098		J	0.00160		U	0.0010		U	0.00060		U	0.00050		6.89	
	9/29/21	U	0.0000300		J	0.00160		J	0.00210		U	0.0010		U	0.00060		U	0.00050		6.80	
	10/6/21	U	0.0000300		J	0.00320		J	0.00410		U	0.0010		U	0.00060		U	0.00050		6.83	
	10/12/21	J	0.0000520			0.00580			0.00540		U	0.0010		U	0.00060		U	0.00050		7.59	

TABLE 1
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
TREATMENT SYSTEM EFFLUENT

SAMPLE TAP[2]	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[3]	RESULT	FLAG[4]	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
TREATED GROUNDWATER DISCHARGE STANDARDS (mg/L)[5]			**0.01**			**0.38**			**0.325**			**NA[6]**			**0.164**			**NA**		**6.0 - 9.0**	
ST-B Continued	10/18/21	J	0.0000890			0.00540			0.00520		U	0.0010		U	0.00060		U	0.00050		7.50	
	10/27/21	J	0.0000500			0.00990			0.00590		U	0.0010		U	0.00060		U	0.00050		6.56	
	11/3/21	J	0.0001440			0.0130			0.00740		U	0.0010		U	0.00060		U	0.00050		6.63	
	11/10/21	J	0.0001360			0.0200			0.00930		U	0.0010		U	0.00060		U	0.00050		6.37	
	11/17/21	J	0.0000370			0.0250			0.0110		U	0.0010		U	0.00060		U	0.00050		7.00	
	11/22/21	J	0.0003800			0.0250			0.0120		U	0.0010		U	0.00060		U	0.00050		6.51	
	11/29/21	J	0.0000570			0.0220			0.00760		U	0.0010		U	0.00060		U	0.00050		6.43	
	12/7/21	J	0.0000400			0.0380			0.0150		U	0.0010		U	0.00060		U	0.00050		6.60	
	12/16/21	J	0.0000630		H	0.0460		H	0.0120		U,H	0.0010		U,H	0.00060		U,H	0.00050		6.49	
	12/21/21	J	0.0000460			0.0380			0.00880		U	0.0010		U	0.00060		U	0.00050		6.37	
	12/30/21	J	0.0000380		H	0.0650		H	0.0130		U,H	0.0010		U,H	0.00060		U,H	0.00050		6.31	

NOTES:
1) mg/L - milligrams per liter
2) Grey cells indicate analyses not requested
3) Q - Qualifier
< - Not detected (ND) at a value greater than the reporting limit (RL), for data prior to 2/24/06.
< - Not detected at a value greater than the method detection limit (MDL). (MDL noted in Result column, for data 2/24/06 to 12/31/08.)
U - Not detected at a value greater than the method detection limit (MDL). (MDL noted in Result column, for data 12/31/08 to present)
B - Indicates that a value for an inorganic analysis is an estimate. Used when a compound is determined to be above the detection limit but at a concentration less than the quantitation limit of the method, for data prior to 2/24/06.
B - Indicates that the compound was found in the blank sample for both inorganic and metals analysis, for data 2/24/06 to 12/31/08.
H - Indicates a sample was prepped or analyzed beyond the specified holding time
J - Value for an organic analysis is an estimate, for data prior to 2/24/06.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value, for data 2/24/06 to present.
* - LCS or LCSD exceeds the control limits
4) Flag
B - Indicates that an analyte is present in the method blank as well as in the sample.
J - Value is an estimate; result falls within the MDL and the limit of quantitation (LQ) (Lancaster Laboratories).
Y - Used to identify a spike or spike duplicate recovery is outside the specified quality control limits
5) Treated groundwater discharge limitations recommended by the EPA in a letter dated 7/20/1998 to Mr. Ron Weddell of Alcoa.
6) NA - Not Applicable
7) ST - Sample tap; sample tap either (A, B, or C) depends on arrangement of carbon canisters, which changes after each carbon change out.
8) Metals sample container was not received by laboratory.
9) NM - Not Measured

TABLE 2
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
RECOVERY WELLS

SAMPLE	DATE	ANALYTICAL RESULTS (mg/L)[1]																		PH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[2]	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
CAO50B	5/18/98		3.900			52.0			1.30		<	0.5000			0.330		<	0.500			
	5/29/98		4.200			116			1.80		<	0.2000			0.340		<	0.100			
	7/1/98		4.000			125			2.10		<	0.1000			0.340		<	0.100			
	7/28/98		3.300			128			1.90		<	0.2000			0.310		<	0.100			
	8/25/98		3.400			130			2.00		<	0.2000			0.290		<	0.100			
	12/22/98		2.200			142			2.30			0.0120	J		0.240			0.004	J		
	4/28/99		1.800			89.0			1.60		<	0.2000			0.190		<	0.100			
	6/30/99		1.700			50.0			1.40		<	0.1000			0.160		<	0.050			
	10/20/99		1.520			44.3			0.93		<	0.1000			0.099		<	0.050			
	2/2/00		1.460			77.4			0.90		<	0.0500			0.110		<	0.025			
	9/27/00		0.440			40.0			1.10		<	1.0000		<	0.200		<	0.200			
	1/10/01		1.080			74.0			1.10		<	2.0000		<	0.400		<	0.400			
	5/30/01		0.940			74.0			1.10		<	2.0000		<	0.500		<	0.500			
	10/22/01		0.780			75.0			0.90		<	4.0000		<	0.800		<	0.800			
	3/25/02		0.450			14.0			0.50		<	0.5000		<	0.100		<	0.100			
	8/12/02		0.690			53.0			0.70		<	2.0000		<	0.500		<	0.500			
	1/3/03		0.700			65.0			0.70		<	2.0000		<	0.500		<	0.500			
	5/19/03		0.870			70.0			0.80		<	2.0000		<	0.400		<	0.400			
	10/6/03		0.790			64.0			0.80		<	2.0000		<	0.500		<	0.500			
	2/23/04		0.410			64.0			0.90		<	2.0000		<	0.500		<	0.500			
	7/13/04		0.710			68.0			0.80		<	2.0000		<	0.500		<	0.500			
	11/29/04		0.960			78.0			0.80		<	2.0000		<	0.400		<	0.400			
	5/16/05		0.813			34.0			0.47		<	1.0000		J	0.110		<	0.200			
	5/3/06		0.590			38.0			0.64		J,B	0.1300		J	0.140		<	0.064			
	9/20/07		1.600			69.0			0.68		<	0.4000		J	0.260		<	0.130			
	10/13/08		0.540			39.0			0.52		<	0.8000		J	0.140		<	0.120			
	7/9/09		0.503			40.0			0.42		<	0.0005			0.120			0.013			
	7/6/10		0.393			52.0			0.45		U	0.0005			0.140			0.013			
	7/22/11		0.404			35.0			0.45		U	0.0650		J	0.110		U	0.055		6.81	
	9/28/12		0.394			25.0			0.34		U	0.0250		J	0.079		U	0.025		7.00	
	9/26/13		0.350			31.0			0.33		U	0.0250		J	0.080		U	0.025		6.89	
	9/5/14		0.486			32.0		J	0.30		U	0.1000		U	0.060		U	0.050		6.65	
	9/29/15		0.604			40.0			0.33		U	0.050		J	0.074		U	0.025		6.82	
	9/9/16		0.396			25.0			0.35		U	0.010			0.074		J	0.010		6.76	
	9/29/17		0.332			17.0		U	0.015		U	0.025		J	0.043		U	0.012		6.99	
	9/11/18		0.587			28.0			0.420		U	0.005			0.092		J	0.0085		6.64	
	9/6/19		0.146			17.0			0.26		U	0.010		J	0.036		J	0.0095		6.59	
	9/16/20		0.438			27.0			0.53		U	0.10		J	0.20		U	0.050		6.63	
	9/8/21		0.447			30.0			0.31		U	0.10			0.09			0.016		6.53	
CAO51B	5/18/98		0.980			73.0			1.20		<	0.5000		<	0.500		<	0.500			
	5/29/98		0.880			94.0			1.60		<	0.2000			0.110		<	0.100			
	7/1/98		0.760			79.0			1.80		<	0.2000			0.110		<	0.100			
	7/28/98		0.610			69.0			1.50		<	0.1000			0.078		<	0.050			
	8/25/98		0.540			64.0			1.60		<	0.0500			0.075			0.007	J		
	12/22/98		0.360			59.0			2.00		<	0.0200			0.083		<	0.020			
	4/28/99		0.370			37.0			1.60		<	0.0500			0.061			0.004	J		
	6/30/99		0.330			29.0			1.60			0.0050	J		0.063			0.004	J		
	10/20/99		0.342			37.2			1.50		<	0.0200			0.072			0.006	J		
	2/2/00		0.312			40.5			1.40		<	0.0200			0.060			0.005	J		
	9/27/00		0.201			21.0			1.50		<	1.0000		<	0.200		<	0.200			
	1/10/01		0.370			11.0			0.98		<	0.2000			0.060		<	0.050			
	5/30/01		0.160			12.0			1.00		<	0.5000		<	0.100		<	0.100			
	10/22/01		0.560			52.0			7.00		<	2.0000		<	0.400		<	0.400			
	3/25/02		0.045			13.0			1.20		<	0.5000		<	0.100		<	0.100			
	8/12/02		0.072			15.0			1.20		<	0.0050			0.050			0.005			
	1/3/03		0.067			5.6			0.92		<	0.0010			0.040		<	0.002			
	5/19/03		0.101			17.0			0.87		<	0.1000			0.040		<	0.020			
	10/6/03		0.096			15.0			0.90		<	0.5000		<	0.100		<	0.100			
	2/23/04		0.049			4.4			0.73		<	0.1000			0.040		<	0.020			
	7/13/04		0.040			4.3			0.83		<	0.1000			0.050		<	0.020			
	11/29/04		0.150			21.0			0.90		<	1.0000		<	0.200		<	0.200			

TABLE 2
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
RECOVERY WELLS

SAMPLE	DATE	ANALYTICAL RESULTS (mg/L)[1]																		PH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[2]	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
CAO51B Continued	5/16/05		0.116			9.7			0.73		<	0.2500		J	0.038		<	0.050			
	5/3/06		0.081			12.0			0.72		J,B	0.0520		J	0.045		<	0.016			
	9/20/07		0.130			12.0			0.75		<	0.0800		J	0.029		<	0.026			
	10/13/08		0.065			12.0			0.54		<	0.1600		J	0.035		<	0.025			
	7/9/09		0.0958			8.5			0.41		<	0.0005			0.026		J	0.0044			
	7/6/10		0.0134			1.6			0.32		U	0.0005			0.023		J	0.0067			
	7/22/11		0.0268			5.0			0.44		U	0.0065		J	0.025		U	0.0055		6.60	
	9/28/12		0.02040			9.8			0.36		U	0.0100		J	0.019		U	0.0100		6.71	
	9/26/13		0.00702			1.8			0.25		U	0.0010			0.020			0.0053		6.70	
	9/5/14		0.00722			1.8			0.18		U	0.0050		J	0.0079		J	0.0050		6.49	
	9/29/15		0.0367			5.1			0.34		U	0.010		J	0.019		J	0.0057		6.76	
	9/9/16		0.0103			3.1			0.32		U	0.0050		J	0.014		J	0.0059		6.71	
	9/29/17		0.0362			3.8			0.40		U	0.010		J	0.019		J	0.0061		6.75	
	9/11/18		0.0284			4.5			0.26		U	0.001			0.019			0.0064		6.38	
	9/6/19		0.0304			4.9			0.26		U	0.010		J	0.013		U	0.0050		6.45	
	9/16/20		0.0428			4.6			0.21		U	0.0050		J	0.014		U	0.0050		6.42	
	9/8/21		0.0274			2.9			0.33		U	0.0100			0.014			0.0090		6.42	
CAO52B	5/18/98		5.800			49.0			1.80		<	0.5000			1.400		<	0.500			
	5/29/98		0.300			64.0			2.50		<	0.2000			1.800			0.092	J		
	6/24/98		0.230																		
	7/1/98		0.320			66.0			2.20		<	0.2000			1.500			0.076	J		
	7/28/98		0.240			72.0			1.60		<	0.1000			1.000			0.051			
	8/25/98		0.270			207			1.80		<	0.2000			1.200			0.062	J		
	4/28/99		0.250			34.0			1.40		<	0.1000			0.400			0.020	J		
	6/30/99		0.090			23.0			0.90		<	0.0400			0.400			0.016	J		
	10/20/99		0.870			55.1			2.30			0.0290			0.480			0.025	J		
	2/2/00		0.047			12.0			0.70			0.0013	J		0.150			0.008			
	9/27/00		0.044			25.0			1.10		<	1.0000		<	0.200		<	0.200			
	1/10/01		0.060			16.0			0.60		<	0.5000		<	0.100		<	0.100			
	5/30/01		0.031			21.0			0.80		<	0.5000			0.100		<	0.100			
	10/22/01		0.036			21.0			0.60		<	1.0000		<	0.200		<	0.200			
	3/25/02		0.024			22.0			0.60		<	1.0000		<	0.200		<	0.200			
	8/12/02		0.025			22.0			0.50		<	0.5000			0.100		<	0.100			
	1/3/03		0.025			16.0			0.60		<	0.5000			0.100		<	0.100			
	5/19/03		0.025			17.0			0.50		<	0.5000			0.100		<	0.100			
	10/6/03		0.023			18.0			0.50		<	0.5000			0.100		<	0.100			
	2/23/04		0.025			18.0			0.50		<	0.5000			0.100		<	0.100			
	7/13/04		0.018			19.0			0.40		<	0.5000			0.200		<	0.100			
	11/29/04		0.020			17.0			0.40		<	0.5000			0.100		<	0.100			
	5/16/05		0.020			12.0			0.39		<	0.5000		J	0.077		<	0.100			
	5/3/06		0.016			10.0			0.38		J,B	0.1100		J	0.079		<	0.032			
	9/20/07		0.025			13.0			0.40		<	0.0800			0.140		<	0.026			
	10/13/08		0.014			8.0			0.29		<	0.1600		J	0.056		<	0.025			
	7/9/09		0.013			10.0			0.27		<	0.0005			0.074		J	0.003			
	7/6/10		0.007			8.8			0.26		U	0.0005			0.098		J	0.003			
	7/22/11		0.006			9.9			0.30		U	0.0320		J	0.079		U	0.028		6.83	
	9/28/12		0.005			8.7			0.24		U	0.0200		J	0.070		U	0.020		6.89	
	9/26/13		0.003			8.7			0.20		U	0.0100			0.064		U	0.010		6.93	
	9/5/14		0.004			8.3			0.18		U	0.0100			0.054		U	0.005		6.76	
	9/29/15		0.00410			5.6			0.20		U	0.010			0.068		U	0.0050		7.08	
	9/9/16		0.00256			5.1			0.21		U	0.010			0.061		U	0.0050		6.92	
	9/29/17		0.00203			3.0			0.22		U	0.010			0.074		U	0.0050		7.00	
	9/11/18		0.00150			4.1			0.23		U	0.001			0.072		J	0.0037		6.78	
	9/6/19		0.00134			4.4			0.18		U	0.010			0.085		J	0.0051		6.75	
	9/16/20		0.00133			5.1			0.20		U	0.025		J	0.080		U	0.012		6.66	
	9/8/21		0.00129			6.1			0.24		U	0.010			0.120		U	0.005		6.60	
CAOU23B	5/18/98		3.900			88.0			2.60		<	0.5000		<	0.500		<	0.500			
	5/29/98		2.500			118			3.40			0.0400	J		0.640			0.026	J		
	7/1/98		2.400			112			3.40			0.0550	J		0.630			0.025	J		
	7/28/98		2.400			119			3.40			0.0250	J		0.620		<	0.100			
	8/25/98		2.800			124			3.40			0.0320			0.550		<	0.100			

TABLE 2
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
RECOVERY WELLS

SAMPLE	DATE	ANALYTICAL RESULTS (mg/L)[1]																		PH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[2]	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
CAOU23B	12/22/98		1.400			127			3.60			0.0390	J		0.790			0.044			
Continued	4/28/99		1.200			81.0			2.80		<	0.2000			0.600		<	0.100			
	6/30/99		1.200			54.0			3.00			0.0430	J		0.590			0.031	J		
	10/20/99		0.089			23.6			0.83			0.0045	J		0.301			0.016			
	2/2/00		0.705			58.9			2.20			0.0156	J		0.472			0.026			
	9/27/00		0.780			45.0			2.00		<	1.0000			0.400		<	0.200			
	1/10/01		0.044			48.0			2.00		<	1.0000			0.400		<	0.200			
	5/30/01		0.500			25.0			0.80		<	1.0000			0.200		<	0.200			
	10/22/01		0.410			38.0			1.30		<	1.0000			0.500		<	0.200			
	3/25/02		0.220			52.0			19.00		<	2.0000			0.500		<	0.400			
	8/12/02		0.450			36.0			1.30		<	1.0000			0.400		<	0.200			
	1/3/03		0.490			44.0			1.40		<	2.0000			0.500		<	0.400			
	5/19/03		0.230			31.0			1.80		<	1.0000			0.400		<	0.200			
	10/6/03		0.260			31.0			2.20		<	1.0000			0.500		<	0.200			
	2/23/04		0.270			32.0			2.00		<	1.0000			0.600		<	0.200			
	7/13/04		0.300			36.0			1.50		<	1.0000			0.600		<	0.200			
	11/29/04		0.310			40.0			1.60		<	1.0000			0.600		<	0.200			
	5/16/05		0.259			36.0			1.60		J	0.0420			0.520		J	0.064			
	5/3/06		0.140			28.0			1.70		J,B	0.1500			0.410		<	0.064			
	9/20/07		0.250			26.0			1.20		<	0.2000			0.380		J	0.076			
	10/13/08		0.140			21.0			1.10		<	0.4000			0.350		<	0.063			
	7/9/09		0.141			20.0			1.00		J	0.0036			0.310			0.039			
	7/6/10		0.123			20.0			1.20		J	0.0034			0.450			0.051			
	7/22/11		0.102			15.0			0.89		U	0.0320			0.310		J	0.031		6.77	
	9/28/12		0.085			14.0			0.77		U	0.0250			0.250		J	0.029		6.86	
	9/26/13		0.0837			14.0			0.82		U	0.0100			0.300		J	0.030		7.09	
	9/5/14		0.174			16.0			0.64		U	0.0100			0.280		J	0.036		6.67	
	9/29/15		0.172			16.0			0.83		U	0.050			0.30		J	0.045		6.96	
	9/9/16		0.0975			14.0			1.10		U	0.010			0.30		J	0.041		6.77	
	9/29/17		0.123			13.0			1.20		U	0.010			0.51			0.073		6.81	
	9/11/18		0.160			11.0			0.85		U	0.050			0.31			0.050		6.69	
	9/6/19		0.0929			11.0			0.90		U	0.010			0.28		J	0.047		6.61	
	9/16/20		0.0242			10.0		J	0.20		U	0.050		J	0.160		J	0.028		6.68	
	9/8/21		0.1250			16.0			1.00		U	0.010			0.44			0.070		6.54	

NOTE:
1) mg/L - milligrams per liter
2) Grey cells indicate analyses not requested.
3) Q - Qualifier
< - Not detected (ND) at a value greater than the reporting limit (RL), for data prior to 2/24/06.
< - Not detected at a value greater than the method detection limit (MDL), MDL noted in Result column, for data 2/24/06 to 12/31/08.
U - Not detected at a value greater than the method detection limit (MDL), MDL noted in Result column, for data 12/31/08 to present.
B - Indicates that the compound was found in the blank sample for both inorganic and metals analysis, for data 2/24/06 to 12/31/08.
J - Value for an organic analysis is an estimate, for data prior to 2/24/06.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value, for data 2/24/06 to present.
4) Flag
J - Value is an estimate; result falls within the MDL and the limit of quantitation (LQ) (Lancaster Laboratories).

TABLE 3
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
STRIPPER EFFLUENT

SAMPLE TAP	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[2]	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
ST-9	5/18/98					0.63			0.034			0.0016			0.002		<	0.001			
	5/29/98		1.7																		
	6/10/98		1.0																		
	6/24/98		0.6																		
	7/1/98					0.33			0.018			0.00047	J		0.00079	J	<	0.001			
	7/28/98					0.32			0.019			0.00017	J		0.00062	J	<	0.001			
	8/25/98					0.26			0.018		<	0.002			0.00062	J	<	0.001			
	9/23/98					0.17			0.013		<	0.002			0.001		<	0.001			
	10/1/98					0.29			0.021		<	0.002			0.0008	J	<	0.001			
	10/7/98					0.037			0.006		<	0.002		<	0.001		<	0.001			
	12/16/98					0.026			0.0009		<	0.002		<	0.001		<	0.001			
	2/17/99					0.146			0.00324		<	0.002			0.001		<	0.001			
	3/10/99					0.050415			0.001822		<	0.002			0.00034	J	<	0.001			
	4/6/99					0.30273			0.006957		<	0.002			0.003346		<	0.001			
	5/5/99					0.872			0.062		<	0.002			0.007			0.0004	J		
	9/1/99					0.178			0.007		<	0.002			0.000979	J	<	0.001			
	9/29/99					0.033			0.0009		<	0.002			0.000204	J	<	0.001			
	10/27/99					11.931			0.516	J	<	0.002			0.172	J	<	0.001			
	2/24/00					0.00607			0.000256	J	<	0.002		<	0.001		<	0.001			
	8/9/00				<	0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	10/5/00					0.048			0.011		<	0.005		<	0.001		<	0.001			
	1/10/01					0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	5/30/01					0.005			0.021		<	0.005		<	0.001		<	0.001			
	10/22/01				<	0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	3/25/02				<	0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	8/12/02				<	0.001			0.006		<	0.005		<	0.001		<	0.001			
	1/3/03					0.003		<	0.001		<	0.005		<	0.001		<	0.001			
	5/19/03					0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	10/6/03					0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	11/3/03					0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	2/23/04					0.002		<	0.001		<	0.005		<	0.001		<	0.001			
	7/13/04				<	0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	11/29/04					0.001		<	0.001		<	0.005		<	0.001		<	0.001			
	5/16/05					0.001		J	0.4		<	0.005		<	0.001		<	0.001			
	6/13/05		0.106	B																	
	1/5/06				J	0.0007		J	0.0002		<	0.005		<	0.001		<	0.001			
	9/18/06				<	0.00025			0.001		<	0.00053		<	0.0002		<	0.00032			
	7/20/07				<	0.00025			0.0016		<	0.001		<	0.0002		<	0.00032			
	11/29/07				J	0.00042		<	0.0002		<	0.001		<	0.0002		<	0.00032			
	3/20/08				J	0.00073		<	0.0002		<	0.001		<	0.0002		<	0.00032			
	10/22/08					0.034			0.0014		<	0.002		J	0.0005		<	0.00032			
	11/26/08					0.0023		J	0.0002		<	0.002		<	0.0002		<	0.00032			
	3/4/09				J	0.0016		U	0.0005		U	0.0005		U	0.0006		U	0.0005			ALS Laboratory Group (2009)
	12/8/09				J	0.00069		U	0.0005		U	0.0005		U	0.0006		U	0.0005			
	3/10/10				U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005			
	8/18/10				J	0.0038		J	0.0037		U	0.0005		U	0.0006		U	0.0005			
	8/30/10		0.18		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.77	
	3/18/11		0.188		J	0.0016		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.03	
	7/29/11		0.177		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		7.80	

TABLE 3
CAPA GROUNDWATER TREATMENT SYSTEM
ANALYTICAL RESULTS
STRIPPER EFFLUENT

SAMPLE TAP	DATE	ANALYTICAL RESULTS (mg/L)[1]																		pH	COMMENTS
		MERCURY			CARBON TETRACHLORIDE			CHLOROFORM			METHYLENE CHLORIDE			TETRACHLOROETHENE			TRICHLOROETHENE				
		Q[2]	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG	Q	RESULT	FLAG		
ST-9 Continued	3/23/12		0.142		U	0.0018		U	0.001		U	0.0013		U	0.0017		U	0.0011		7.89	
	9/28/12		0.117		J	0.0011		U	0.001		U	0.001		U	0.001		U	0.001		6.91	
	3/27/13		0.124		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		8.54	
	9/26/13		0.124		J	0.0018		U	0.001		U	0.001		U	0.001		U	0.001		7.21	
	3/24/14		0.116		J	0.00085		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.56	
	9/5/14		0.155		J	0.0045		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.72	
	3/10/15		0.138		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.45	
	9/29/15		0.0278		J	0.0035		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.97	
	3/21/16		0.168		J	0.0025		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.26	
	9/9/16		0.134		J	0.0014		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.95	
	3/14/17		0.129		J	0.0010		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.72	
	9/29/17		0.132		J	0.0012		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.79	
	3/8/18		0.159		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.54	
	9/11/18		0.222		J	0.0023		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.29	
	3/6/19		0.00747			0.012		J	0.00091		U	0.0010		U	0.00060		U	0.00050		7.41	
	9/6/19		0.0703		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.32	
	3/6/20		0.141		J	0.0018		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.26	
	9/16/20		0.163		J	0.0011		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.68	
	3/12/21		0.15			0.0150		J	0.00075		U	0.0010		U	0.00060		U	0.00050		5.82	
	9/8/21		0.0469		J	0.0042		J	0.00490		U	0.0010		U	0.00060		U	0.00050		7.58	

NOTES:
1) mg/L - milligrams per liter
2) Grey cells indicate analyses not requested.
3) Q - Qualifier
< - Not detected (ND) at a value greater than the reporting limit (RL), for data prior to 2/24/06.
< - Not detected at a value greater than the method detection limit (MDL). (MDL noted in Result column, for data 2/24/06 to 12/31/08.)
U - Not detected at a value greater than the method detection limit (MDL). (MDL noted in Result column, for data 12/31/08 to present)
J - Value for an organic analysis is an estimate, for data prior to 2/24/06.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value, for data 2/24/06 to present.
4) Flag
B - Indicates that an analyte is present in the method blank as well as in the sample.
J - Value is an estimate; result falls within the MDL and the limit of quantitation (LQ) (Lancaster Laboratories).

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
1998	June	94,940	120,650	44,346	59,007	318,943
	July	94,464	143,035	46,670	103,993	388,162
	August	82,659	123,384	0	86,436	292,479
	September	52,560	168,124	27,020	13,602	261,306
	October	148,429	106,740	0	45,082	300,251
	November	84,170	70,057	0	90,008	244,235
	December	134,556	143,925	0	140,915	419,396
	TOTAL	**691,778**	**875,915**	**118,036**	**539,043**	**2,224,772**
1999	January	56,244	58,568	38,400	57,835	211,047
	February	43,480	41,230	14,454	66,873	166,037
	March	32,402	52,900	17,521	57,332	160,155
	April	86,908	73,850	25,635	89,265	275,658
	May	52,110	43,020	30,810	53,470	179,410
	June	51,070	50,110	32,000	52,310	185,490
	July	94,520	137,330	70,210	98,850	400,910
	August	60,300	91,700	62,790	63,870	278,660
	September	54,440	84,460	55,250	61,830	255,980
	October	59,750	118,130	65,400	82,860	326,140
	November	61,620	84,320	63,950	67,910	277,800
	December	33,170	41,080	38,180	37,680	150,110
	TOTAL	**686,014**	**876,698**	**514,600**	**790,085**	**2,867,397**
	CUMULATIVE TOTAL, ALL WELLS					**5,092,169**
2000	January	63,290	84,390	71,800	77,950	297,430
	February	77,580	96,090	84,360	79,630	337,660
	March	79,810	101,600	81,090	70,760	333,260
	April	58,820	75,800	63,660	56,470	254,750
	May	90,340	67,330	76,340	74,720	308,730
	June	94,060	111,140	73,990	83,730	362,920
	July	88,230	65,640	46,950	67,490	268,310
	August	60,300	91,700	62,790	63,870	278,660
	September	37,980	84,460	55,250	61,830	239,520
	October	103,210	67,430	77,250	96,270	344,160
	November	102,960	71,210	91,510	93,480	359,160
	December	90,830	2,450	76,480	41,210	210,970
	TOTAL	**947,410**	**919,240**	**861,470**	**867,410**	**3,595,530**
	CUMULATIVE TOTAL, ALL WELLS					**8,687,699**
2001	January	106,250	57,650	83,430	88,310	335,640
	February	65,070	29,070	75,050	100,330	269,520
	March	69,460	62,430	65,310	86,790	283,990
	April	71,520	57,640	52,830	63,090	245,080
	May	120,620	79,750	81,700	52,480	334,550
	June	61,820	56,160	89,260	47,550	254,790
	July	52,500	61,180	74,640	66,440	254,760
	August	69,270	72,300	118,580	81,120	341,270
	September	44,410	49,250	77,680	77,570	248,910
	October	107,030	33,520	66,620	47,870	255,040
	November	59,710	16,210	53,650	48,180	177,750
	December	81,500	81,500	71,100	60,800	294,900
	TOTAL	**909,160**	**656,660**	**909,850**	**820,530**	**3,296,200**
	CUMULATIVE TOTAL, ALL WELLS					**11,983,899**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2002	January	98,390	36,800	95,520	61,250	291,960
	February	74,600	28,450	72,020	52,110	227,180
	March	42,770	58,080	55,110	54,960	210,920
	April	84,520	85,820	75,770	82,670	328,780
	May	50,210	49,080	68,130	70,820	238,240
	June	83,990	77,020	64,090	73,860	298,960
	July	103,700	91,110	123,550	89,760	408,120
	August	79,220	75,700	80,840	73,170	308,930
	September	68,450	67,680	65,470	57,150	258,750
	October	83,260	83,700	83,860	86,470	337,290
	November	47,870	49,790	71,700	70,480	239,840
	December	83,500	74,330	67,720	82,790	308,340
	TOTAL	**900,480**	**777,560**	**923,780**	**855,490**	**3,457,310**
	CUMULATIVE TOTAL, ALL WELLS					**15,441,209**
2003	January	84,500	58,060	51,490	73,880	267,930
	February	49,680	48,730	52,040	23,230	173,680
	March	110,080	110,650	62,330	75,600	358,660
	April	83,350	64,460	73,230	60	221,100
	May	56,140	67,810	66,560	36,000	226,510
	June	80,680	89,200	62,490	35,640	268,010
	July	91,660	93,820	96,350	39,310	321,140
	August	64,540	77,480	94,940	29,610	266,570
	September	94,950	104,220	127,540	49,560	376,270
	October	36,780	83,190	100,920	68,590	289,480
	November	231,100	38,770	88,930	58,910	417,710
	December	110,190	27,090	108,400	24,090	269,770
	TOTAL	**1,093,650**	**863,480**	**985,220**	**514,480**	**3,456,830**
	CUMULATIVE TOTAL, ALL WELLS					**18,898,039**
2004	January	129,290	55,140	128,330	4,280	317,040
	February	97,630	59,860	58,300	35,060	250,850
	March	118,330	82,990	104,600	80,830	386,750
	April	76,220	51,410	52,430	61,080	241,140
	May	46,090	57,900	43,250	44,740	191,980
	June	66,830	62,810	64,390	49,780	243,810
	July	65,080	47,690	60,780	44,380	217,930
	August	67,980	79,900	61,700	45,780	255,360
	September	16,150	98,950	71,040	51,720	237,860
	October	15,930	42,940	69,920	50,340	179,130
	November	103,390	93,870	93,770	54,780	345,810
	December	64,540	77,000	76,890	56,320	274,750
	TOTAL	**867,460**	**810,460**	**885,400**	**579,090**	**3,142,410**
	CUMULATIVE TOTAL, ALL WELLS					**22,040,449**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2005	January	78,750	35,700	65,760	47,560	227,770
	February	103,650	88,410	92,250	65,270	349,580
	March	95,120	47,260	78,380	51,580	272,340
	April	96,680	51,890	81,280	51,610	281,460
	May	103,370	102,640	89,680	38,940	334,630
	June	95,330	11,800	29,580	16,830	153,540
	July	64,660	54,670	56,790	18,940	195,060
	August	74,190	68,130	64,470	22,380	229,170
	September	73,810	75,280	63,620	38,040	250,750
	October	84,450	20,350	73,040	52,010	229,850
	November	125,440	18,950	99,370	38,910	282,670
	December	94,040	62,280	53,740	16,780	226,840
	TOTAL	**1,089,490**	**637,360**	**847,960**	**458,850**	**3,033,660**
	CUMULATIVE TOTAL, ALL WELLS					**25,074,109**
2006	January	91,090	65,510	62,440	67,880	286,920
	February	99,040	69,830	180	24,420	193,470
	March	82,410	69,150	40,220	50,430	242,210
	April	107,470	96,190	105,340	43,880	352,880
	May	130,240	79,280	127,530	73,690	410,740
	June	95,670	96,640	102,141	57,010	351,461
	July	114,830	110,010	131,199	67,870	423,909
	August	86,450	83,190	108,970	57,850	336,460
	September	5,190	113,640	146,870	74,010	339,710
	October	0	95,820	99,390	16,770	211,980
	November	36,240	93,710	68,760	43,920	242,630
	December	93,760	66,030	48,040	27,460	235,290
	TOTAL	**942,390**	**1,039,000**	**1,041,080**	**605,190**	**3,627,660**
	CUMULATIVE TOTAL, ALL WELLS					**28,701,769**
2007	January	56,240	73,810	0	59,320	189,370
	February	47,980	68,410	33,980	28,040	178,410
	March	41,510	41,310	34,260	33,140	150,220
	April	56,420	67,350	57,220	51,730	232,720
	May	57,130	55,440	56,500	28,740	197,810
	June	76,370	79,230	68,240	45,520	269,360
	July	86,610	70,410	43,660	31,250	231,930
	August	22,350	100,910	6,030	41,540	170,830
	September	58,700	73,050	51,800	12,340	195,890
	October	81,650	115,960	88,890	18,300	304,800
	November	17,440	77,710	80,430	50	175,630
	December	39,410	83,380	101,580	30,440	254,810
	TOTAL	**641,810**	**906,970**	**622,590**	**380,410**	**2,551,780**
	CUMULATIVE TOTAL, ALL WELLS					**31,253,549**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2008	January	75,870	85,800	71,610	48,490	281,770
	February	49,440	52,010	49,930	21,670	173,050
	March	28,360	89,270	77,750	34,140	229,520
	April	115,960	111,690	123,590	54,420	405,660
	May	61,950	65,360	97,900	43,270	268,480
	June	117,100	59,990	77,420	24,440	278,950
	July	90,450	96,410	113,900	51,380	352,140
	August	89,370	94,570	86,520	57,080	327,540
	September	77,560	88,830	37,870	56,980	261,240
	October	111,200	119,510	130,040	49,750	410,500
	November	117,320	89,360	107,970	45,400	360,050
	December	118,970	99,220	109,240	44,320	371,750
	TOTAL	**1,053,550**	**1,052,020**	**1,083,740**	**531,340**	**3,720,650**
	CUMULATIVE TOTAL, ALL WELLS					**34,974,199**
2009	January	102,620	98,940	68,640	39,400	309,600
	February	89,130	133,220	88,930	42,180	353,460
	March	89,510	97,320	84,060	44,870	315,760
	April	120,620	66,890	106,260	63,360	357,130
	May	78,350	90,300	101,380	60,280	330,310
	June	80,660	77,260	88,190	45,520	291,630
	July	91,040	100,080	98,360	53,990	343,470
	August	75,240	72,520	88,650	39,080	275,490
	September	89,350	75,160	91,560	46,250	302,320
	October	96,500	95,480	102,630	49,900	344,510
	November	113,300	99,640	111,400	52,860	377,200
	December	105,430	124,530	76,840	46,590	353,390
	TOTAL	**1,131,750**	**1,131,340**	**1,106,900**	**584,280**	**3,954,270**
	CUMULATIVE TOTAL, ALL WELLS					**38,928,469**
2010	January	52,720	57,060	56,230	38,510	204,520
	February	83,730	89,630	91,960	59,560	324,880
	March	65,750	84,780	103,060	63,970	317,560
	April	90,970	89,470	94,390	34,190	309,020
	May	61,190	68,940	84,160	55,090	269,380
	June	60,580	60,580	81,780	55,590	258,530
	July	87,350	93,790	89,940	66,060	337,140
	August	75,280	80,100	98,830	77,610	331,820
	September	78,290	68,920	82,540	28,350	258,100
	October	70,800	62,941	86,310	45,620	265,671
	November	84,990	93,090	87,220	71,100	336,400
	December	80,300	74,120	78,910	62,000	295,330
	TOTAL	**891,950**	**923,421**	**1,035,330**	**657,650**	**3,508,351**
	CUMULATIVE TOTAL, ALL WELLS					**42,436,820**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2011	January	78,430	71,580	92,590	63,870	306,470
	February	63,050	55,840	48,380	34,460	201,730
	March	76,350	36,750	82,880	58,020	254,000
	April	71,410	53,250	90,600	75,830	291,090
	May	99,970	12,790	82,730	51,340	246,830
	June	44,800	162,810	32,220	68,900	308,730
	July	99,970	103,510	78,120	64,040	345,640
	August	101,610	102,590	75,780	65,340	345,320
	September	98,190	95,810	81,800	66,250	342,050
	October	89,080	71,740	92,250	74,890	327,960
	November	54,220	61,580	67,800	46,580	230,180
	December	46,060	35,400	53,940	28,430	163,830
	TOTAL	**923,140**	**863,650**	**879,090**	**697,950**	**3,363,830**
	CUMULATIVE TOTAL, ALL WELLS					**45,800,650**
2012	January	62,760	58,550	77,300	55,730	254,340
	February	116,490	115,930	130,622	87,250	450,292
	March	55,560	54,010	62,618	40,490	212,678
	April	86,230	88,490	85,780	62,650	323,150
	May	127,780	127,410	117,720	80,910	453,820
	June	98,460	69,470	97,250	53,250	318,430
	July	103,630	123,240	118,450	71,570	416,890
	August	120,300	137,100	142,630	61,240	461,270
	September	91,690	97,780	61,210	55,010	305,690
	October	91,890	87,080	124,050	66,130	369,150
	November	124,220	106,210	125,230	65,740	421,400
	December	116,910	85,380	116,720	45,790	364,800
	TOTAL	**1,195,920**	**1,150,650**	**1,259,580**	**745,760**	**4,351,910**
	CUMULATIVE TOTAL, ALL WELLS					**50,152,560**
2013	January	113,370	77,990	116,270	66,770	374,400
	February	112,590	95,460	75,310	70,800	354,160
	March	98,780	92,420	96,280	66,770	354,250
	April	89,340	82,670	90,170	61,090	323,270
	May	116,300	65,810	132,000	80,830	394,940
	June	125,010	82,630	106,160	44,350	358,150
	July	121,530	84,250	108,210	62,060	376,050
	August	141,140	90,940	125,180	72,250	429,510
	September	105,950	81,600	96,240	56,930	340,720
	October	125,250	115,720	115,850	78,450	435,270
	November	107,610	83,470	90,570	62,050	343,700
	December	130,840	79,140	105,340	70,960	386,280
	TOTAL	**1,387,710**	**1,032,100**	**1,257,580**	**793,310**	**4,470,700**
	CUMULATIVE TOTAL, ALL WELLS					**54,623,260**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2014	January	145,420	88,720	122,080	78,900	435,120
	February	110,220	72,030	95,290	61,110	338,650
	March	121,620	69,560	116,190	72,990	380,360
	April	111,760	91,620	123,420	78,860	405,660
	May	104,770	78,750	117,760	76,870	378,150
	June	111,550	85,960	124,430	82,170	404,110
	July	69,490	71,810	95,010	65,810	302,120
	August	89,790	82,060	80,530	70,360	322,740
	September	121,190	62,520	130,350	83,330	397,390
	October	70,820	72,170	97,650	64,820	305,460
	November	63,310	61,890	78,490	54,850	258,540
	December	125,550	103,600	125,340	88,360	442,850
	TOTAL	**1,245,490**	**940,690**	**1,306,540**	**878,430**	**4,371,150**
	CUMULATIVE TOTAL, ALL WELLS					**58,994,410**
2015	January	97,570	64,200	93,990	66,320	322,080
	February	82,520	108,400	95,260	73,180	359,360
	March	81,380	93,950	88,580	68,370	332,280
	April	96,290	116,820	111,520	84,410	409,040
	May	88,710	100,050	91,040	71,870	351,670
	June	84,870	84,330	82,880	64,320	316,400
	July	75,060	101,030	91,420	77,630	345,140
	August	41,420	56,320	41,350	42,420	181,510
	September	25,610	75,880	44,700	53,690	199,880
	October	102,540	77,780	100,610	4,350	285,280
	November	98,660	76,390	101,330	0	276,380
	December	117,190	74,430	91,210	15,340	298,170
	TOTAL	**991,820**	**1,029,580**	**1,033,890**	**621,900**	**3,677,190**
	CUMULATIVE TOTAL, ALL WELLS					**62,671,600**
2016	January	81,730	65,050	74,410	41,710	262,900
	February	124,930	89,230	115,060	60,950	390,170
	March	128,720	86,880	126,200	66,000	407,800
	April	67,600	63,820	68,540	42,090	242,050
	May	79,010	82,910	104,460	64,400	330,780
	June	98,890	97,700	99,480	68,060	364,130
	July	78,810	69,600	81,010	46,610	276,030
	August	95,760	64,290	119,830	54,650	334,530
	September	120,380	99,660	92,060	57,510	369,610
	October	82,840	71,720	81,570	52,610	288,740
	November	105,910	91,490	60,190	62,340	319,930
	December	121,340	113,560	105,940	72,470	413,310
	TOTAL	**1,185,920**	**995,910**	**1,128,750**	**689,400**	**3,999,980**
	CUMULATIVE TOTAL, ALL WELLS					**66,671,580**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2017	January	113,520	95,710	83,690	59,690	352,610
	February	114,820	94,020	83,570	61,010	353,420
	March	114,280	99,750	87,090	65,740	366,860
	April	126,700	107,390	93,970	68,950	397,010
	May	38,550	100,610	46,120	59,590	244,870
	June	101,190	87,750	108,770	65,670	363,380
	July	98,570	84,380	106,580	55,370	344,900
	August	91,240	79,810	102,070	62,990	336,110
	September	38,720	107,550	75,860	62,710	284,840
	October	97,840	87,050	89,040	68,920	342,850
	November	101,450	111,410	101,900	80,320	395,080
	December	78,400	73,510	77,410	60,910	290,230
	TOTAL	**1,115,280**	**1,128,940**	**1,056,070**	**771,870**	**4,072,160**
	CUMULATIVE TOTAL, ALL WELLS					**70,743,740**
2018	January	133,160	122,790	124,370	98,750	479,070
	February	105,050	76,480	73,140	59,570	314,240
	March	71,650	73,520	72,990	56,620	274,780
	April	91,610	83,230	79,590	66,150	320,580
	May	97,940	81,330	74,980	62,670	316,920
	June	22,890	112,170	67,930	68,900	271,890
	July	0	97,440	80,480	59,930	237,850
	August	68,660	88,700	103,230	41,330	301,920
	September	125,850	81,780	101,480	53,180	362,290
	October	117,450	69,710	61,020	30,320	278,500
	November	101,340	71,210	85,160	47,460	305,170
	December	118,390	79,790	106,310	48,770	353,260
	TOTAL	**1,053,990**	**1,038,150**	**1,030,680**	**693,650**	**3,816,470**
	CUMULATIVE TOTAL, ALL WELLS					**74,560,210**
2019	January	78,910	93,680	100,000	21,880	294,470
	February	98,700	63,710	72,080	670	235,160
	March	93,580	76,460	60,610	8,790	239,440
	April	33,980	44,250	23,490	18,470	120,190
	May	31,060	121,570	120,790	67,460	340,880
	June	320	64,430	61,950	50,070	176,770
	July	91,530	57,530	79,310	38,430	266,800
	August	94,460	84,640	116,970	58,840	354,910
	September	126,950	79,450	104,670	26,130	337,200
	October	127,340	92,780	71,470	0	291,590
	November	138,280	88,640	85,330	51,100	363,350
	December	78,860	53,040	56,520	14,670	203,090
	TOTAL	**993,970**	**920,180**	**953,190**	**356,510**	**3,223,850**
	CUMULATIVE TOTAL, ALL WELLS					**77,784,060**

TABLE 4
CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELL PUMPING DATA

YEAR	MONTH	CA050B	CA051B	CA052B	CA0U23B	TOTAL INFLUENT
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2020	January	99,920	81,890	98,370	47,170	327,350
	February	47,740	101,760	85,070	30,460	265,030
	March	37,000	29,350	30,090	21,010	117,450
	April	138,540	87,680	76,950	72,130	375,300
	May	36,930	35,000	32,260	31,950	136,140
	June	82,880	65,050	59,720	59,030	266,680
	July	77,260	90,970	44,760	59,410	272,400
	August	84,810	93,000	49,520	5,250	232,580
	September	147,260	121,670	107,190	28,730	404,850
	October	117,270	81,830	82,370	67,410	348,880
	November	127,620	65,160	83,130	56,000	331,910
	December	140,680	62,700	91,570	67,480	362,430
	TOTAL	**1,137,910**	**916,060**	**841,000**	**546,030**	**3,441,000**
	CUMULATIVE TOTAL, ALL WELLS					**81,225,060**
2021	January	8,850	23,872	27,500	27,640	87,862
	February	62,110	52,750	43,110	33,319	191,289
	March	111,120	94,150	68,070	66,971	340,311
	April	101,180	74,500	66,870	62,480	305,030
	May	34,060	37,600	28,300	24,120	124,080
	June	72,710	67,840	64,390	53,900	258,840
	July	39,230	40,560	46,800	34,210	160,800
	August	76,450	9,050	54,620	49,760	189,880
	September	106,990	79,190	93,090	82,610	361,880
	October	84,370	101,841	95,000	33,040	314,251
	November	102,830	86,099	58,810	37,020	284,759
	December	106,220	103,670	42,210	45,020	297,120
	TOTAL	**906,120**	**771,122**	**688,770**	**550,090**	**2,916,102**
	CUMULATIVE TOTAL, ALL WELLS					**84,141,162**

NOTES:
1) gal - gallons

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
1998	June	94,940		4.200		3.328	120,650		0.880		0.886	44,346		0.300		0.111	59,007		2.500		1.231	5.56
	July	94,464		4.000		3.153	143,035		0.760		0.907	46,670		0.320		0.125	103,993		2.400		2.083	6.27
	August	82,659		3.300		2.276	123,384		0.610		0.628	0		0.240		0.000	86,436		2.400		1.731	4.64
	September	52,560		3.400		1.491	168,124		0.540		0.758	27,020		0.270		0.061	13,602		2.800		0.318	2.63
	October	148,429		3.400		4.212	106,740		0.540		0.481	0		0.270		0.000	45,082		2.800		1.053	5.75
	November	84,170		3.400		2.388	70,057		0.540		0.316	0		0.270		0.000	90,008		2.800		2.103	4.81
	December	134,556		3.400		3.818	143,925		0.540		0.649	0		0.270		0.000	140,915		2.800		3.293	7.76
	TOTAL	**691,778**				**20.67**	**875,915**				**4.62**	**118,036**				**0.30**	**539,043**				**11.81**	**37.40**
1999	January	56,244		2.200		1.033	58,568		0.360		0.176	38,400		0.270		0.087	57,835		1.400		0.676	1.97
	February	43,480		2.200		0.798	41,230		0.360		0.124	14,454		0.270		0.033	66,873		1.400		0.781	1.74
	March	32,402		2.200		0.595	52,900		0.360		0.159	17,521		0.270		0.039	57,332		1.400		0.670	1.46
	April	86,908		2.200		1.596	73,850		0.360		0.222	25,635		0.270		0.058	89,265		1.400		1.043	2.92
	May	52,110		1.800		0.783	43,020		0.370		0.133	30,810		0.250		0.064	53,470		1.200		0.535	1.52
	June	51,070		1.800		0.767	50,110		0.370		0.155	32,000		0.250		0.067	52,310		1.200		0.524	1.51
	July	94,520		1.700		1.341	137,330		0.330		0.378	70,210		0.090		0.053	98,850		1.200		0.990	2.76
	August	60,300		1.700		0.855	91,700		0.330		0.253	62,790		0.090		0.047	63,870		1.200		0.640	1.79
	September	54,440		1.700		0.772	84,460		0.330		0.233	55,250		0.090		0.041	61,830		1.200		0.619	1.67
	October	59,750		1.700		0.848	118,130		0.330		0.325	65,400		0.090		0.049	82,860		1.200		0.830	2.05
	November	61,620		1.520		0.782	84,320		0.342		0.241	63,950		0.870		0.464	67,910		0.089		0.050	1.54
	December	33,170		1.520		0.421	41,080		0.342		0.117	38,180		0.870		0.277	37,680		0.089		0.028	0.84
	TOTAL	**686,014**				**10.59**	**876,698**				**2.51**	**514,600**				**1.28**	**790,085**				**7.39**	**21.77**
	CUMULATIVE TOTAL	***1,377,792***				***31.26***	***1,752,613***				***7.14***	***632,636***				***1.58***	***1,329,128***				***19.20***	***59.17***
2000	January	63,290		1.520		0.803	84,390		0.342		0.241	71,800		0.870		0.521	77,950		0.089		0.058	1.62
	February	77,580		1.460		0.945	96,090		0.312		0.250	84,360		0.047		0.033	79,630		0.705		0.469	1.70
	March	79,810		1.460		0.972	101,600		0.312		0.265	81,090		0.047		0.032	70,760		0.705		0.416	1.69
	April	58,820		1.460		0.717	75,800		0.312		0.197	63,660		0.047		0.025	56,470		0.705		0.332	1.27
	May	90,340		1.460		1.101	67,330		0.312		0.175	76,340		0.047		0.030	74,720		0.705		0.440	1.75
	June	94,060		1.460		1.146	111,140		0.312		0.289	73,990		0.047		0.029	83,730		0.705		0.493	1.96
	July	88,230		1.460		1.075	65,640		0.312		0.171	46,950		0.047		0.018	67,490		0.705		0.397	1.66
	August	60,300		1.460		0.735	91,700		0.312		0.239	62,790		0.047		0.025	63,870		0.705		0.376	1.37
	September	37,980		1.460		0.463	84,460		0.312		0.220	55,250		0.047		0.022	61,830		0.705		0.364	1.07
	October	103,210		0.440		0.379	67,430		0.201		0.113	77,250		0.044		0.028	96,270		0.780		0.627	1.15
	November	102,960		0.440		0.378	71,210		0.201		0.119	91,510		0.044		0.034	93,480		0.780		0.609	1.14
	December	90,830		0.440		0.334	2,450		0.201		0.004	76,480		0.044		0.028	41,210		0.780		0.268	0.63
	TOTAL	**947,410**				**9.05**	**919,240**				**2.28**	**861,470**				**0.83**	**867,410**				**4.85**	**17.00**
	CUMULATIVE TOTAL	***2,325,202***				***40.30***	***2,671,853***				***9.42***	***1,494,106***				***2.40***	***2,196,538***				***24.05***	***76.17***
2001	January	106,250		1.080		0.958	57,650		0.370		0.178	83,430		0.060		0.042	88,310		0.044		0.032	1.21
	February	65,070		1.080		0.586	29,070		0.370		0.090	75,050		0.060		0.038	100,330		0.044		0.037	0.75
	March	69,460		1.080		0.626	62,430		0.370		0.193	65,310		0.060		0.033	86,790		0.044		0.032	0.88
	April	71,520		1.080		0.645	57,640		0.370		0.178	52,830		0.060		0.026	63,090		0.044		0.023	0.87
	May	120,620		1.080		1.087	79,750		0.370		0.246	81,700		0.060		0.041	52,480		0.044		0.019	1.39
	June	61,820		0.940		0.485	56,160		0.160		0.075	89,260		0.031		0.023	47,550		0.500		0.198	0.78
	July	52,500		0.940		0.412	61,180		0.160		0.082	74,640		0.031		0.019	66,440		0.500		0.277	0.79
	August	69,270		0.940		0.543	72,300		0.160		0.097	118,580		0.031		0.031	81,120		0.500		0.338	1.01
	September	44,410		0.940		0.348	49,250		0.160		0.066	77,680		0.031		0.020	77,570		0.500		0.324	0.76
	October	107,030		0.940		0.840	33,520		0.160		0.045	66,620		0.031		0.017	47,870		0.500		0.200	1.10
	November	59,710		0.780		0.389	16,210		0.560		0.076	53,650		0.036		0.016	48,180		0.410		0.165	0.65
	December	81,500		0.780		0.531	81,500		0.560		0.381	71,100		0.036		0.021	60,800		0.410		0.208	1.14
	TOTAL	**909,160**				**7.45**	**656,660**				**1.71**	**909,850**				**0.33**	**820,530**				**1.85**	**11.34**
	CUMULATIVE TOTAL	***3,234,362***				***47.75***	***3,328,513***				***11.13***	***2,403,956***				***2.73***	***3,017,068***				***25.90***	***87.51***

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2002	January	98,390		0.780		0.640	36,800		0.560		0.172	95,520		0.036		0.029	61,250		0.410		0.210	1.05
	February	74,600		0.780		0.486	28,450		0.560		0.133	72,020		0.036		0.022	52,110		0.410		0.178	0.82
	March	42,770		0.780		0.278	58,080		0.560		0.271	55,110		0.036		0.017	54,960		0.410		0.188	0.75
	April	84,520		0.450		0.317	85,820		0.045		0.032	75,770		0.024		0.015	82,670		0.220		0.152	0.52
	May	50,210		0.450		0.189	49,080		0.045		0.018	68,130		0.024		0.014	70,820		0.220		0.130	0.35
	June	83,990		0.450		0.315	77,020		0.045		0.029	64,090		0.024		0.013	73,860		0.220		0.136	0.49
	July	103,700		0.450		0.389	91,110		0.045		0.034	123,550		0.024		0.025	89,760		0.220		0.165	0.61
	August	79,220		0.690		0.456	75,700		0.072		0.045	80,840		0.025		0.017	73,170		0.450		0.275	0.79
	September	68,450		0.690		0.394	67,680		0.072		0.041	65,470		0.025		0.014	57,150		0.450		0.215	0.66
	October	83,260		0.690		0.479	83,700		0.072		0.050	83,860		0.025		0.017	86,470		0.450		0.325	0.87
	November	47,870		0.690		0.276	49,790		0.072		0.030	71,700		0.025		0.015	70,480		0.450		0.265	0.59
	December	83,500		0.690		0.481	74,330		0.072		0.045	67,720		0.025		0.014	82,790		0.450		0.311	0.85
	TOTAL	**900,480**				**4.70**	**777,560**				**0.90**	**923,780**				**0.21**	**855,490**				**2.55**	**8.36**
	CUMULATIVE TOTAL	***4,134,842***				***52.45***	***4,106,073***				***12.03***	***3,327,736***				***2.94***	***3,872,558***				***28.45***	***95.87***
2003	January	84,500		0.700		0.494	58,060		0.067		0.032	51,490		0.025		0.011	73,880		0.490		0.302	0.84
	February	49,680		0.700		0.290	48,730		0.067		0.027	52,040		0.025		0.011	23,230		0.490		0.095	0.42
	March	110,080		0.700		0.643	110,650		0.067		0.062	62,330		0.025		0.013	75,600		0.490		0.309	1.03
	April	83,350		0.700		0.487	64,460		0.067		0.036	73,230		0.025		0.015	60		0.490		0.000	0.54
	May	56,140		0.700		0.328	67,810		0.067		0.038	66,560		0.025		0.014	36,000		0.490		0.147	0.53
	June	80,680		0.870		0.586	89,200		0.101		0.075	62,490		0.025		0.013	35,640		0.230		0.068	0.74
	July	91,660		0.870		0.665	93,820		0.101		0.079	96,350		0.025		0.020	39,310		0.230		0.075	0.84
	August	64,540		0.870		0.469	77,480		0.101		0.065	94,940		0.025		0.020	29,610		0.230		0.057	0.61
	September	94,950		0.870		0.689	104,220		0.101		0.088	127,540		0.025		0.027	49,560		0.230		0.095	0.90
	October	36,780		0.790		0.242	83,190		0.096		0.067	100,920		0.023		0.019	68,590		0.260		0.149	0.48
	November	231,100		0.790		1.524	38,770		0.096		0.031	88,930		0.023		0.017	58,910		0.260		0.128	1.70
	December	110,190		0.790		0.726	27,090		0.096		0.022	108,400		0.023		0.021	24,090		0.260		0.052	0.82
	TOTAL	**1,093,650**				**7.14**	**863,480**				**0.62**	**985,220**				**0.20**	**514,480**				**1.48**	**9.45**
	CUMULATIVE TOTAL	***5,228,492***				***59.60***	***4,969,553***				***12.65***	***4,312,956***				***3.14***	***4,387,038***				***29.93***	***105.32***
2004	January	129,290		0.790		0.852	55,140		0.096		0.044	128,330		0.023		0.025	4,280		0.260		0.009	0.93
	February	97,630		0.790		0.644	59,860		0.096		0.048	58,300		0.023		0.011	35,060		0.260		0.076	0.78
	March	118,330		0.410		0.405	82,990		0.049		0.034	104,600		0.025		0.022	80,830		0.270		0.182	0.64
	April	76,220		0.410		0.261	51,410		0.049		0.021	52,430		0.025		0.011	61,080		0.270		0.138	0.43
	May	46,090		0.410		0.158	57,900		0.049		0.024	43,250		0.025		0.009	44,740		0.270		0.101	0.29
	June	66,830		0.410		0.229	62,810		0.049		0.026	64,390		0.025		0.013	49,780		0.270		0.112	0.38
	July	65,080		0.710		0.386	47,690		0.040		0.016	60,780		0.018		0.009	44,380		0.300		0.111	0.52
	August	67,980		0.710		0.403	79,900		0.040		0.027	61,700		0.018		0.009	45,780		0.300		0.115	0.55
	September	16,150		0.710		0.096	98,950		0.040		0.033	71,040		0.018		0.011	51,720		0.300		0.129	0.27
	October	15,930		0.710		0.094	42,940		0.040		0.014	69,920		0.018		0.011	50,340		0.300		0.126	0.25
	November	103,390		0.710		0.613	93,870		0.040		0.031	93,770		0.018		0.014	54,780		0.300		0.137	0.80
	December	64,540		0.960		0.517	77,000		0.150		0.096	76,890		0.020		0.013	56,320		0.310		0.146	0.77
	TOTAL	**867,460**				**4.66**	**810,460**				**0.41**	**885,400**				**0.16**	**579,090**				**1.38**	**6.61**
	CUMULATIVE TOTAL	***6,095,952***				***64.25***	***5,780,013***				***13.07***	***5,198,356***				***3.30***	***4,966,128***				***31.31***	***111.93***

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2005	January	78,750		0.960		0.631	35,700		0.150		0.045	65,760		0.020		0.011	47,560		0.310		0.123	0.81
	February	103,650		0.960		0.830	88,410		0.150		0.111	92,250		0.020		0.015	65,270		0.310		0.169	1.13
	March	95,120		0.960		0.762	47,260		0.150		0.059	78,380		0.020		0.013	51,580		0.310		0.133	0.97
	April	96,680		0.960		0.775	51,890		0.150		0.065	81,280		0.020		0.014	51,610		0.310		0.134	0.99
	May	103,370		0.813		0.701	102,640		0.116		0.099	89,680		0.020		0.015	38,940		0.259		0.084	0.90
	June	95,330		0.813		0.647	11,800		0.116		0.011	29,580		0.020		0.005	16,830		0.259		0.036	0.70
	July	64,660		0.813		0.439	54,670		0.116		0.053	56,790		0.020		0.009	18,940		0.259		0.041	0.54
	August	74,190		0.813		0.503	68,130		0.116		0.066	64,470		0.020		0.011	22,380		0.259		0.048	0.63
	September	73,810		0.813		0.501	75,280		0.116		0.073	63,620		0.020		0.010	38,040		0.259		0.082	0.67
	October	84,450		0.813		0.573	20,350		0.116		0.020	73,040		0.020		0.012	52,010		0.259		0.112	0.72
	November	125,440		0.813		0.851	18,950		0.116		0.018	99,370		0.020		0.016	38,910		0.259		0.084	0.97
	December	94,040		0.813		0.638	62,280		0.116		0.060	53,740		0.020		0.009	16,780		0.259		0.036	0.74
	TOTAL	**1,089,490**				**7.85**	**637,360**				**0.68**	**847,960**				**0.14**	**458,850**				**1.08**	**9.76**
	CUMULATIVE TOTAL	***7,185,442***				***72.11***	***6,417,373***				***13.75***	***6,046,316***				***3.44***	***5,424,978***				***32.39***	***121.68***
2006	January	91,090		0.813		0.618	65,510		0.116		0.063	62,440		0.020		0.010	67,880		0.259		0.147	0.84
	February	99,040		0.813		0.672	69,830		0.116		0.068	180		0.020		0.000	24,420		0.259		0.053	0.79
	March	82,410		0.813		0.559	69,150		0.116		0.067	40,220		0.020		0.007	50,430		0.259		0.109	0.74
	April	107,470		0.813		0.729	96,190		0.116		0.093	105,340		0.020		0.017	43,880		0.259		0.095	0.93
	May	130,240		0.590		0.641	79,280		0.081		0.054	127,530		0.016		0.017	73,690		0.140		0.086	0.80
	June	95,670		0.590		0.471	96,640		0.081		0.065	102,141		0.016		0.014	57,010		0.140		0.067	0.62
	July	114,830		0.590		0.565	110,010		0.081		0.074	131,199		0.016		0.018	67,870		0.140		0.079	0.74
	August	86,450		0.590		0.426	83,190		0.081		0.056	108,970		0.016		0.015	57,850		0.140		0.068	0.56
	September	5,190		0.590		0.026	113,640		0.081		0.077	146,870		0.016		0.020	74,010		0.140		0.086	0.21
	October	0		0.590		0.000	95,820		0.081		0.065	99,390		0.016		0.013	16,770		0.140		0.020	0.10
	November	36,240		0.590		0.178	93,710		0.081		0.063	68,760		0.016		0.009	43,920		0.140		0.051	0.30
	December	93,760		0.590		0.462	66,030		0.081		0.045	48,040		0.016		0.006	27,460		0.140		0.032	0.54
	TOTAL	**942,390**				**5.35**	**1,039,000**				**0.79**	**1,041,080**				**0.15**	**605,190**				**0.89**	**7.18**
	CUMULATIVE TOTAL	***8,127,832***				***77.45***	***7,456,373***				***14.54***	***7,087,396***				***3.58***	***6,030,168***				***33.28***	***128.86***
2007	January	56,240		0.590		0.277	73,810		0.081		0.050	0		0.016		0.000	59,320		0.140		0.069	0.40
	February	47,980		0.590		0.236	68,410		0.081		0.046	33,980		0.016		0.005	28,040		0.140		0.033	0.32
	March	41,510		0.590		0.204	41,310		0.081		0.028	34,260		0.016		0.005	33,140		0.140		0.039	0.28
	April	56,420		0.590		0.278	67,350		0.081		0.046	57,220		0.016		0.008	51,730		0.140		0.060	0.39
	May	57,130		0.590		0.281	55,440		0.081		0.037	56,500		0.016		0.008	28,740		0.140		0.034	0.36
	June	76,370		0.590		0.376	79,230		0.081		0.054	68,240		0.016		0.009	45,520		0.140		0.053	0.49
	July	86,610		0.590		0.426	70,410		0.081		0.048	43,660		0.016		0.006	31,250		0.140		0.037	0.52
	August	22,350		0.590		0.110	100,910		0.081		0.068	6,030		0.016		0.001	41,540		0.140		0.049	0.23
	September	58,700		0.590		0.289	73,050		0.081		0.049	51,800		0.016		0.007	12,340		0.140		0.014	0.36
	October	81,650		1.600		1.090	115,960		0.130		0.126	88,890		0.025		0.019	18,300		0.250		0.038	1.27
	November	17,440		1.600		0.233	77,710		0.130		0.084	80,430		0.025		0.017	50		0.250		0.000	0.33
	December	39,410		1.600		0.526	83,380		0.130		0.090	101,580		0.025		0.021	30,440		0.250		0.064	0.70
	TOTAL	**641,810**				**4.33**	**906,970**				**0.73**	**622,590**				**0.10**	**380,410**				**0.49**	**5.65**
	CUMULATIVE TOTAL	***8,769,642***				***81.78***	***8,363,343***				***15.26***	***7,709,986***				***3.69***	***6,410,578***				***33.77***	***134.50***

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2008	January	75,870		1.600		1.013	85,800		0.130		0.093	71,610		0.025		0.015	48,490		0.250		0.101	1.22
	February	49,440		1.600		0.660	52,010		0.130		0.056	49,930		0.025		0.010	21,670		0.250		0.045	0.77
	March	28,360		1.600		0.379	89,270		0.130		0.097	77,750		0.025		0.016	34,140		0.250		0.071	0.56
	April	115,960		1.600		1.548	111,690		0.130		0.121	123,590		0.025		0.026	54,420		0.250		0.114	1.81
	May	61,950		1.600		0.827	65,360		0.130		0.071	97,900		0.025		0.020	43,270		0.250		0.090	1.01
	June	117,100		1.600		1.564	59,990		0.130		0.065	77,420		0.025		0.016	24,440		0.250		0.051	1.70
	July	90,450		1.600		1.208	96,410		0.130		0.105	113,900		0.025		0.024	51,380		0.250		0.107	1.44
	August	89,370		1.600		1.193	94,570		0.130		0.103	86,520		0.025		0.018	57,080		0.250		0.119	1.43
	September	77,560		1.600		1.036	88,830		0.130		0.096	37,870		0.025		0.008	56,980		0.250		0.119	1.26
	October	111,200		0.540		0.501	119,510		0.065		0.065	130,040		0.014		0.015	49,750		0.140		0.058	0.64
	November	117,320		0.540		0.529	89,360		0.065		0.048	107,970		0.014		0.013	45,400		0.140		0.053	0.64
	December	118,970		0.540		0.536	99,220		0.065		0.054	109,240		0.014		0.013	44,320		0.140		0.052	0.65
	TOTAL	**1,053,550**				**10.99**	**1,052,020**				**0.97**	**1,083,740**				**0.19**	**531,340**				**0.98**	**13.14**
	CUMULATIVE TOTAL	***9,823,192***				***92.77***	***9,415,363***				***16.24***	***8,793,726***				***3.88***	***6,941,918***				***34.75***	***147.65***
2009	January	102,620		0.540		0.462	98,940		0.065		0.054	68,640		0.014		0.008	39,400		0.140		0.046	0.57
	February	89,130		0.540		0.402	133,220		0.065		0.072	88,930		0.014		0.010	42,180		0.140		0.049	0.53
	March	89,510		0.540		0.403	97,320		0.065		0.053	84,060		0.014		0.010	44,870		0.140		0.052	0.52
	April	120,620		0.540		0.544	66,890		0.065		0.036	106,260		0.014		0.012	63,360		0.140		0.074	0.67
	May	78,350		0.540		0.353	90,300		0.065		0.049	101,380		0.014		0.012	60,280		0.140		0.070	0.48
	June	80,660		0.540		0.363	77,260		0.065		0.042	88,190		0.014		0.010	45,520		0.140		0.053	0.47
	July	91,040		0.503		0.382	100,080		0.096		0.080	98,360		0.013		0.011	53,990		0.141		0.064	0.54
	August	75,240		0.503		0.316	72,520		0.096		0.058	88,650		0.013		0.010	39,080		0.141		0.046	0.43
	September	89,350		0.503		0.375	75,160		0.096		0.060	91,560		0.013		0.010	46,250		0.141		0.054	0.50
	October	96,500		0.503		0.405	95,480		0.096		0.076	102,630		0.013		0.011	49,900		0.141		0.059	0.55
	November	113,300		0.503		0.476	99,640		0.096		0.080	111,400		0.013		0.012	52,860		0.141		0.062	0.63
	December	105,430		0.503		0.443	124,530		0.096		0.100	76,840		0.013		0.009	46,590		0.141		0.055	0.61
	TOTAL	**1,131,750**				**4.92**	**1,131,340**				**0.76**	**1,106,900**				**0.13**	**584,280**				**0.69**	**6.50**
	CUMULATIVE TOTAL	***10,954,942***				***97.70***	**10,546,703**				***17.00***	***9,900,626***				***4.01***	***7,526,198***				***35.44***	***154.14***
2010	January	52,720		0.503		0.221	57,060		0.096		0.046	56,230		0.013		0.006	38,510		0.141		0.045	0.32
	February	83,730		0.503		0.351	89,630		0.096		0.072	91,960		0.013		0.010	59,560		0.141		0.070	0.50
	March	65,750		0.503		0.276	84,780		0.096		0.068	103,060		0.013		0.012	63,970		0.141		0.075	0.43
	April	90,970		0.503		0.382	89,470		0.096		0.072	94,390		0.013		0.011	34,190		0.141		0.040	0.50
	May	61,190		0.503		0.257	68,940		0.096		0.055	84,160		0.013		0.009	55,090		0.141		0.065	0.39
	June	60,580		0.503		0.254	60,580		0.096		0.048	81,780		0.013		0.009	55,590		0.141		0.065	0.38
	July	87,350		0.393		0.286	93,790		0.013		0.010	89,940		0.007		0.005	66,060		0.123		0.068	0.37
	August	75,280		0.393		0.247	80,100		0.013		0.009	98,830		0.007		0.006	77,610		0.123		0.080	0.34
	September	78,290		0.393		0.257	68,920		0.013		0.008	82,540		0.007		0.005	28,350		0.123		0.029	0.30
	October	70,800		0.393		0.232	62,941		0.013		0.007	86,310		0.007		0.005	45,620		0.123		0.047	0.29
	November	84,990		0.393		0.279	93,090		0.013		0.010	87,220		0.007		0.005	71,100		0.123		0.073	0.37
	December	80,300		0.393		0.263	74,120		0.013		0.008	78,910		0.007		0.005	62,000		0.123		0.064	0.34
	TOTAL	**891,950**				**3.31**	**923,421**				**0.41**	**1,035,330**				**0.09**	**657,650**				**0.72**	**4.53**
	CUMULATIVE TOTAL	***11,846,892***				***101.00***	***11,470,124***				***17.41***	***10,935,956***				***4.10***	***8,183,848***				***36.16***	***158.67***

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2011	January	78,430		0.393		0.257	71,580		0.013		0.008	92,590		0.007		0.005	63,870		0.123		0.066	0.34
	February	63,050		0.393		0.207	55,840		0.013		0.006	48,380		0.007		0.003	34,460		0.123		0.035	0.25
	March	76,350		0.393		0.250	36,750		0.013		0.004	82,880		0.007		0.005	58,020		0.123		0.060	0.32
	April	71,410		0.393		0.234	53,250		0.013		0.006	90,600		0.007		0.005	75,830		0.123		0.078	0.32
	May	99,970		0.393		0.328	12,790		0.013		0.001	82,730		0.007		0.005	51,340		0.123		0.053	0.39
	June	44,800		0.393		0.147	162,810		0.013		0.018	32,220		0.007		0.002	68,900		0.123		0.071	0.24
	July	99,970		0.404		0.337	103,510		0.027		0.023	78,120		0.006		0.004	64,040		0.102		0.055	0.42
	August	101,610		0.404		0.343	102,590		0.027		0.023	75,780		0.006		0.004	65,340		0.102		0.056	0.42
	September	98,190		0.404		0.331	95,810		0.027		0.021	81,800		0.006		0.004	66,250		0.102		0.056	0.41
	October	89,080		0.404		0.300	71,740		0.027		0.016	92,250		0.006		0.004	74,890		0.102		0.064	0.38
	November	54,220		0.404		0.183	61,580		0.027		0.014	67,800		0.006		0.003	46,580		0.102		0.040	0.24
	December	46,060		0.404		0.155	35,400		0.027		0.008	53,940		0.006		0.003	28,430		0.102		0.024	0.19
	TOTAL	**923,140**				**3.07**	**863,650**				**0.15**	**879,090**				**0.05**	**697,950**				**0.66**	**3.92**
	CUMULATIVE TOTAL	***12,770,032***				***104.08***	***12,333,774***				***17.56***	***11,815,046***				***4.14***	***8,881,798***				***36.82***	***162.59***
2012	January	62,760		0.404		0.212	58,550		0.027		0.013	77,300		0.006		0.004	55,730		0.102		0.047	0.28
	February	116,490		0.404		0.393	115,930		0.027		0.026	130,622		0.006		0.006	87,250		0.102		0.074	0.50
	March	55,560		0.404		0.187	54,010		0.027		0.012	62,618		0.006		0.003	40,490		0.102		0.034	0.24
	April	86,230		0.404		0.291	88,490		0.027		0.020	85,780		0.006		0.004	62,650		0.102		0.053	0.37
	May	127,780		0.404		0.431	127,410		0.027		0.028	117,720		0.006		0.005	80,910		0.102		0.069	0.53
	June	98,460		0.404		0.332	69,470		0.027		0.016	97,250		0.006		0.005	53,250		0.102		0.045	0.40
	July	103,630		0.404		0.349	123,240		0.027		0.028	118,450		0.006		0.006	71,570		0.102		0.061	0.44
	August	120,300		0.404		0.406	137,100		0.027		0.031	142,630		0.006		0.007	61,240		0.102		0.052	0.50
	September	91,690		0.394		0.301	97,780		0.020		0.017	61,210		0.005		0.003	55,010		0.085		0.039	0.36
	October	91,890		0.394		0.302	87,080		0.020		0.015	124,050		0.005		0.005	66,130		0.085		0.047	0.37
	November	124,220		0.394		0.408	106,210		0.020		0.018	125,230		0.005		0.005	65,740		0.085		0.047	0.48
	December	116,910		0.394		0.384	85,380		0.020		0.015	116,720		0.005		0.005	45,790		0.085		0.032	0.44
	TOTAL	**1,195,920**				**4.00**	**1,150,650**				**0.24**	**1,259,580**				**0.06**	**745,760**				**0.60**	**4.89**
	CUMULATIVE TOTAL	***13,965,952***				***108.07***	***13,484,424***				***17.80***	***13,074,626***				***4.20***	***9,627,558***				***37.42***	***167.49***
2013	January	113,370		0.394		0.373	77,990		0.020		0.013	116,270		0.005		0.005	66,770		0.085		0.047	0.44
	February	112,590		0.394		0.370	95,460		0.020		0.016	75,310		0.005		0.003	70,800		0.085		0.050	0.44
	March	98,780		0.394		0.325	92,420		0.020		0.016	96,280		0.005		0.004	66,770		0.085		0.047	0.39
	April	89,340		0.394		0.294	82,670		0.020		0.014	90,170		0.005		0.004	61,090		0.085		0.043	0.35
	May	116,300		0.394		0.382	65,810		0.020		0.011	132,000		0.005		0.006	80,830		0.085		0.057	0.46
	June	125,010		0.394		0.411	82,630		0.020		0.014	106,160		0.005		0.004	44,350		0.085		0.031	0.46
	July	121,530		0.394		0.400	84,250		0.020		0.014	108,210		0.005		0.005	62,060		0.085		0.044	0.46
	August	141,140		0.394		0.464	90,940		0.020		0.015	125,180		0.005		0.005	72,250		0.085		0.051	0.54
	September	105,950		0.350		0.309	81,600		0.007		0.005	96,240		0.003		0.002	56,930		0.084		0.040	0.36
	October	125,250		0.350		0.366	115,720		0.007		0.007	115,850		0.003		0.003	78,450		0.084		0.055	0.43
	November	107,610		0.350		0.314	83,470		0.007		0.005	90,570		0.003		0.002	62,050		0.084		0.043	0.36
	December	130,840		0.350		0.382	79,140		0.007		0.005	105,340		0.003		0.003	70,960		0.084		0.050	0.44
	TOTAL	**1,387,710**				**4.39**	**1,032,100**				**0.14**	**1,257,580**				**0.05**	**793,310**				**0.56**	**5.13**
	CUMULATIVE TOTAL	***15,353,662***				***112.46***	***14,516,524***				***17.93***	***14,332,206***				***4.24***	***10,420,868***				***37.98***	***172.62***

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2014	January	145,420		0.350		0.425	88,720		0.007		0.005	122,080		0.003		0.003	78,900		0.084		0.055	0.49
	February	110,220		0.350		0.322	72,030		0.007		0.004	95,290		0.003		0.002	61,110		0.084		0.043	0.37
	March	121,620		0.350		0.355	69,560		0.007		0.004	116,190		0.003		0.003	72,990		0.084		0.051	0.41
	April	111,760		0.350		0.326	91,620		0.007		0.005	123,420		0.003		0.003	78,860		0.084		0.055	0.39
	May	104,770		0.350		0.306	78,750		0.007		0.005	117,760		0.003		0.003	76,870		0.084		0.054	0.37
	June	111,550		0.350		0.326	85,960		0.007		0.005	124,430		0.003		0.003	82,170		0.084		0.057	0.39
	July	69,490		0.350		0.203	71,810		0.007		0.004	95,010		0.003		0.002	65,810		0.084		0.046	0.26
	August	89,790		0.350		0.262	82,060		0.007		0.005	80,530		0.003		0.002	70,360		0.084		0.049	0.32
	September	121,190		0.486		0.492	62,520		0.007		0.004	130,350		0.004		0.004	83,330		0.174		0.121	0.62
	October	70,820		0.486		0.287	72,170		0.007		0.004	97,650		0.004		0.003	64,820		0.174		0.094	0.39
	November	63,310		0.486		0.257	61,890		0.007		0.004	78,490		0.004		0.003	54,850		0.174		0.080	0.34
	December	125,550		0.486		0.509	103,600		0.007		0.006	125,340		0.004		0.004	88,360		0.174		0.128	0.65
	TOTAL	**1,245,490**				**4.07**	**940,690**				**0.06**	**1,306,540**				**0.04**	**878,430**				**0.83**	**5.00**
	CUMULATIVE TOTAL	***16,599,152***				***116.53***	***15,457,214***				***17.99***	***15,638,746***				***4.28***	***11,299,298***				***38.81***	***177.61***
2015	January	97,570		0.486		0.396	64,200		0.007		0.004	93,990		0.004		0.003	66,320		0.174		0.096	0.50
	February	82,520		0.486		0.335	108,400		0.007		0.007	95,260		0.004		0.003	73,180		0.174		0.106	0.45
	March	81,380		0.486		0.330	93,950		0.007		0.006	88,580		0.004		0.003	68,370		0.174		0.099	0.44
	April	96,290		0.486		0.391	116,820		0.007		0.007	111,520		0.004		0.004	84,410		0.174		0.123	0.52
	May	88,710		0.486		0.360	100,050		0.007		0.006	91,040		0.004		0.003	71,870		0.174		0.104	0.47
	June	84,870		0.486		0.344	84,330		0.007		0.005	82,880		0.004		0.003	64,320		0.174		0.093	0.45
	July	75,060		0.486		0.304	101,030		0.007		0.006	91,420		0.004		0.003	77,630		0.174		0.113	0.43
	August	41,420		0.486		0.168	56,320		0.007		0.003	41,350		0.004		0.001	42,420		0.174		0.062	0.23
	September	25,610		0.604		0.129	75,880		0.037		0.023	44,700		0.004		0.002	53,690		0.172		0.077	0.23
	October	102,540		0.604		0.517	77,780		0.037		0.024	100,610		0.004		0.003	4,350		0.172		0.006	0.55
	November	98,660		0.604		0.497	76,390		0.037		0.023	101,330		0.004		0.003	0		0.172		0.000	0.52
	December	117,190		0.604		0.591	74,430		0.037		0.023	91,210		0.004		0.003	15,340		0.172		0.022	0.64
	TOTAL	**991,820**				**4.36**	**1,029,580**				**0.14**	**1,033,890**				**0.04**	**621,900**				**0.90**	**5.44**
	CUMULATIVE TOTAL	***17,590,972***				***120.90***	***16,486,794***				***18.12***	***16,672,636***				***4.32***	***11,921,198***				***39.71***	***183.05***
2016	January	81,730		0.604		0.412	65,050		0.037		0.020	74,410		0.004		0.003	41,710		0.172		0.060	0.49
	February	124,930		0.604		0.630	89,230		0.037		0.027	115,060		0.004		0.004	60,950		0.172		0.087	0.75
	March	128,720		0.604		0.649	86,880		0.037		0.027	126,200		0.004		0.004	66,000		0.172		0.095	0.77
	April	67,600		0.604		0.341	63,820		0.037		0.020	68,540		0.004		0.002	42,090		0.172		0.060	0.42
	May	79,010		0.604		0.398	82,910		0.037		0.025	104,460		0.004		0.004	64,400		0.172		0.092	0.52
	June	98,890		0.604		0.498	97,700		0.037		0.030	99,480		0.004		0.003	68,060		0.172		0.098	0.63
	July	78,810		0.604		0.397	69,600		0.037		0.021	81,010		0.004		0.003	46,610		0.172		0.067	0.49
	August	95,760		0.604		0.483	64,290		0.037		0.020	119,830		0.004		0.004	54,650		0.172		0.078	0.58
	September	120,380		0.396		0.398	99,660		0.010		0.009	92,060		0.003		0.002	57,510		0.098		0.047	0.46
	October	82,840		0.396		0.274	71,720		0.010		0.006	81,570		0.003		0.002	52,610		0.098		0.043	0.32
	November	105,910		0.396		0.350	91,490		0.010		0.008	60,190		0.003		0.001	62,340		0.098		0.051	0.41
	December	121,340		0.396		0.401	113,560		0.010		0.010	105,940		0.003		0.002	72,470		0.098		0.059	0.47
	TOTAL	**1,185,920**				**5.23**	**995,910**				**0.22**	**1,128,750**				**0.03**	**689,400**				**0.84**	**6.32**
	CUMULATIVE TOTAL	***18,776,892***				***126.13***	***17,482,704***				***18.35***	***17,801,386***				***4.35***	***12,610,598***				***40.55***	***189.37***

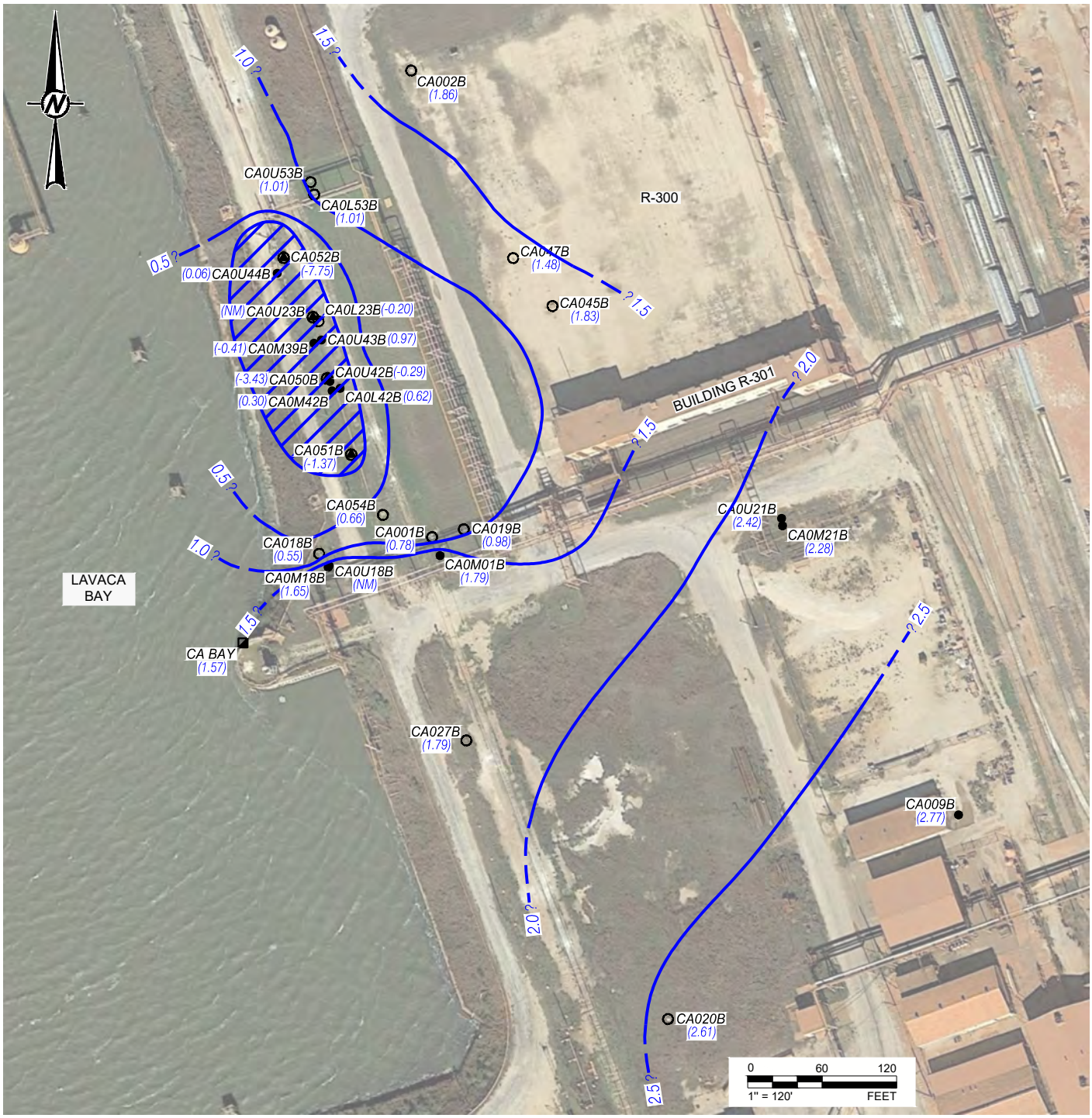
TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2017	January	113,520		0.396		0.375	95,710		0.010		0.008	83,690		0.003		0.002	59,690		0.098		0.049	0.43
	February	114,820		0.396		0.379	94,020		0.010		0.008	83,570		0.003		0.002	61,010		0.098		0.050	0.44
	March	114,280		0.396		0.378	99,750		0.010		0.009	87,090		0.003		0.002	65,740		0.098		0.053	0.44
	April	126,700		0.396		0.419	107,390		0.010		0.009	93,970		0.003		0.002	68,950		0.098		0.056	0.49
	May	38,550		0.396		0.127	100,610		0.010		0.009	46,120		0.003		0.001	59,590		0.098		0.048	0.19
	June	101,190		0.396		0.334	87,750		0.010		0.008	108,770		0.003		0.002	65,670		0.098		0.053	0.40
	July	98,570		0.396		0.326	84,380		0.010		0.007	106,580		0.003		0.002	55,370		0.098		0.045	0.38
	August	91,240		0.396		0.302	79,810		0.010		0.007	102,070		0.003		0.002	62,990		0.098		0.051	0.36
	September	38,720		0.332		0.107	107,550		0.036		0.032	75,860		0.002		0.001	62,710		0.123		0.064	0.21
	October	97,840		0.332		0.271	87,050		0.036		0.026	89,040		0.002		0.002	68,920		0.123		0.071	0.37
	November	101,450		0.332		0.281	111,410		0.036		0.034	101,900		0.002		0.002	80,320		0.123		0.082	0.40
	December	78,400		0.332		0.217	73,510		0.036		0.022	77,410		0.002		0.001	60,910		0.123		0.063	0.30
	TOTAL	**1,115,280**				**3.52**	**1,128,940**				**0.18**	**1,056,070**				**0.02**	**771,870**				**0.69**	**4.40**
	CUMULATIVE TOTAL	***19,892,172***				***129.64***	***18,611,644***				***18.53***	***18,857,456***				***4.37***	***13,382,468***				***41.24***	***193.78***
2018	January	133,160		0.332		0.369	122,790		0.036		0.037	124,370		0.002		0.002	98,750		0.123		0.101	0.51
	February	105,050		0.332		0.291	76,480		0.036		0.023	73,140		0.002		0.001	59,570		0.123		0.061	0.38
	March	71,650		0.332		0.199	73,520		0.036		0.022	72,990		0.002		0.001	56,620		0.123		0.058	0.28
	April	91,610		0.332		0.254	83,230		0.036		0.025	79,590		0.002		0.001	66,150		0.123		0.068	0.35
	May	97,940		0.332		0.271	81,330		0.036		0.025	74,980		0.002		0.001	62,670		0.123		0.064	0.36
	June	22,890		0.332		0.063	112,170		0.036		0.034	67,930		0.002		0.001	68,900		0.123		0.071	0.17
	July	0		0.332		0.000	97,440		0.036		0.029	80,480		0.002		0.001	59,930		0.123		0.062	0.09
	August	68,660		0.332		0.190	88,700		0.036		0.027	103,230		0.002		0.002	41,330		0.123		0.042	0.26
	September	125,850		0.587		0.617	81,780		0.028		0.019	101,480		0.002		0.001	53,180		0.160		0.071	0.71
	October	117,450		0.587		0.575	69,710		0.028		0.017	61,020		0.002		0.001	30,320		0.160		0.040	0.63
	November	101,340		0.587		0.496	71,210		0.028		0.017	85,160		0.002		0.001	47,460		0.160		0.063	0.58
	December	118,390		0.587		0.580	79,790		0.028		0.019	106,310		0.002		0.001	48,770		0.160		0.065	0.67
	TOTAL	**1,053,990**				**3.91**	**1,038,150**				**0.29**	**1,030,680**				**0.02**	**693,650**				**0.77**	**4.98**
	CUMULATIVE TOTAL	***20,946,162***				***133.55***	***19,649,794***				***18.82***	***19,888,136***				***4.39***	***14,076,118***				***42.00***	***198.76***
2019	January	78,910		0.587		0.387	93,680		0.028		0.022	100,000		0.002		0.001	21,880		0.160		0.029	0.44
	February	98,700		0.587		0.484	63,710		0.028		0.015	72,080		0.002		0.001	670		0.160		0.001	0.50
	March	93,580		0.587		0.458	76,460		0.028		0.018	60,610		0.002		0.001	8,790		0.160		0.012	0.49
	April	33,980		0.587		0.166	44,250		0.028		0.010	23,490		0.002		0.000	18,470		0.160		0.025	0.20
	May	31,060		0.587		0.152	121,570		0.028		0.029	120,790		0.002		0.002	67,460		0.160		0.090	0.27
	June	320		0.587		0.002	64,430		0.028		0.015	61,950		0.002		0.001	50,070		0.160		0.067	0.08
	July	91,530		0.587		0.448	57,530		0.028		0.014	79,310		0.002		0.001	38,430		0.160		0.051	0.51
	August	94,460		0.587		0.463	84,640		0.028		0.020	116,970		0.002		0.001	58,840		0.160		0.079	0.56
	September	126,950		0.146		0.155	79,450		0.030		0.020	104,670		0.001		0.001	26,130		0.093		0.020	0.20
	October	127,340		0.146		0.155	92,780		0.030		0.024	71,470		0.001		0.001	0		0.093		0.000	0.18
	November	138,280		0.146		0.168	88,640		0.030		0.022	85,330		0.001		0.001	51,100		0.093		0.040	0.23
	December	78,860		0.146		0.096	53,040		0.030		0.013	56,520		0.001		0.001	14,670		0.093		0.011	0.12
	TOTAL	**993,970**				**3.13**	**920,180**				**0.22**	**953,190**				**0.01**	**356,510**				**0.42**	**3.79**
	CUMULATIVE TOTAL	***21,940,132***				***136.68***	***20,569,974***				***19.04***	***20,841,326***				***4.40***	***14,432,628***				***42.43***	***202.55***

TABLE 5
CAPA GROUNDWATER TREATMENT SYSTEM
APPROXIMATE MASS OF MERCURY REMOVED
RECOVERY WELLS

YEAR	MONTH	CA050B					CA051B					CA052B					CA0U23B					MERCURY REMOVED, ALL WELLS
		CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				CUMULATIVE FLOW	MERCURY				
		(gal)[1]	Q	(mg/L)[2,3]	FLAG	(lbs)[4]	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(gal)	Q	(mg/L)	FLAG	(lbs)	(lbs)
2020	January	99,920		0.146		0.122	81,890		0.030		0.021	98,370		0.001		0.001	47,170		0.0929		0.037	0.18
	February	47,740		0.146		0.058	101,760		0.030		0.026	85,070		0.001		0.001	30,460		0.0929		0.024	0.11
	March	37,000		0.146		0.045	29,350		0.030		0.007	30,090		0.001		0.000	21,010		0.0929		0.016	0.07
	April	138,540		0.146		0.169	87,680		0.030		0.022	76,950		0.001		0.001	72,130		0.0929		0.056	0.25
	May	36,930		0.146		0.045	35,000		0.030		0.009	32,260		0.001		0.000	31,950		0.0929		0.025	0.08
	June	82,880		0.146		0.101	65,050		0.030		0.017	59,720		0.001		0.001	59,030		0.0929		0.046	0.16
	July	77,260		0.146		0.094	90,970		0.030		0.023	44,760		0.001		0.001	59,410		0.0929		0.046	0.16
	August	84,810		0.146		0.103	93,000		0.030		0.024	49,520		0.001		0.001	5,250		0.0929		0.004	0.13
	September	147,260		0.438		0.538	121,670		0.043		0.043	107,190		0.001		0.001	28,730		0.0242		0.006	0.59
	October	117,270		0.438		0.429	81,830		0.043		0.029	82,370		0.001		0.001	67,410		0.0242		0.014	0.47
	November	127,620		0.438		0.466	65,160		0.043		0.023	83,130		0.001		0.001	56,000		0.0242		0.011	0.50
	December	140,680		0.438		0.514	62,700		0.043		0.022	91,570		0.001		0.001	67,480		0.0242		0.014	0.55
	TOTAL	**1,137,910**				**2.68**	**916,060**				**0.27**	**841,000**				**0.01**	**546,030**				**0.30**	**3.26**
	CUMULATIVE TOTAL	***23,078,042***				***139.37***	***21,486,034***				***19.31***	***21,682,326***				***4.41***	***14,978,658***				***42.73***	***205.81***
2021	January	8,850		0.438		0.032	23,872		0.043		0.009	27,500		0.001		0.000	27,640		0.125		0.029	0.07
	February	62,110		0.438		0.227	52,750		0.043		0.019	43,110		0.001		0.000	33,319		0.125		0.035	0.28
	March	111,120		0.438		0.406	94,150		0.043		0.034	68,070		0.001		0.001	66,971		0.125		0.070	0.51
	April	101,180		0.438		0.370	74,500		0.043		0.027	66,870		0.001		0.001	62,480		0.125		0.065	0.46
	May	34,060		0.438		0.124	37,600		0.043		0.013	28,300		0.001		0.000	24,120		0.125		0.025	0.16
	June	72,710		0.438		0.266	67,840		0.043		0.024	64,390		0.001		0.001	53,900		0.125		0.056	0.35
	July	39,230		0.438		0.143	40,560		0.043		0.014	46,800		0.001		0.001	34,210		0.125		0.036	0.19
	August	76,450		0.438		0.279	9,050		0.043		0.003	54,620		0.001		0.001	49,760		0.125		0.052	0.34
	September	106,990		0.447		0.399	79,190		0.027		0.018	93,090		0.001		0.001	82,610		0.125		0.086	0.50
	October	84,370		0.447		0.315	101,841		0.027		0.023	95,000		0.001		0.001	33,040		0.125		0.034	0.37
	November	102,830		0.447		0.384	86,099		0.027		0.020	58,810		0.001		0.001	37,020		0.125		0.039	0.44
	December	106,220		0.447		0.396	103,670		0.027		0.024	42,210		0.001		0.000	45,020		0.125		0.047	0.47
	TOTAL	**906,120**				**3.34**	**771,122**				**0.23**	**688,770**				**0.01**	**550,090**				**0.57**	**4.15**
	CUMULATIVE TOTAL	***23,984,162***				***142.71***	***22,257,156***				***19.54***	***22,371,096***				***4.41***	***15,528,748***				***43.30***	***209.96***

Notes:
1) gal - gallons
2) mg/L - milligrams per liter
3) Mercury samples collected during the month were reported as that months' concentration. If a sample was not collected during a specific month, the previous month's result was reported.
4) lbs - pounds



LEGEND

CA009B	WELL DESIGNATION
○	MONITORING WELL LOCATION
●	PIEZOMETER LOCATION
◐	RECOVERY WELL LOCATION
◪	TIDAL GAUGE
—1.5—	ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (FT) C.I. = 0.5 FT
▨	AREA OF DRAWDOWN OF POTENTIOMETRIC SURFACE CAUSED BY PUMPING (NOT CONTOURED)
(2.56)	ZONE B WATER LEVEL (FT MSL) MEASURED 3/4/2021
(NM)	WATER LEVEL MEASUREMENT NOT MEASURED OR NOT USED

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/21/17.

CLIENT
ALCOA CORPORATION
POINT COMFORT OPERATIONS

PROJECT
CAPA ANNUAL REPORT

TITLE
CAPA POTENTIOMETRIC SURFACE MAP
1Q2021 - MARCH 4, 2021

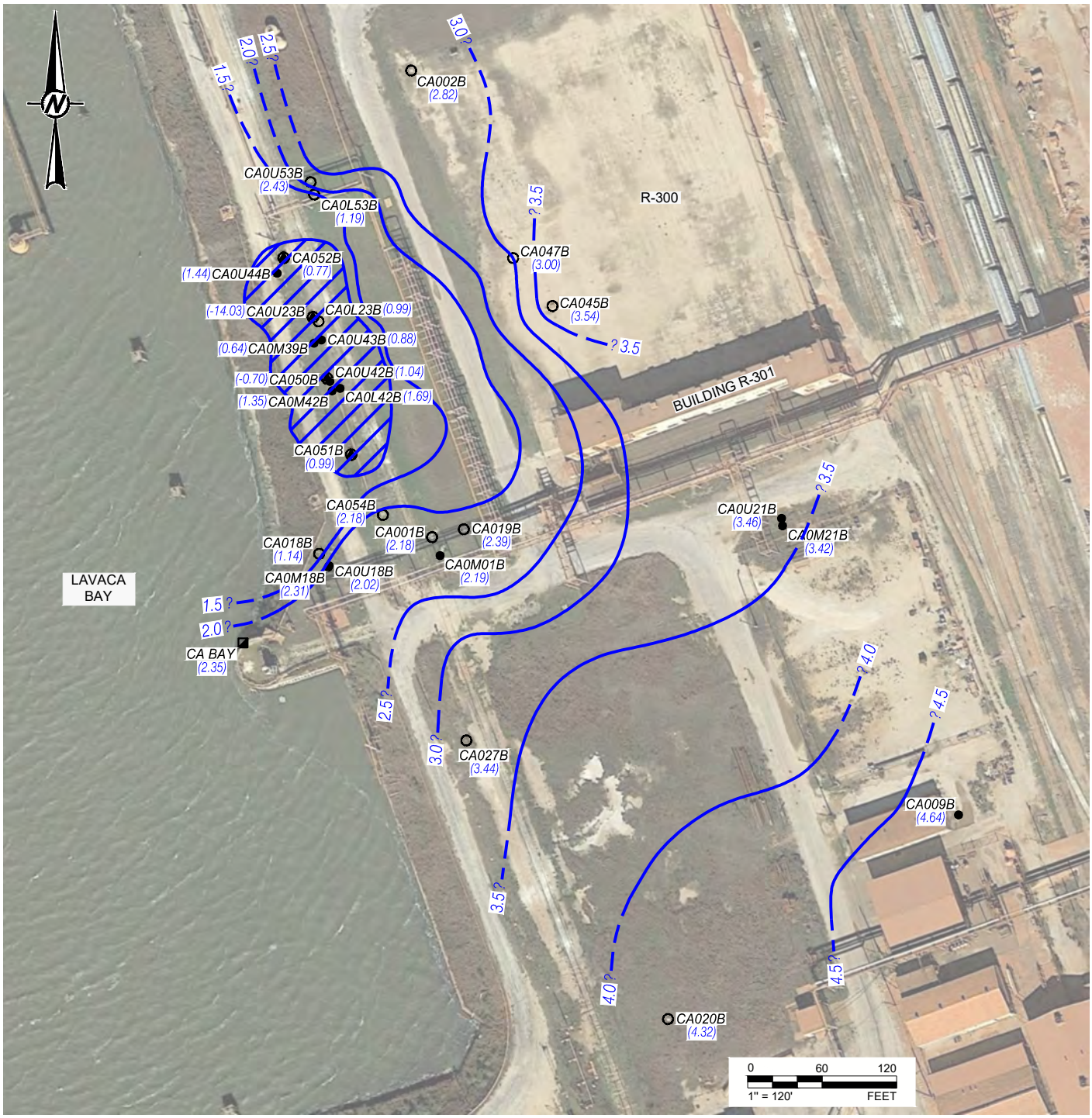
CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-02-02
DESIGNED	AJD
PREPARED	AJD
REVIEWED	KD
APPROVED	MKW

PROJECT NO.	REV.	FIGURE
19117631B	0	1

Last Edited By: tbookout Date: 2022-02-02 Time:4:17:54 PM | Printed By: TBookout Date: 2022-02-02 Time:5:09:33 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Victoria_2019\19117631 - ALCOA PCO\PRODUCTION\1 - CAPA Annual Report 2021\ | File Name: 1 - Pot Surface Map (1Q2021).dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0



LEGEND

CA009B	WELL DESIGNATION
○	MONITORING WELL LOCATION
●	PIEZOMETER LOCATION
	RECOVERY WELL LOCATION
	TIDAL GAUGE
—1.5—	ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (FT) C.I. = 0.5 FT
	AREA OF DRAWDOWN OF POTENTIOMETRIC SURFACE CAUSED BY PUMPING (NOT CONTOURED)
(2.56)	ZONE B WATER LEVEL (FT MSL) MEASURED 6/30/2021
(NM)	WATER LEVEL MEASUREMENT NOT MEASURED OR NOT USED

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/21/17.

CLIENT
ALCOA CORPORATION
POINT COMFORT OPERATIONS

PROJECT
2021 RAAER

TITLE
POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER JUNE 30, 2021

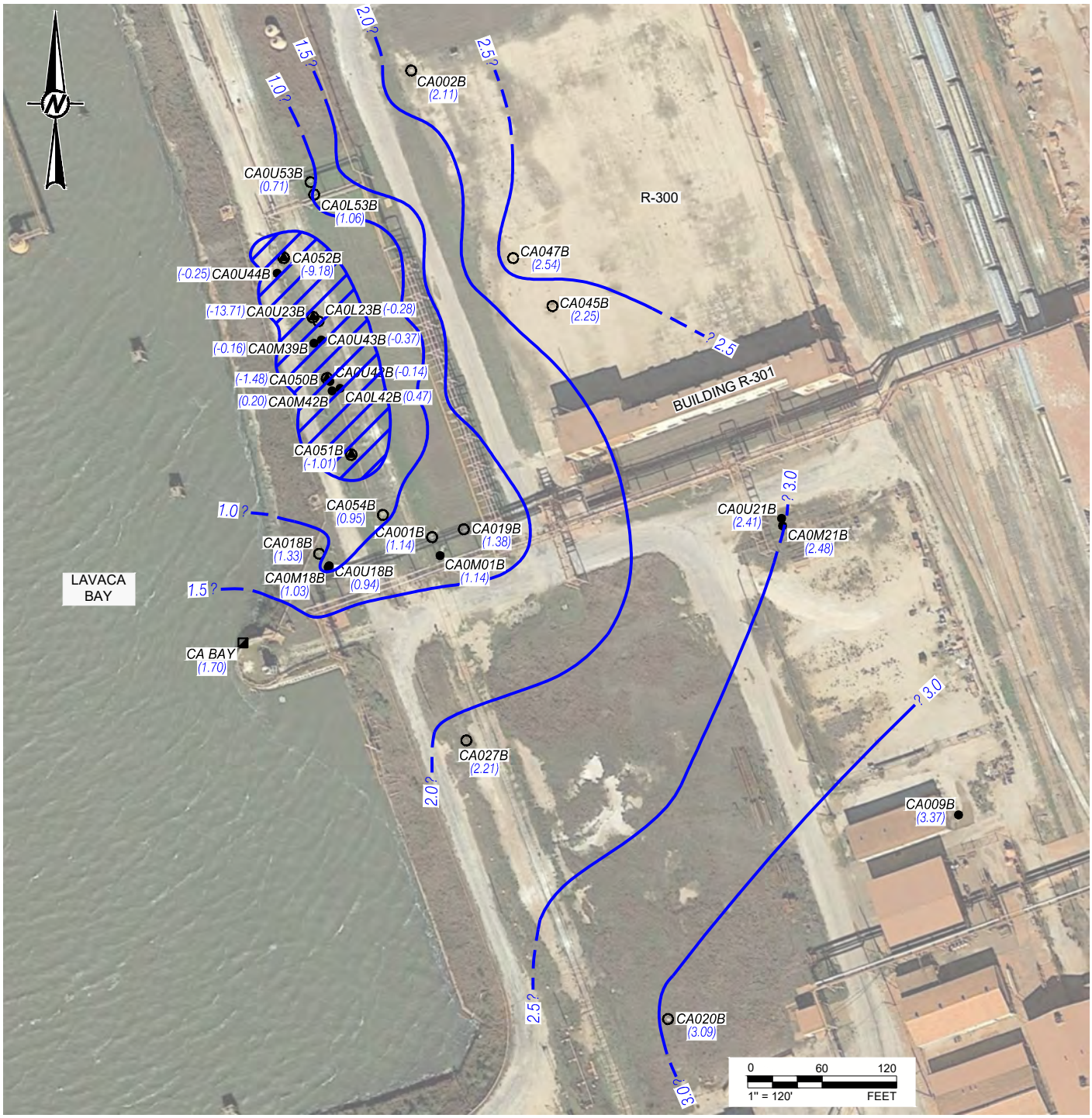
CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-02-02
DESIGNED	AJD
PREPARED	AJD
REVIEWED	CRD
APPROVED	MKW

PROJECT NO.	REV.	FIGURE
19117631A	0	2

Last Edited By: tbookout Date: 2022-02-02 Time:4:13:16 PM | Printed By: TBookout Date: 2022-02-02 Time:5:10:08 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Victoria_2019\19117631 - ALCOA PCO\PRODUCTION\1 - CAPA Annual Report 2021\ | File Name: 2 - Pot Surface Map (2Q2021).dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0



LEGEND

CA009B	WELL DESIGNATION
○	MONITORING WELL LOCATION
●	PIEZOMETER LOCATION
◆	RECOVERY WELL LOCATION
◪	TIDAL GAUGE
—1.5—	ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (FT) C.I. = 0.5 FT
▨	AREA OF DRAWDOWN OF POTENTIOMETRIC SURFACE CAUSED BY PUMPING (NOT CONTOURED)
(2.56)	ZONE B WATER LEVEL (FT MSL) MEASURED 9/9/2021
(NM)	WATER LEVEL MEASUREMENT NOT MEASURED OR NOT USED

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/21/17.

CLIENT
ALCOA CORPORATION
POINT COMFORT OPERATIONS

PROJECT
2021 RAAER

TITLE
POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER SEPTEMBER 9, 2021

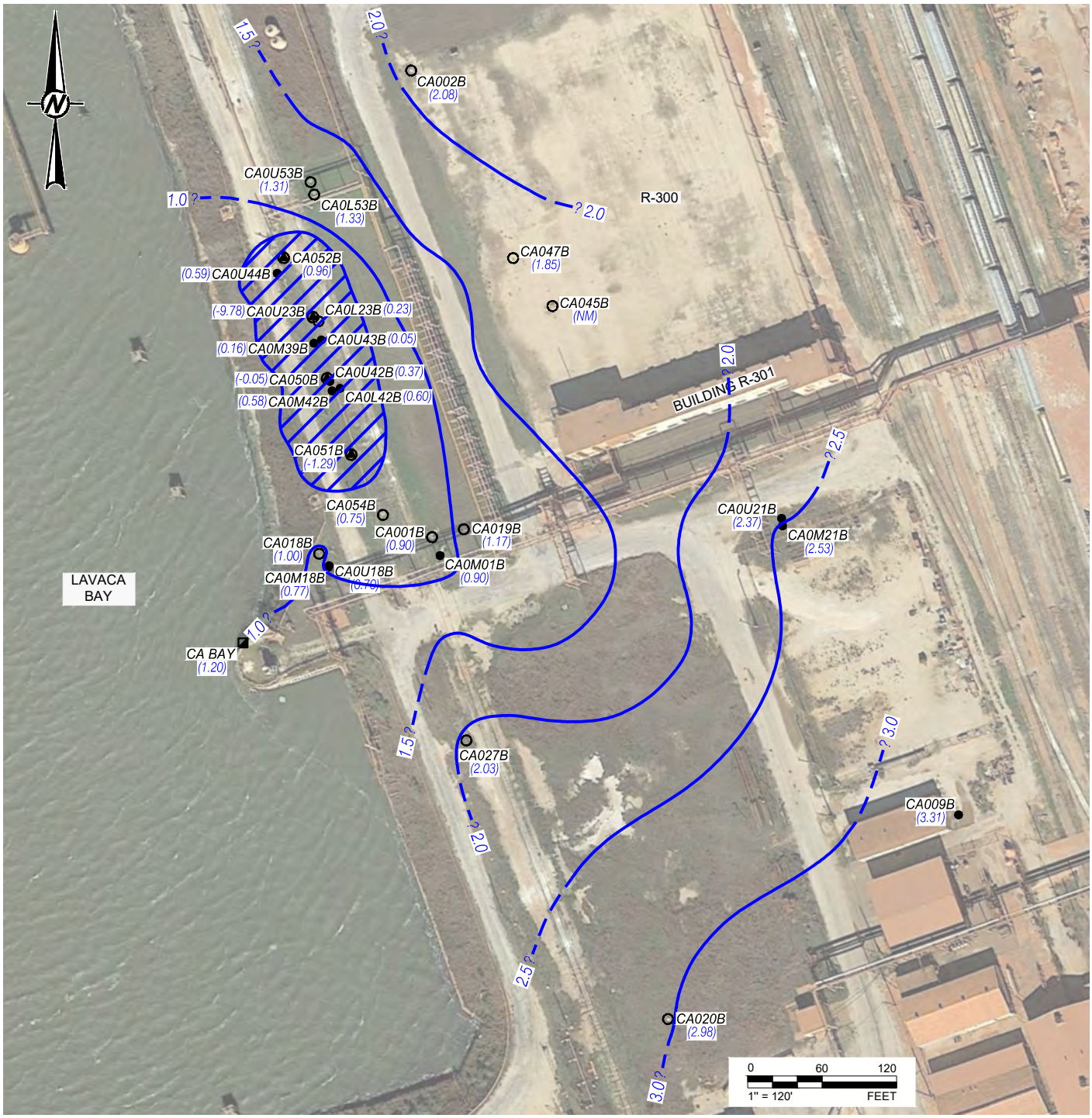
CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-02-02
DESIGNED	AJD
PREPARED	AJD
REVIEWED	CRD
APPROVED	MKW

PROJECT NO.	REV.	FIGURE
19117631A	0	3

Last Edited By: tbookout Date: 2022-02-02 Time:4:13:18 PM | Printed By: TBookout Date: 2022-02-02 Time:5:10:43 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Victoria_2019\19117631 - ALCOA PCO\PRODUCTION\1 - CAPA Annual Report 2021\ | File Name: 3 - Pot Surface Map (3Q2021).dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0



LEGEND

CA009B	WELL DESIGNATION
○	MONITORING WELL LOCATION
●	PIEZOMETER LOCATION
◉	RECOVERY WELL LOCATION
◪	TIDAL GAUGE
—1.5—	ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (FT) C.I. = 0.5 FT
▨	AREA OF DRAWDOWN OF POTENTIOMETRIC SURFACE CAUSED BY PUMPING (NOT CONTOURED)
(2.56)	ZONE B WATER LEVEL (FT MSL) MEASURED 12/7/2021
(NM)	WATER LEVEL MEASUREMENT NOT MEASURED OR NOT USED

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/21/17.

CLIENT
ALCOA CORPORATION
POINT COMFORT OPERATIONS

PROJECT
2021 RAAER

TITLE
POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER
DECEMBER 7, 2021

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-02-02
DESIGNED	AJD
PREPARED	AJD
REVIEWED	CRD
APPROVED	MKW

PROJECT NO.	REV.	FIGURE
19117631A	0	4

Last Edited By: tbookout Date: 2022-02-02 Time:1:50:33 PM | Printed By: TBookout Date: 2022-02-02 Time:1:58:06 PM
Path: \\golder.gds\complexdata\office\Texarkana\Projects - Victoria_2019\19117631 - ALCOA PCO\PRODUCTION\1 - CAPA Annual Report 2021\ | File Name: 4 - Pot Surface Map (4Q2021).dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

FIGURE 5
CAPA GROUNDWATER TREATMENT SYSTEM
Recovery Wells - Analytical Results
Mercury (Hg) vs. Time

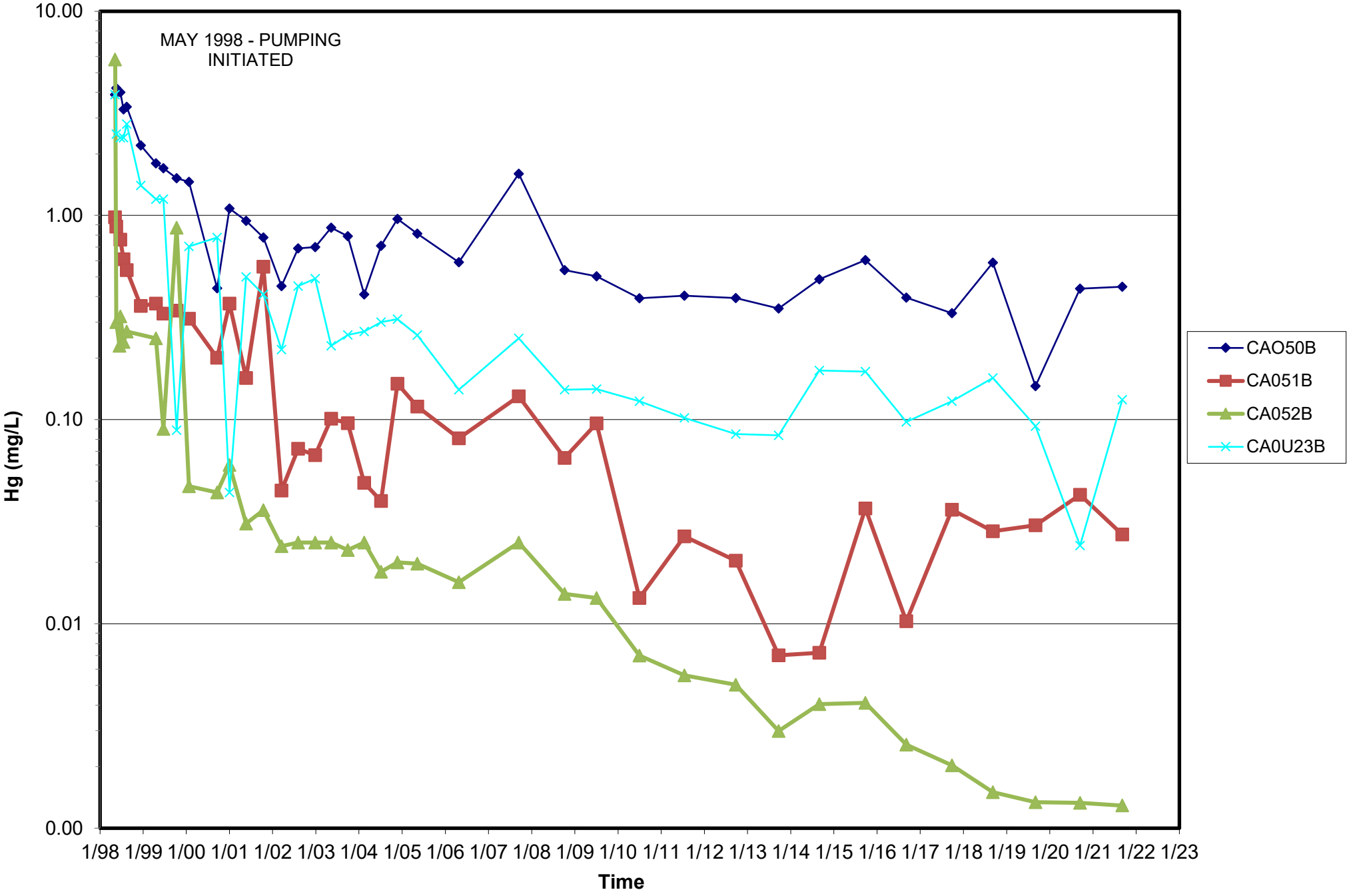
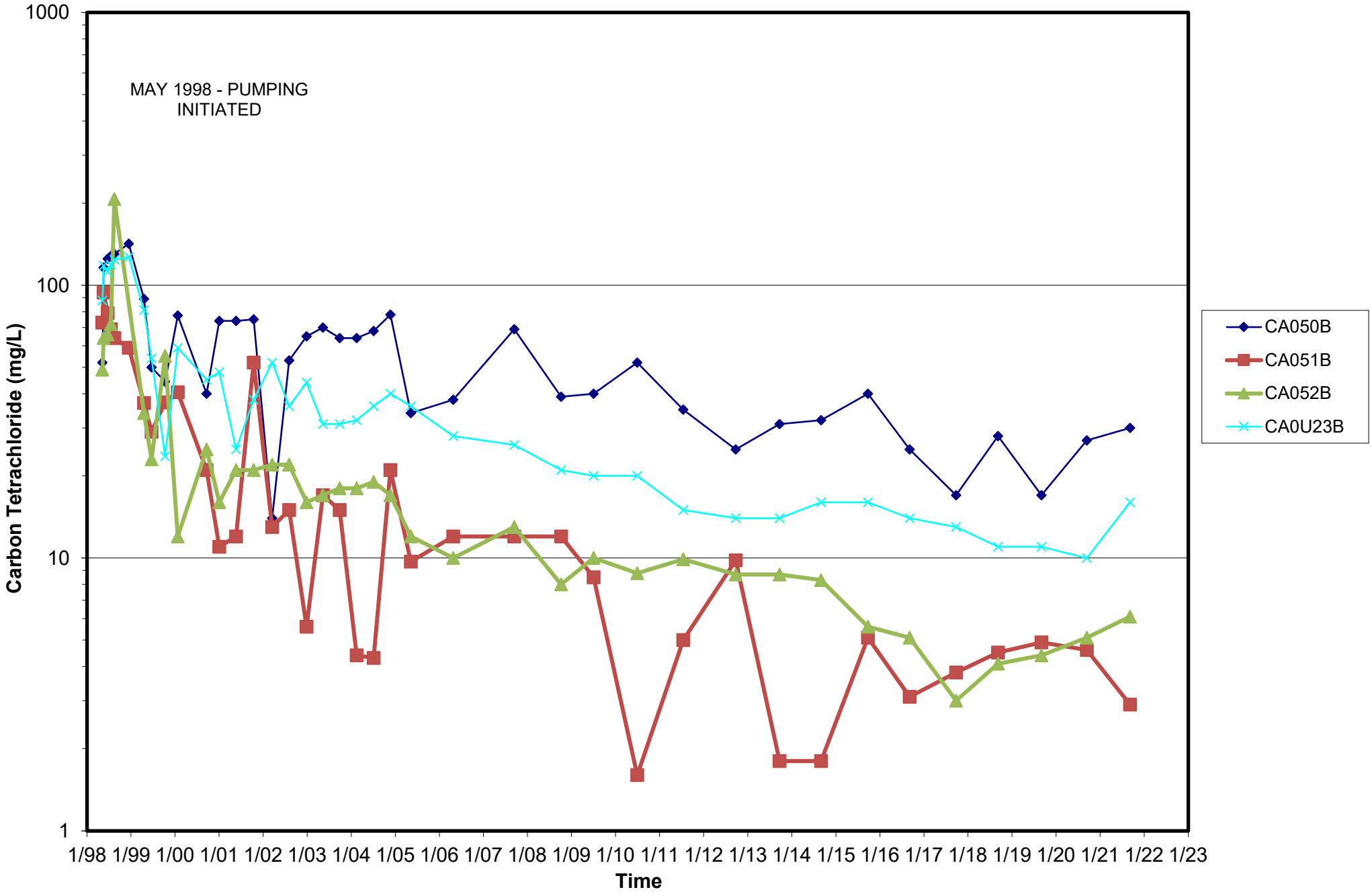


FIGURE 6
CAPA GROUNDWATER TREATMENT SYSTEM
Recovery Wells - Analytical Results
Carbon Tetrachloride vs. Time



APPENDIX B1
DREDGE ISLAND INSPECTION RECORDS

First Half 2021
DREDGE ISLAND INSPECTION RECORD

Inspector's Name: Kevin Dworsky

Weather: Mostly Clear Sky

Temperature: 89° F

Kevin Dworsky was accompanied by Benchmark Ecological Services, Inc during the inspection.

Date: 06/24/2021

Time Begin: 0915

Time End: 1045

Inspector's Signature:

SPECIFIC ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS OBSERVED		COMMENTS OR CORRECTIVE ACTION(S) IMPLEMENTED AND DATES
		NORMAL	ABNORMAL	
General Dredge Island (Summary)	Erosion	X	□	Shoreline bank cut observed near the northeast dike toe of the exterior slope as reported in previous reports, associated with the previous dredging event of Marsh 14. The cut does not extend to the dike cross-section but future erosion could eventually chase back into the toe of the dike. Appears there has been little to no erosion of the area since the 2H20 inspection. Will continue to monitor. All original vehicular signs and some of the reflectors on the island are damaged and/or knocked down. New signs were placed in a few locations during the 2011 maintenance event and prior to the 2017 dredge event on the island. Most of these signs have also been knocked down by the strong winds during storm events or damaged during vegetation control activities. Minor vegetation on the road and moderate to heavy vegetation along the sides of the roads, interior dikes, exterior dikes, and on toes of the exterior dikes. Some rutting of the road and gravel erosion protection on the exterior dike at the northeast side of the CDF caused by the heavy equipment used during previous dredging events, vegetation control events, and ongoing decant structure work. Some small trees/bushes are forming in the gravel of the interior dike and small to large trees/bushes are forming in the gravel and rock of the exterior dikes. There are some larger trees/bushes in the stone storm armor. There is minor to moderate erosion observed along the crest and along the sides and crest of the north entry ramp. Hard to inspect the side slopes of the ramps thoroughly and several areas of the interior and exterior dikes due to heavy vegetation. No issues that compromise the integrity of the dikes and other structures on the island were found during this inspection. All noted issues should continue to be monitored closely during semi-annual inspections and after severe weather events. A vegetation control schedule should be implemented to control vegetation on the roads and exterior dikes.
	Deterioration	X	□	
	Settling/Ponding	X	□	
	Uplift	X	□	
	Washouts	X	□	
	Rodent Holes	X	□	
	Vegetation	□	X	
Access Bridge	Deterioration	□	X	Conditions similar to the previous 2H20 report. The bridge was originally damaged in 2006 and further damage was received in 2017 from Hurricane Harvey.
	Damage	□	X	
	Navigation Lights	□	X	

Access Bridge (continued)				Bridge abutments severely eroded. Hazard signs and lights indicating the presence of water hazards appear in good condition. A detailed inspection of the bridge was not performed as part of this site visit.
CDF Dike	Erosion Deterioration Damage Vegetation	X X X □	□ □ □ X	Conditions similar to the previous 2H20 Report. Minor to moderate erosion has been noted on the north, west, and south interior dikes. The geomembrane has been exposed in some of these locations and vegetation is beginning to grow through the geofabric in areas where it has been damaged (ripped). Action may be necessary if water levels are not maintained at a minimum within the CDF. Vegetation should not be sprayed on the inner dikes to assist in the prevention of additional erosion. The geomembrane component of the water stop on the CPA dike is exposed due to the severe erosion of the overlying topsoil. Small holes have been observed in the exposed geomembrane. There are also large erosion rills on the exterior and interior of the CPA dike. Erosion on the interior and exterior dikes appears to not have worsened since the last inspection. Erosion in this area currently does not appear to impact the CDF dikes but should continue to be monitored during semi-annual inspections as it is approximately 100 feet south of the Alcoa CDF. The water stop geomembrane exposure within the CPA dike should be evaluated for decommissioning to isolate from the Alcoa CDF given the geomembrane extends under the south exterior large riprap material of the Alcoa CDF. There was no seepage noted from the top of the dike. An extensive inspection around the toe of the dike, structural support members showing signs of rust was not completed as part of this inspection. There was water inside the southern portion of the CDF. The exterior CDF dike appears to be in good overall condition. The CDF dike appears stable and there is no required action at this time, however, water levels in the CDF should be maintained as low as possible, and erosion rills on the dike's interior and exterior should continue to be monitored during inspections. Moderate amounts of vegetation cover the interior and exterior portions of the CDF. A routine vegetation control schedule is recommended for the CDF roads and exterior dikes.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage Vegetation	X X X X X X □	□ □ □ □ □ □ X	Conditions similar to the previous 2H20 Report No damage was observed. Moderate to heavy vegetation present in some areas. There are some small to large trees/bushes that are pushing through the stone armor. These trees/bushes were not part of the 2015 and 2017 vegetation removal due to safety issues with workers on the stone armor. Due to safety concerns associated with walking on the armor stone, this inspection was conducted

Stone Storm Protection (continued)				without traversing the stone on the exterior dike. The exterior dike locations were observed via the dike crest. Vegetation control is recommended to avoid movement of the stone armor which could potentially allow erosion of the CDF.
Gravel Erosion Protection	Erosion Fabric Exposure Deterioration Damage	□ □ □ □	X X X X	Conditions similar to the previous 2H20 Report The inside slope of the north dike and north sections of the east and west dikes have been repaired several times since the construction of the CDF due to erosion but geotextile fabric and overlying gravel erosion protection originally constructed on the interior dike was not placed as part of the work. The north west and south sections of the inner slope are currently showing minor to moderate erosion. Most of the remaining sections of the inside slope of the dikes exhibit minor erosion and loss of gravel protection. No immediate action is required at these locations, but they should continue to be monitored. Lack of geotextile and overlying gravel erosion protection on the dike interiors does not appear to be problematic if the water levels are kept low. It is recommended that vegetation should not be removed where there is no gravel. The vegetation will assist in the prevention of additional erosion.
Emergency Spillway	Obstructions Cracks in Concrete Deterioration Damage	X X X X	□ □ □ □	Conditions similar to the previous 2H20 Report Generally good condition. Slight erosion and some cracks in the concrete. Slight erosion has occurred along the exterior and interior edge of the spillway. Some localized concrete deterioration was observed.
Decant Structures	Weir Board Elevation Depth of Water Obstructions Deterioration Rust/Corrosion Damage Overflow Quality (NA) Overflow Quantity Flap Gate	X X X X X X X X X	□ □ □ □ □ □ □ □ □	North Structure: The existing structure has been decommissioned. A new, replacement structure has been fabricated and operations are ongoing for installation in 2021. <u>South Structure:</u> The existing structure has been decommissioned. A new, replacement structure has been fabricated and operations are ongoing for installation in 2021. Due to ongoing replacement activities for both structures, inspection of the structures was not conducted nor were water levels measured.
Gravel Road	Potholes Ponding Deterioration Washouts Vegetation	X X X X X	□ □ □ □ □	Conditions similar to the previous 2H20 Report Generally, in good condition and there is very little vegetation. Some minor rutting at several locations from previous vegetation control activities, dredging events and current decant structure replacement activities. There is some slight erosion on the sides of portions of the road causing several areas of thin gravel and geomembrane exposure. A routine vegetation control schedule should be implemented to minimize the amount of vegetation on the roads.
Water Stops	Erosion	□	X	Conditions similar to the previous 2H20 Report

Water Stops (continued)	Membrane Exposed Deterioration Damage	□ X X	X □ □	Erosion, fines accumulation, and geomembrane exposed at the water stop on the interior and exterior CPA dike (south of the Alcoa CDF) as previously reported. Moderate to severe erosion on the exterior and interior of the East and West CPA Dike. See CDF Dike Inspection Section of this report for more details.
Reflectors Station Tags	Intact/Reflecting Intact/Legibility	□ □	X X	Conditions similar to the previous 2H20 Report Some reflectors and traffic signage were observed to be leaning or entirely down on the ground. This damage was noted to be from storm events, erosion of topsoil in areas, and damage caused during previous dredging, maintenance, and vegetation control activities. If the island is to be used for vehicular traffic in the future, a more detailed review of the reflectors and traffic signage should be completed.

FIRST HALF 2021
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – Viewing East side of the North Ramp

2 – Viewing West side of the North Ramp

3 – North Ramp, viewing surface cracking and movement of soil causing reflector to lean

4 – North Inner Dike, viewing minor erosion and exposure of geofabric

5 – North Inner Dike, viewing damaged sign

6 – Northeast Corner Outer Dike, viewing West

7 – Northeast Corner Inner Dike, viewing West

8 – Northeast Corner Inner Dike, viewing South

FIRST HALF 2021
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

9 – East Outer Dike, viewing North

10 – North Outfall

11 – North Decant Structure

12 –East Outer Dike - vegetation in the gravel protection and rock storm armor

13 – Southeast Inner Dike, viewing Southwest

14 – Southeast Outer Dike, location of historic seepage area

15 – Southeast Corner Outer Dike, viewing South

16 – Southeast Corner Inner Dike, viewing South

FIRST HALF 2021
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

17 – Southeast Corner Inner Dike, viewing West

18 – Southeast Corner Outer Dike, viewing West

19 – South Inner Dike, viewing exposed geofabric and vegetation growing through the geofabric

20 – Southwest Corner Inner Dike, viewing North

21 – Southwest Corner Outer Dike, viewing North

22 – South Outfall – No Flow

23 – South Decant Structure

24 – West Inner Dike, viewing exposed geofabric and vegetation growing through the geofabric

FIRST HALF 2021
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

25 – Northwest Corner Inner Dike, viewing South

26 – Northwest Corner Outer Dike, viewing South

27 – Northwest Corner Inner Dike, viewing East

28 – Northwest Corner Outer Dike, viewing East

29 – Emergency Spillway, viewing minor erosion along the outer edge and some vegetation growth

30 – Emergency Spillway, viewing minor deterioration of the concrete and surrounding vegetation

31 – West CPA Inner Dike, viewing erosion and exposure of liner

32 – East CPA Inner Dike, viewing erosion and exposure of liner

FIRST HALF 2021
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

33 – Eastern Ramp, viewing East

34 – North Ramp, viewing South

35 – Dredge Island Levee Road, viewing minor rutting

36 – Dredge Island Levee Road, viewing exposure of geofabric

37 – Northeast Corner Impoundment Water Level, viewing Southwest

38 – East Corner Impoundment Water Level, viewing West

39 – Dredge Island Access Bridge, viewing damage and warning signage

40 – Dredge Island Access Bridge, viewing erosion between the bridge and the island

SITE INSPECTION LOG

Inspector's Name: Dan Bullock, P.E. (BBA, LLC)
Weather: Clear
Temperature: Approx. 70 F

1/13/2022

Inspector's Signature:

Inspection Date: 11-16-21
Time Begin: Approx. 10:00 a.m.
Time End: Approx. 1:30 p.m.

Sheet: 1 of 2

Specific Item to Inspect	Typical Problems Encountered	Conditions Observed		Comments or Corrective Action(s) Implemented and Dates
		Normal	Abnormal	
General Dredge Island	Erosion Deterioration Settling/Ponding Uplift Washouts Rodent Holes	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	Shoreline bank cut observed (as noted during recent inspections) near northeast dike toe of exterior slope. Appears possibly associated with dredging. Cut does not extend to dike cross section but future erosion could eventually chase back into toe of dike. Monitor as part of future inspections. Minor to moderate erosion observed on North entry ramp, along edges of ramp crest. Bridge and access ramp not in use. Vehicle traffic signs and reflectors need replacement/repair if island to be used for vehicular traffic – which is currently not the case.
Access Bridge	Deterioration Damage Navigation Lights	☐ ☐ ☐	☒ ☒ ☒	Conditions similar to those observed and reported in 12/19/06 and subsequent inspection reports (bridge substantially damaged/removed). Detailed inspection of bridge not performed as part of this site visit. Bridge abutments severely eroded.
CDF Dike	Erosion Deterioration Damage Vegetation	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	The geomembrane component of the water stop on the Port dike, near the Alcoa CDF Station 23+00 (east side) and Station 37+00 (west side), is exposed due to severe erosion of the overlying topsoil cover material (see attached photos) as noted in previous inspections. An additional area of exposed geomembrane, which appears to be the leading edge of the south extent of the water stop geomembrane, was observed approximately 100 feet south of the Alcoa CDF southwest corner exterior dike toe, within the Port dike interior. Substantial portions of the west Port dike are gone in areas due to cumulative wave erosion from the bay side, and this area of the Port dike erosion has exposed the south extent of the water stop. This area of the water stop within the Port dike has been undermined and damaged due to dike erosion. The Port CDF has not been placed into service, and these areas currently do not appear to impact the Alcoa CDF dike but should continue to be monitored during quarterly inspections. The water stop geomembrane exposure within the Port dike should be evaluated for decommissioning to isolate from the Alcoa CDF given the geomembrane extends under the Alcoa CDF south exterior large riprap material. CDF dikes appear in generally good condition, with vegetation intrusion becoming re-established in riprap areas as shown in photos. Minor erosion observed along the west dike interior.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	No damage observed. Vegetation was removed in 2015, however has become re-established in some areas as shown in photos, should implement vegetation control program and periodic visual monitoring.

Gravel Erosion Protection	Erosion Fabric Exposure Deterioration Damage	☐ ☐ ☐ ☐	☒ ☒ ☒ ☒	The inside slopes of north dike, and north section of west and east dikes, have been repaired a couple of times (due to erosion) since CDF construction, but geotextile fabric and overlying gravel erosion protection originally constructed on the interior slopes were not replaced as part of the repair work. Geotextile fabric and surface gravel on dike interior slope in local proximity to northeast and southwest decant structures was removed during recent decant structures installation. Lack of geotextile and overlying gravel protection in these areas does not appear to be problematic as long as water levels are kept low between dredge events, to prevent wave action and associated erosion. Much of the remaining sections of dike inside slope areas exhibit minor erosion and loss of gravel protection, no immediate action is required at these locations but they should continue to be monitored.
Emergency Spillway	Obstructions Cracks in Concrete Deterioration Damage	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	Generally good condition. Some localized, minor surficial concrete spalling observed. Monitor.
Decant Structures	Weir Board Elevation Depth of Water Obstructions Deterioration Rust/Corrosion Damage Overflow Quality Overflow Quantity Flap Gate	☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	<u>North Structure:</u> A new, replacement decant structure has been installed and is operational. Appears in excellent condition. Stoplogs are in place. <u>South Structure:</u> A new, replacement decant structure has been installed and is operational. Appears in excellent condition. Stoplogs are in place.
Gravel Road	Potholes Ponding Deterioration Washouts	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	Generally good condition, some minor to moderate rutting observed at various locations. Some localized areas of exposed geotextile indicating thin layer of road surface gravel. Additional gravel placement recommended for these areas during future maintenance activities.
Water Stops	Erosion Membrane Exposed Deterioration Damage	☐ ☐ ☒ ☐	☒ ☒ ☐ ☒	Erosion and fines accumulation observed near water stop areas. Observed in previous inspections. Appears to be associated with original construction activities (fines to fill voids in large riprap). Geomembrane exposed on Port CDF dike water stop areas as discussed under the CDF dike inspection item above. Continue to monitor.
Reflectors Station Tags	Intact/Reflecting Intact/Legibility	☐ ☐	☒ ☒	Some reflectors and traffic signage observed to be damaged or entirely down on the ground, if island is to be used for vehicular traffic in the future (currently it is not due to no access bridge), a more detailed review of reflectors and traffic signage should be completed.

<u>Note:</u>
Due to identified safety concerns associated with walking on armor stone, this inspection was conducted without traversing the stone on exterior dike slopes. Exterior dike locations were observed via dike crest or by waterside inspection from a boat.

FIGURE 4-3: Typical Inspection Log

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

East Dike Crest (Facing South)

East Dike Exterior (Facing East)

East Dike Interior (Facing North)

East Dike Crest and Exterior (Facing North)

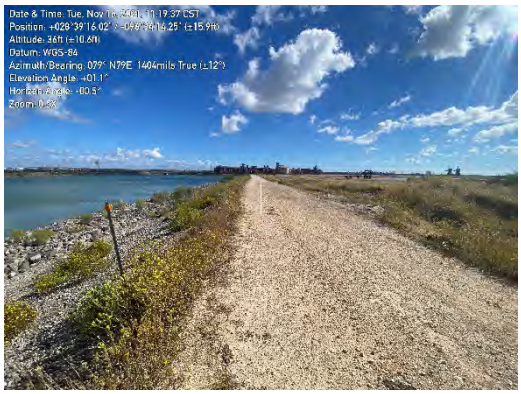
Northeast Decant Structure (Facing Northeast)

Northeast Decant Structure (Facing South)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

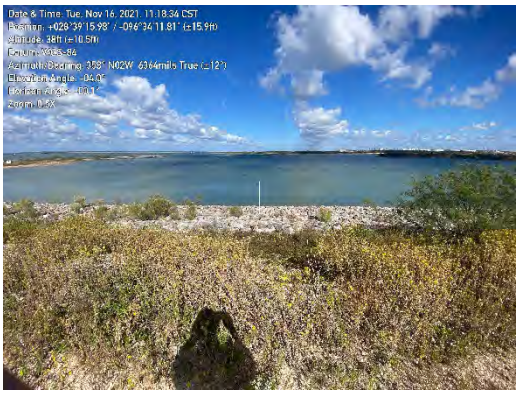
East Dike Crest (Facing South)

Northeast Outfall Discharge (Facing Northeast)



North Dike Crest and Exterior (Facing East)

North Dike Exterior (Facing East)



North Dike Crest (facing north)

North Dike Exterior (facing soutwest)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

North Dike Interior (facing east)

North Dike Exterior (facing northeast)

East Dike Crest (facing south)

East Dike Crest (facing south)

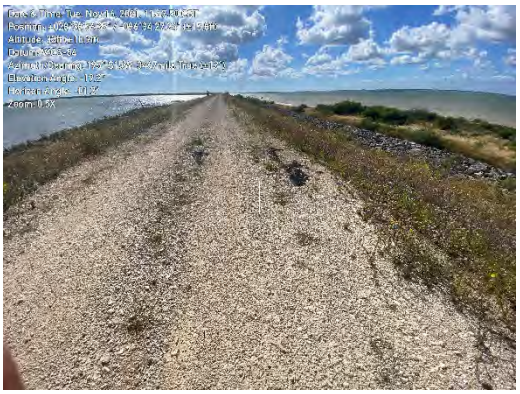
East Dike Spillway (facing northwest)

East Dike Exterior (facing north)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

East Dike Exterior (facing south)

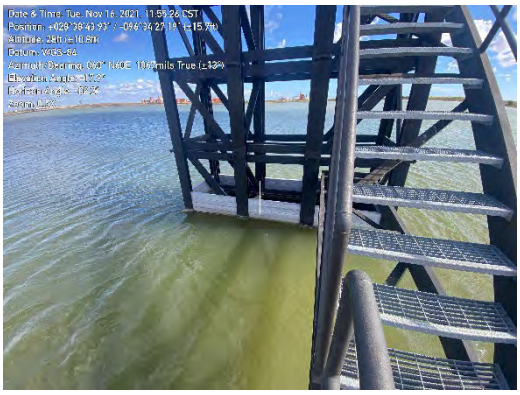
East Dike Exterior (facing southwest)



East Dike Crest (facing south)

East Dike Exterior (facing north)

East Dike Interior (facing south)



Southwest Decant Structure (facing northeast)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

Southwest Decant Structure

Southwest Decant Structure (facing northeast)

East Dike Crest and Interior (facing north)

South Dike Crest (facing east)

South Dike Exterior (facing northeast)

Port CDF, Southwest Water Stop (facing south)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

Port CDF, Southwest Water Stop (facing southeast)

South Dike Exterior (facing west)

South Dike Exterior (facing west)

Port CDF, Southeast Water Stop (facing south)

East Dike Exterior (facing north)

East Dike Crest and Exterior (facing north)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
11/16/2021

East Dike Exterior, Historic Seep 4 and 5 Areas (facing east)

East Dike Interior (facing north)

Northeast Dike Exterior (facing west)

Southwest Decant Structure (facing east)

Port CDF West Dike Erosion (facing northeast)

Port CDF Southwest Water Stop (facing south)

11-16-2021 DI Inspection

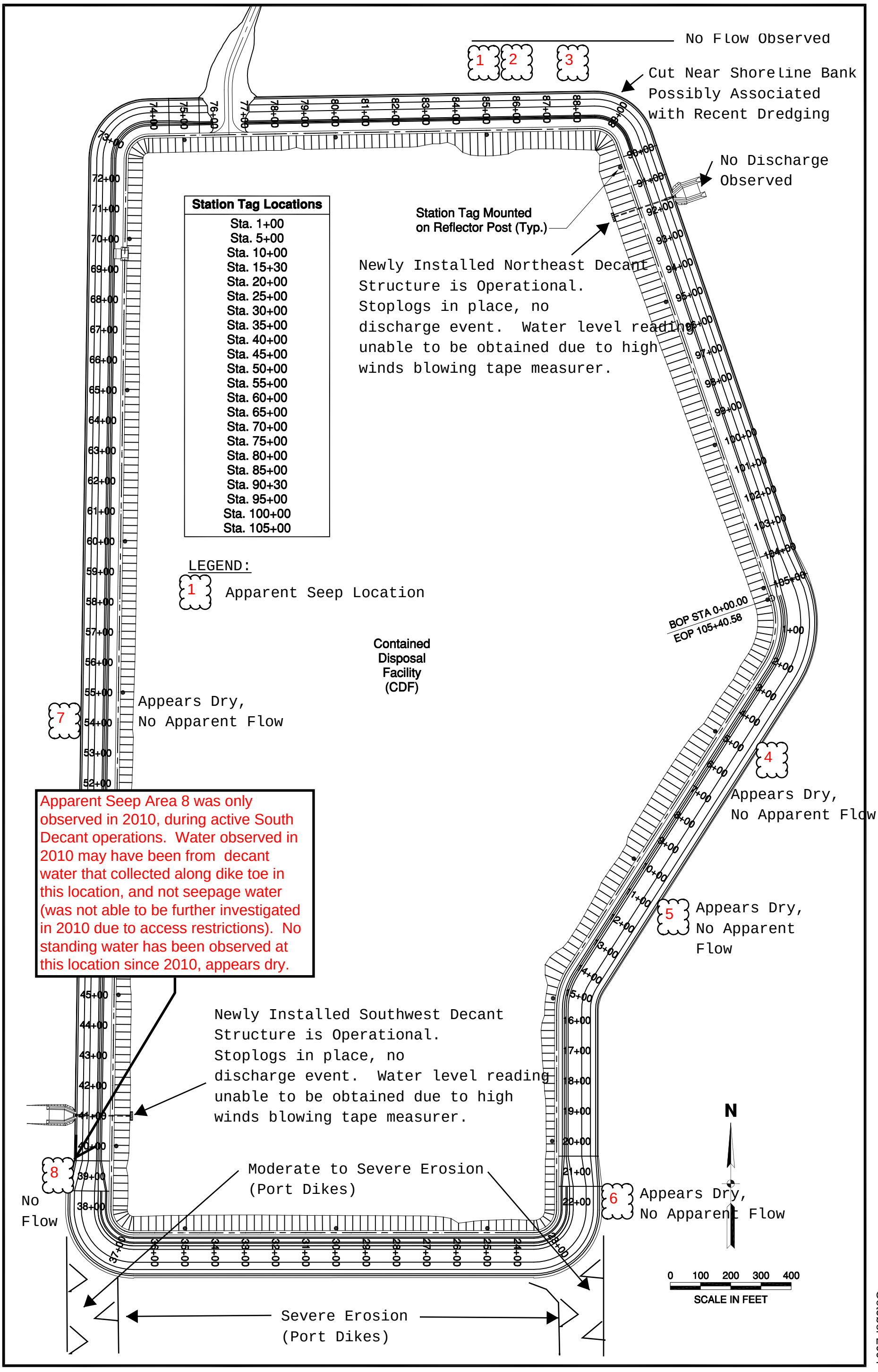


FIGURE 4-2
STATION NUMBER LOCATIONS

APPENDIX B2
CAPA CAP INSPECTION RECORDS

First Half 2021
CAPA CAP INSPECTION RECORD

Date: 06/24/2021 **Time Started:** 11:00 **Time Ended:** 11:30

Weather Conditions: 90°F, Mostly Clear Sky

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Cap	Erosion	☑	☐	None observed.
	Settling	☑	☐	None observed.
	Ponding	☑	☐	Minor signs of where water has ponded during rain events.
	Washouts	☑	☐	There is a buildup of soil/alumina/bauxite material mix along the outer perimeter and on the cap. It is difficult to inspect the limestone cover and there are increasing amounts of vegetational growth due to this buildup. Some soil/alumina/bauxite has migrated off the cap on the NW and SW corners and along the northern cap boundary. This buildup does not compromise the integrity of the cap but will continue to monitor the material washing off the perimeter of the cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	Some minor rutting observed from previous herbicide treatments.
	Intrusive Vegetation	☑	☐	Moderate amount of vegetation across the cap. Herbicide treatment appears to not be on a routine schedule - see recommendations below.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Good Condition.
	Debris	☑	☐	There is soil and gravel blocking the grate in front of the R301 building. The flow into this grate appears to be impeded. Some vegetation debris on western grate and some gravel and vegetation debris on the northwestern grate. Not impeding flow at this time but will continue to monitor.
Equipment or Wastes	Proper Storage	☑	☐	Waste/chemicals properly stored in system containment or at satellite collection stations. All equipment handling the affected groundwater is within secondary containment. No signs of leaks or potentials for release. Satellite collection station is being properly maintained and routinely inspected.
Extraction Wells	Controllers	☑	☐	In good working order.
	Well Boxes	☑	☐	In good working order.
	Electrical	☑	☐	In good working order.
	Conduit	☑	☐	Some signs of conduit piping joints being loose due to the expansion and contraction of the pipe. Overall, in good working condition.
	Transfer/Carrier Piping	☑	☐	In good working order.
	Secondary Containment Piping	☑	☐	In good working order.
	Monitoring Wells	☑	☐	Some wells have locks missing, hinges broken, and surface protective casing that shows moderate rust. Generally in good condition and will monitor closely. Integrity of the wells are protected as the site is secure.

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Extraction Wells	Vegetation	☑	☐	Healthy vegetation.
Treatment System	Equipment	☑	☐	Signs of moderate rusting and deterioration of metal parts such as equipment, connectors, and stands. Does not currently affect the integrity of the system and procedures have been instituted to treat these areas as needed to slow the deterioration process and replace when needed.
	Building	☐	☑	Some structural support members showing signs of rust and pieces of the roof are loose and missing. There are large holes in the roof that allow rain to enter building and flow into the containment during a heavy rain storm. Stairway has been boarded up and access has been limited by barriers, locks, and restricted entry ways. Access to the building is limited by barriers and locks. Does not affect the integrity of the system. Rusted supports and building condition will be monitored closely.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition.

Recommendations: Continued monitoring and routine maintenance. Area should be mowed and treated with an herbicide on the cap on a routine basis. Golder will continue to apply rust killer to equipment and equipment stands to slow down the deterioration from rust and replace parts as needed. System components are checked as part of weekly, monthly, and quarterly operation inspections outside of this semi-annual inspection.

Inspector:

Kevin Dworsky

Inspectors Signature:

GOLDER
MEMBER OF WSP

Golder Associates USA Inc.
1501 E. Mockingbird, Ste. 420, Victoria, Texas, USA 77904
T: +1 361 573-6442 | golder.com

EXPLANATION

CA018B	Well Designation
○	Monitoring Well
●	Piezometer
◓	Recovery Well
◪	Tidal Gauge

N

Scale in Feet

0 70 140

SOURCE:
Aerial image from Lanmon Aerial Photography Inc, dated 10/19/15.

ALCOA

POINT COMFORT OPERATIONS

PHOTO LOCATION MAP
CAPA CAP 1H21

PROJECT: 3415-3	BY: AJD	REVISIONS
DATE: MAR., 2017	CHECKED: MKW	

GOLDER

Golder Associates USA Inc.
1501 E. Mockingbird Ste 420
Victoria, Texas 77904

FIRST HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – R301, showing damaged roof on western exterior and overall condition of western and southern exteriors

2 – R301, storm sewer drain viewing sediment deposited around the drain cover

3 – Cap, West storm sewer drain showing some vegetation and debris

4 – Cap, Northwest corner storm drain showing some debris

5 – Cap, North storm drain

6 – Cap, Northeast storm drain

7 – Cap, view Southeast from Northwest corner

8 – Cap, view Southwest from Northeast corner

FIRST HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – R301, viewing northern exterior showing current condition, structural support members showing signs of rust

12 – R301, viewing southern exterior showing current condition, structural support members showing signs of rust

13 – R301, viewing corridor from West to East

14 – R301, viewing corridor from East to West

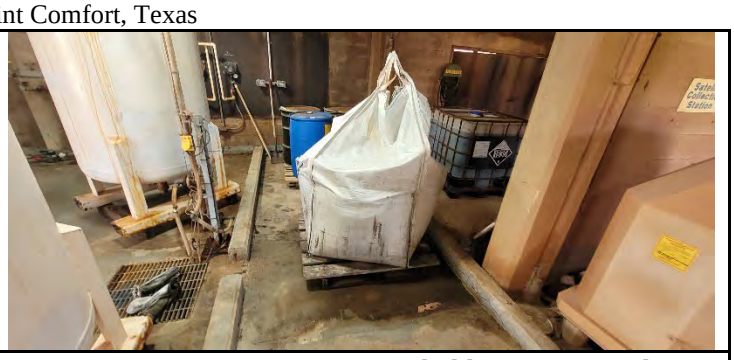
15 – R301, viewing western portion of system

16 – R301, viewing eastern portion of system

FIRST HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

17 – R301, viewing satellite collection station



18 – R301, viewing storage area holding waste pending analysis (non-hazardous waste)

19 – Recovery Area, viewing inside one of the recovery well system boxes

20 – Recovery Area, view North to South showing monitoring wells and recovery wells

21 – Recovery Area, view South to North showing monitoring wells and recovery wells

22 – System Outfall, viewing system effluent discharge

23 – Cap, viewing signage on Northwest corner

24 – Cap, viewing signage on Southwest corner

FIRST HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

25 – Recovery Area, viewing tidal measuring point

26 – Recovery Area, viewing ruts left from pipe rack dismantle.

27 – Recovery Area, panoramic of site from West viewing East

Second Half 2021
CAPA CAP INSPECTION RECORD

Date: 12/29/2021 **Time Started:** 08:45 **Time Ended:** 09:30

Weather Conditions: 70°F, Foggy to Clear Sky

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Cap	Erosion	☑	☐	None observed.
	Settling	☑	☐	None observed.
	Ponding	☑	☐	Minor signs of where water has ponded on cap during rain events.
	Washouts	☑	☐	There is a buildup of soil/alumina/bauxite material mix along the outer perimeter and on the cap. It is difficult to inspect the limestone cover and there are increasing amounts of vegetational growth due to this buildup. Some soil/alumina/bauxite has migrated off the cap on the northwest and southwest corners and along the northern cap boundary. This buildup does not compromise the integrity of the cap but will continue to monitor the material washing off the perimeter of the cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Intrusive Vegetation	☑	☐	Moderate amount of vegetation across the cap. Vegetation is thin due to the time of year but should be treated prior to spring growth. Herbicide treatment appears to not be on a routine schedule - see recommendations below.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Good Condition.
	Debris	☑	☐	There is soil and gravel blocking the grate in front of the R301 building. The flow into this grate appears to be impeded and grate should be properly cleaned. Vegetation debris on western grate and some gravel and vegetation debris on the northwestern grate. Not impeding flow at this time but will continue to monitor and should be routinely cleaned.
Equipment or Wastes	Proper Storage	☑	☐	Waste/chemicals properly stored in system containment or at satellite collection stations. All equipment handling the affected groundwater is within secondary containment. No signs of leaks or potentials for release. Satellite collection station is being properly maintained and routinely inspected.
Extraction Wells	Controllers	☑	☐	In good working order.
	Well Boxes	☑	☐	In good working order.
	Electrical	☑	☐	In good working order.
	Conduit	☑	☐	Some signs of conduit piping joints being loose due to the expansion and contraction of the pipe. Overall, in good working condition.
	Transfer/Carrier Piping	☑	☐	In good working order.
	Secondary Containment Piping	☑	☐	There are a few lose connections that should be properly tightened to confirm seal.
	Monitoring Wells	☑	☐	Some wells have locks missing, hinges broken, and surface protective casing that shows moderate rust. Generally in good condition and will monitor closely. Integrity of the wells are protected as the site is secure.
	Vegetation	☑	☐	Healthy vegetation.

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Treatment System	Equipment	☑	☐	Signs of moderate rusting and deterioration of metal parts such as equipment, connectors, and stands. Does not currently affect the integrity of the system and procedures have been instituted to treat these areas as needed to slow the deterioration process and replace when needed.
	Building	☐	☑	Some structural support members showing signs of rust and pieces of the roof are loose and missing. There are large holes in the roof that allow rain to enter building and flow into the containment during a heavy rain storm. Stairway has been boarded up and access has been limited by barriers, locks, and restricted entry ways. The building is limited access by barriers and locks. Does not affect the integrity of the system. Rusted supports and building condition will be monitored closely.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. System components are checked as part of weekly, monthly, and quarterly operation inspections outside of this semi-annual inspection.

Recommendations: Continued monitoring and routine maintenance. Area should be mowed and have a herbicide treatment on the cap on a routine basis as well as removal of any vegetation and debris from the grates. Secondary containment piping and transfer piping connections will be checked to ensure they are properly sealed. Golder will continue to apply rust killer to equipment and equipment stands overtime to slow down the deterioration from rust and replace parts as needed.

Inspector:

Kevin Dworsky

Inspectors Signature:

GOLDER
MEMBER OF WSP

Golder Associates USA Inc.
1501 E. Mockingbird, Ste. 420, Victoria, Texas, USA 77904
T: +1 361 573-6442 | golder.com

EXPLANATION

CA018B	Well Designation
○	Monitoring Well
●	Piezometer
◓	Recovery Well
◪	Tidal Gauge

N

Scale in Feet

0 70 140

SOURCE:
Aerial image from Lanmon Aerial Photography Inc, dated 10/19/15.

ALCOA

POINT COMFORT OPERATIONS

PHOTO LOCATION MAP
CAPA CAP 2H21

PROJECT: 3415-3	BY: AJD	REVISIONS
DATE: MAR., 2017	CHECKED: MKW	

GOLDER

Golder Associates USA Inc.
1501 E. Mockingbird Ste 420
Victoria, Texas 77904

SECOND HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – R301, showing damaged roof on western exterior and overall condition of western and southern exteriors

2 – R301, storm sewer drain viewing sediment deposited around the drain cover

3 – Cap, West storm sewer drain showing some vegetation and debris

4 – Cap, Northwest corner storm drain showing some debris

5 – Cap, North storm drain

6 – Cap, Northeast storm drain

7 – Cap, view Southeast from Northwest corner

8 – Cap, view Southwest from Northeast corner

SECOND HALF 2021
CAPA CAP INSPECTION PHOTO LOG

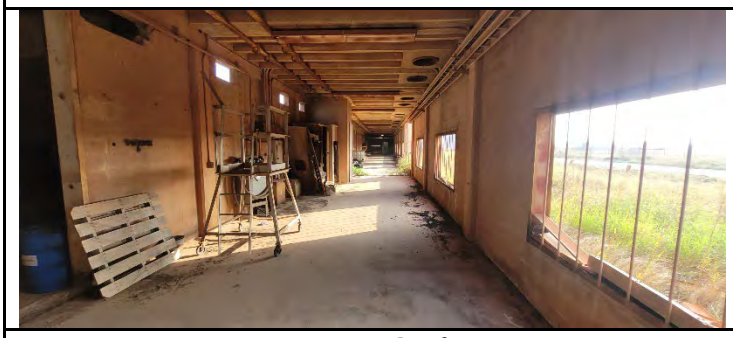
ALCOA PCO – Point Comfort, Texas

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – R301, viewing northern exterior showing current condition, structural support members showing signs of rust

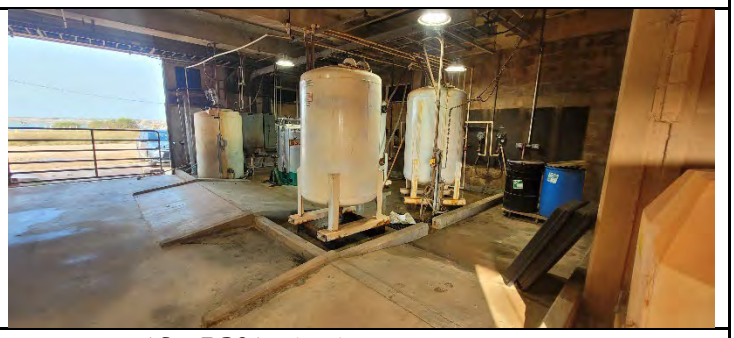
12 – R301, viewing southern exterior showing current condition, structural support members showing signs of rust



13 – R301, viewing corridor from West to East

14 – R301, viewing corridor from East to West

15 – R301, viewing the treatment system



16 – R301, viewing treatment system

SECOND HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

17 – R301, viewing satellite collection station

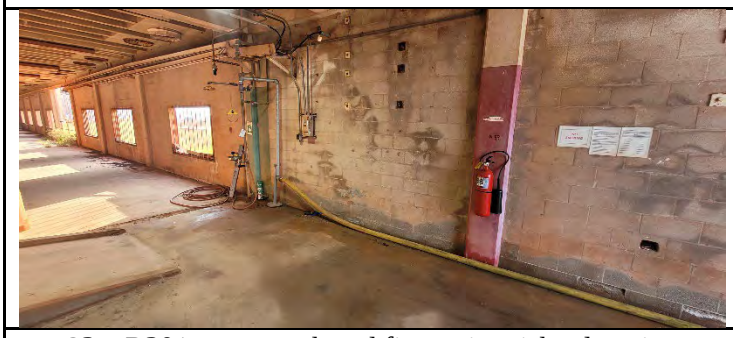
18 – R301, viewing storage area holding waste pending analysis (non-hazardous waste)

19 – Recovery Area, viewing inside one of the recovery well system boxes

20 – Recovery Area, view North to South showing monitoring wells and recovery wells

21 – Recovery Area, view South to North showing monitoring wells and recovery wells

22 – System Outfall, viewing system effluent discharge



23 – R301 – eye wash and fire extinguisher location

24 – Recovery Area – viewing recovery well box and control

SECOND HALF 2021
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

25 – Office Building, viewing system control area

26 – Office Building, viewing lab area

27 – Recovery Area, panoramic of site from West viewing East

APPENDIX B3
WITCO INSPECTION RECORDS

First Half 2021
WITCO AREA INSPECTION RECORD

Date: 06/29/2021 **Time Started:** 16:25 **Time Ended:** 16:50

Weather Conditions: 88° F, Partly Cloudy to Cloudy Sky

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Drainage Channel	Cracks in Concrete	☑	☐	Few old cracks, no new ones in West (new) portion of the channel. Old channel continues to deteriorate and has some moderate to heavy vegetational growth, not affecting drainage from the cap currently but will continue to monitor.
	Obstructions	☑	☐	The concrete sidewall of the East (old) portion of the channel continues to deteriorate and slough into the bottom of the channel. There is some sediment and vegetation debris at the western end of the channel. No obstruction to flow at this time but will continue to monitor.
	Erosion	☑	☐	Signs of minor erosion at the outlet ends of the West (new) channel walls and riprap. Repair is currently not needed but will monitor closely.
	Deterioration	☑	☐	Old marks (gouges) on concrete of West (new) channel, cause is unknown. No additional marks have been noted. Areas of the East (old) drainage channel continue to deteriorate but this erosion is not currently affecting drainage from the cap. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	None observed.
	Rip Rap	☑	☐	Some minor to moderate movement of the rip rap has occurred. Minor to moderate build-up of sediment has formed in the rip rap. Some vegetation present in the rip rap at the bay outlet. Repair is not needed at this time but will monitor closely.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement/Ponding	☑	☐	Few low ponding areas. Repair not needed at this time but will continue to monitor. Need to be careful of rutting the cap in these areas.
	Vegetation	☑	☐	Overgrown. Difficult to inspect because of the heavy vegetation. Initiate a routine shredding schedule of the cap.
	Intrusive Trees	☑	☐	Some minor intrusive bushes/trees (mesquite/huisache) are growing on the cap. Vegetational control is needed to remove to ensure integrity of the cap.
	Drainage/Rip Rap	☑	☐	Traces of sediment, heavy vegetation, and vegetation debris present in the rip rap. Potential obstruction to the flow if vegetation is not removed. Will continue to monitor.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Other Damage	☑	☐	None observed.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Soil Cap (O/W Separator)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Good condition. Starting to get overgrown.
	Damage	☑	☐	None observed.
Slope from Cap to Channel	Erosion	☑	☐	None observed.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Good condition. Initiate a routine schedule to maintain the vegetation by weed eating the area.
Signage	Damage	☑	☐	Good condition.
	Illegible	☑	☐	Good condition.
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid. Manway is sealed and no action is needed at this time.
	Product Level	☑	☐	WL in sump = 3.12' BMP, no DNAPL, 12.81' TD

Additional Comments or Observations: There are no signs of seepage from the cap. Monitoring wells are in good condition. Will continue to monitor deterioration of the old channel and movement of rip rip.

Recommendations: Recommend the initiation of a routinely scheduled shredding and maintaining of the vegetation of the Witco Area. This includes shredding of the caps, weed eating of the slopes and channel, and spraying the rip rap.

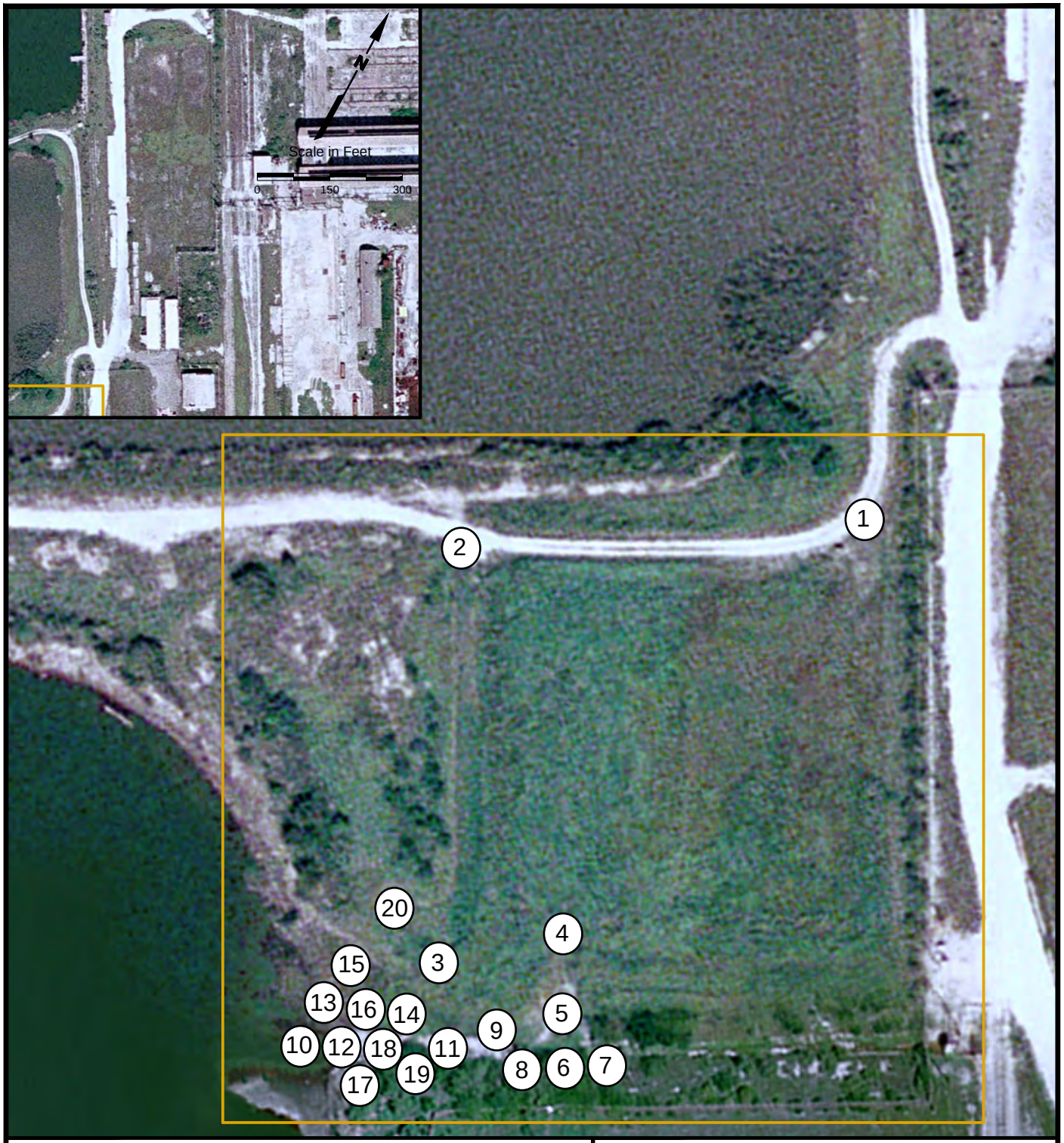
Inspector:

Kevin Dworsky

Inspectors Signature:

GOLDER
MEMBER OF WSP

Golder Associates USA Inc.
1501 E. Mockingbird, Ste. 420, Victoria, Texas, USA 77904
T: +1 361 573-6442 | golder.com



ALCOA
POINT COMFORT OPERATIONS

PHOTO LOCATION MAP
WITCO AREA 1H21

N

Scale in Feet

0 50 100

PROJECT: 3415-4	BY: BZH	REVISIONS
DATE: OCT., 2017	CHECKED: MKW	

GOLDER

Golder Associates USA Inc.
1501 E. Mockingbird, Suite 420 | Victoria, Texas 77904
O·361.573.6442 F·361.573.6449

SOURCE:
Aerial image from Lanmon Aerial Photography Inc, dated 09/17.

FIRST HALF 2021
WITCO AREA INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – Tank Farm, Northeast corner, viewing Southwest and showing signage

2 – Tank Farm, Northwest corner, viewing Southeast

3 – Tank Farm, Southwest corner, viewing Northeast

4 – Tank Farm Rip Rap, viewing South

5 – Tank Farm Rip Rap, view from drainage channel, viewing North

6 – Drainage channel, viewing seam between old and new channel

7 – Drainage channel, West end of the old channel, viewing East showing deterioration

8 – Drainage channel, viewing deterioration of old channel

FIRST HALF 2021
WITCO AREA INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

9 – Drainage channel, East end of the new channel viewing gouges, viewing West

10 – Drainage channel, West end of the new channel, viewing East

11 – Drainage channel, viewing drainage pipe into the channel

12 – Drainage channel, West end of the new channel, view channel outlet

13 – Slope from cap to channel, viewing deteriorated silt fence

14 – Slope from cap to channel, viewing slope

15 – Slope from cap to channel, viewing slope

16 – Drainage channel, viewing slight erosion and vegetation on Northwest corner

FIRST HALF 2021
WITCO AREA INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

17 – Drainage channel, viewing slight erosion and vegetation on Southwest corner	18 – Drainage channel, viewing sediment, movement, and vegetation in rip rap
19 – Drainage channel, viewing NAPL monitoring well	20 – Tank Farm, viewing monitoring well

Second Half 2021
WITCO AREA INSPECTION RECORD

Date: 12/29/2021 **Time Started:** 09:30 **Time Ended:** 10:15

Weather Conditions: 73° F, Mostly Clear Sky

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Drainage Channel	Cracks in Concrete	☑	☐	Few old cracks, no new ones in West (new) portion of the channel. Old channel continues to deteriorate and has some moderate to heavy vegetational growth, not affecting drainage from the cap currently but will continue to monitor.
	Obstructions	☑	☐	The concrete sidewall of the East (old) portion of the channel continues to deteriorate and slough into the bottom of the channel. There is some sediment, vegetation debris and vegetational growth/overhang at the western end of the channel. No obstruction to flow at this time.
	Erosion	☑	☐	Signs of minor erosion at the outlet ends of the West (new) channel walls and riprap. Repair is currently not needed but will monitor closely.
	Deterioration	☑	☐	Old marks (gouges) on concrete of West (new) channel, cause is unknown (same as previously reported). No additional marks have been noted. Areas of the East (old) drainage channel continue to deteriorate but are currently not affecting drainage from the cap. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	None observed.
	Rip Rap	☑	☐	Some minor to moderate movement of the rip rap has occurred. Minor to moderate build-up of sediment and debris has formed in the rip rap. Some vegetation present at the bay outlet. Repair is not needed at this time but will monitor closely.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement/Ponding	☑	☐	Few low ponding areas. Repair not needed at this time but will continue to monitor. Need to be careful of rutting the cap in these areas.
	Vegetation	☑	☐	Overgrown. Difficult to inspect because of the heavy vegetation. Suggest initiating a routine shredding schedule of the cap.
	Intrusive Trees	☑	☐	Some minor intrusive bushes/trees (mesquite/huisache) are growing on and around the cap. Vegetational control is needed to remove these to ensure integrity of the cap.
	Drainage/Rip Rap	☑	☐	Traces of sediment, heavy vegetation, and vegetation debris present in the rip rap. Potential obstruction to the flow if vegetation is not removed. Difficult to inspect due to the amount of vegetation.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Other Damage	☑	☐	None observed. Difficult to inspect due to the amount of vegetation.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Soil Cap (O/W Separator)	Erosion	☑	☐	None observed. Difficult to inspect due to the amount of vegetation.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Good condition. Starting to get overgrown.
	Damage	☑	☐	None observed.
Slope from Cap to Channel	Erosion	☑	☐	None observed. Difficult to inspect due to the amount of vegetation.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Good condition. Initiate a routine schedule to maintain the vegetation by weed eating the area.
Signage	Damage	☑	☐	Good condition.
	Illegible	☑	☐	Good condition.
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid. Manway is sealed and no action is needed at this time.
	Product Level	☑	☐	WL in sump = 4.02' BMP, no DNAPL, 12.72' TD

Additional Comments or Observations: There are no signs of seepage from the cap. Monitoring wells are in good condition. Will continue to monitor deterioration of the old channel and movement of rip rap.

Recommendations: Recommend the initiation of a routinely scheduled shredding and maintaining of the vegetation of the Witco Area. This includes shredding of the caps, weed eating of the slopes and channel, and spraying the rip rap.

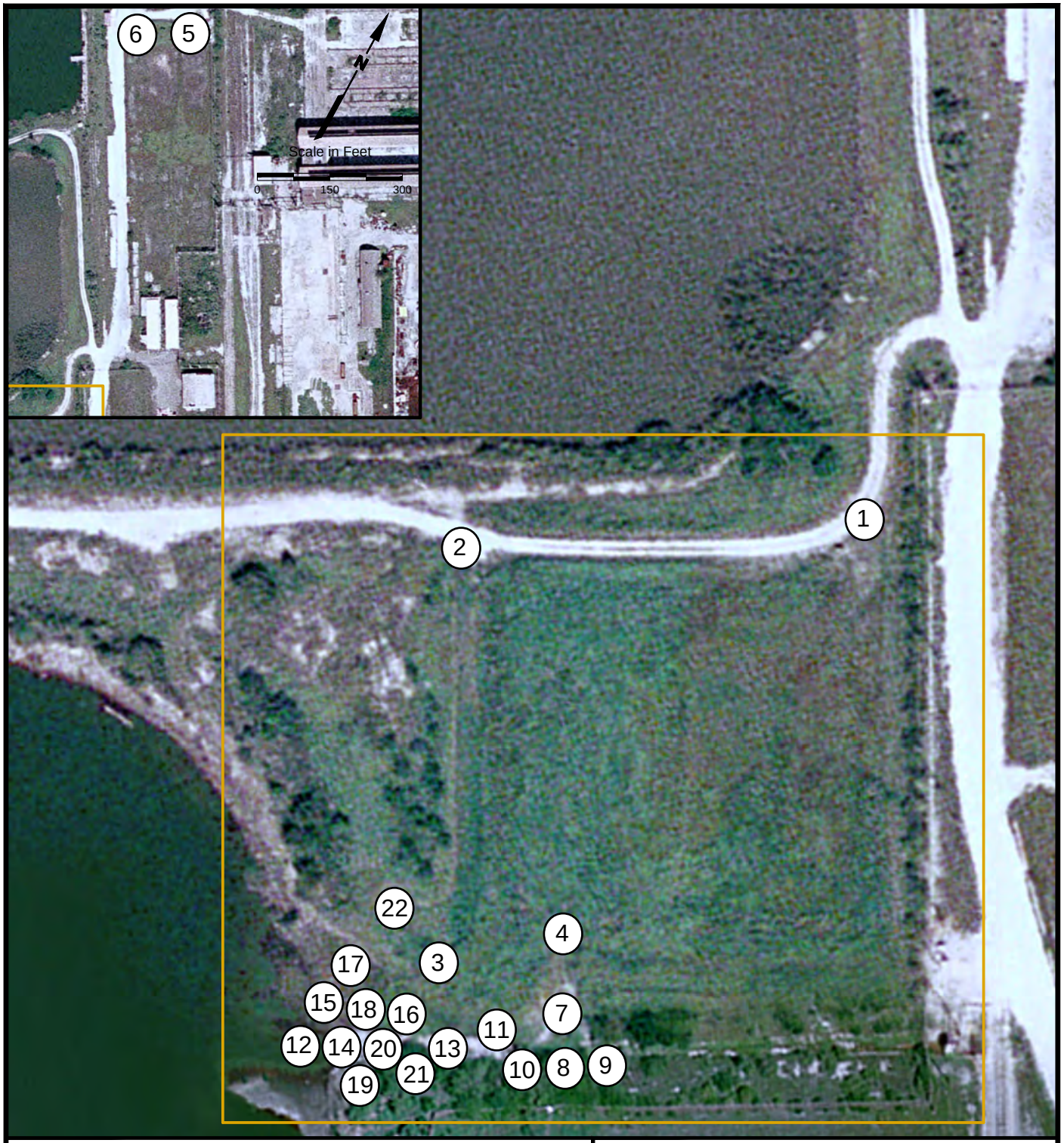
Inspector:

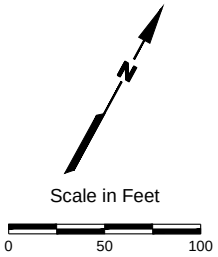
Kevin Dworsky

Inspectors Signature:

GOLDER
MEMBER OF WSP

Golder Associates USA Inc.
1501 E. Mockingbird, Ste. 420, Victoria, Texas, USA 77904
T: +1 361 573-6442 | golder.com





SOURCE:
Aerial image from Lanmon Aerial Photography Inc, dated 09/17.

ALCOA
POINT COMFORT OPERATIONS

PHOTO LOCATION MAP
WITCO AREA 2H21

PROJECT: 3415-4	BY: BZH	REVISIONS
DATE: OCT., 2017	CHECKED: MKW	

GOLDER
Golder Associates Inc.
620 E. Airline | Victoria, Texas 77901
O·361.573.6442 F·361.573.6449
www.golder.com

SECOND HALF 2021
WITCO AREA INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – Tank Farm, Northeast corner, viewing Southwest

2 – Tank Farm, Northwest corner, viewing Southeast

3 – Tank Farm, Southwest corner overgrown vegetation, viewing Northeast

4 – Tank Farm Rip Rap with overgrown vegetation, viewing South

5 – O/W Separator, viewing signage

6 – O/W Separator, Northeast corner vegetation beginning to overgrow, viewing West

7 – Tank Farm Rip Rap, view from drainage channel, viewing North

8 – Drainage channel, viewing seam between old and new channel

SECOND HALF 2021
WITCO AREA INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

9 – Drainage channel, West end of the old channel, viewing East

10 – Drainage channel, viewing deterioration of old channel

11 – Drainage channel, East end of the new channel viewing gouges, viewing West

12 – Drainage channel, West end of the new channel, viewing East

13 – Drainage channel, viewing drainage pipe into the channel

14 – Drainage channel, West end of the new channel, view channel outlet

15 – Slope from cap to channel, viewing deteriorated silt fence

16 – Slope from cap to channel, viewing slope

SECOND HALF 2021
WITCO AREA INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

17 – Slope from cap to channel, viewing slope	18 – Drainage channel, viewing slight erosion and vegetation on Northwest corner
19 – Drainage channel, viewing slight erosion and vegetation on Southwest corner	20 – Drainage channel, viewing sediment, movement, and vegetation in rip rap
21 – Drainage channel, viewing NAPL monitoring well	22 – Tank Farm, viewing monitoring well

APPENDIX C
LAVACA BAY ANNUAL SEDIMENT MONITORING REPORT

LAVACA BAY BIENNIAL SEDIMENT MONITORING EVENT
FALL 2021

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

January 2022

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Purpose and Scope 2

1.2 Site Description 2

2.0 Methods 2

2.1 Sample Stations 2

2.2 Sample Collection 4

3.0 Analytical Results 6

4.0 References 7

LIST OF FIGURES

Figure 1 – 2021 Sample Station Locations and Results 3

LIST OF TABLES

Table 1 – Sediment Stations, Sample IDs, Field Data, and Results 5

LIST OF ATTACHMENTS

Attachment A: Analytical Data Packets

LIST OF ACRONYMS AND ABBREVIATIONS

ALS	ALS Laboratory Group/Laboratory
Benchmark	Benchmark Ecological Services, Inc.
cm	Centimeter(s)
ECC	Eastern Causeway Cove
EPA	United States Environmental Protection Agency
ft	Foot / feet
GPS	Global Positioning System
Hg	Total Mercury
ID	Identification
kg	Kilogram(s)
mg	Milligram(s)
mL	Milliliter(s)
%M	Percent Moisture
OMMP	Operations, Maintenance, and Monitoring Plan
oz	Ounce(s)
SDL	Sample Detection Limit
SQL	Sample Quantitation Limit
TOC	Total Organic Carbon

1.0 INTRODUCTION

In accordance with the provisions of the Lavaca Bay Sediment Remediation and Long-Term Monitoring Plan Operations, Maintenance, and Monitoring Plan (OMMP, Appendix H – to the Consent Decree/Statement of Work, Alcoa 2005a), surface sediment within the open water of the Closed Area adjacent to the Point Comfort Facility is monitored to document the effectiveness of the United States Environmental Protection Agency's (EPA) selected remedy. As stated in the OMMP, the open water sediment monitoring program will be performed until a mean total Mercury (Hg) concentration of less than 0.5 milligrams per kilogram (mg/kg - dry weight) is measured in the Closed Area in two consecutive years (Alcoa 2005a). This occurred in 2004 and 2005 when average concentrations of 0.293 mg/kg and 0.276 mg/kg, respectively, were measured in surface open water sediment samples from the Closed Area (Alcoa, 2006). Thus, the performance objective of the open water sediment monitoring program established in the Consent Decree has been met.

However, Alcoa has continued monitoring the northern half of the open water sediment sampling grid on a voluntary basis as part of its ongoing effort to better understand trends in fish tissue Hg concentrations in the Closed Area of Lavaca Bay. In 2009, the voluntary open water sediment monitoring frequency was changed from annual to biennial (odd-numbered years), and in 2015, supplemental open water sediment samples were also collected as part of an expanded monitoring effort.

In 2016, Alcoa conducted additional sampling in the Eastern Causeway Cove (ECC) area to increase sampling density and more accurately delineate mercury concentrations in the cove. Sampling results showed that areas with elevated mercury concentrations exist in the cove and may act as a source of mercury to fish in the Closed Area (Alcoa, 2016).

During the 2017 sampling program, Alcoa collected open water sediment samples from 13 locations in the ECC. Sample locations were selected to provide current data for 10 historical open water stations and 3 supplemental ECC locations that were found to have elevated mercury concentrations in 2016.

1.1 PURPOSE AND SCOPE

In 2021, 13 sediment samples were collected from the ECC to continue monitoring the 10 historical open water stations and 3 supplemental ECC locations that were sampled in 2016 and 2017. The top 2 cm of sediment were subsampled from an Ekman grab sampler and analyzed for Hg, percent moisture (%M), and total organic carbon (TOC). Sample station locations and analytical results for Hg and TOC are shown on Figure 1.

1.2 SITE DESCRIPTION

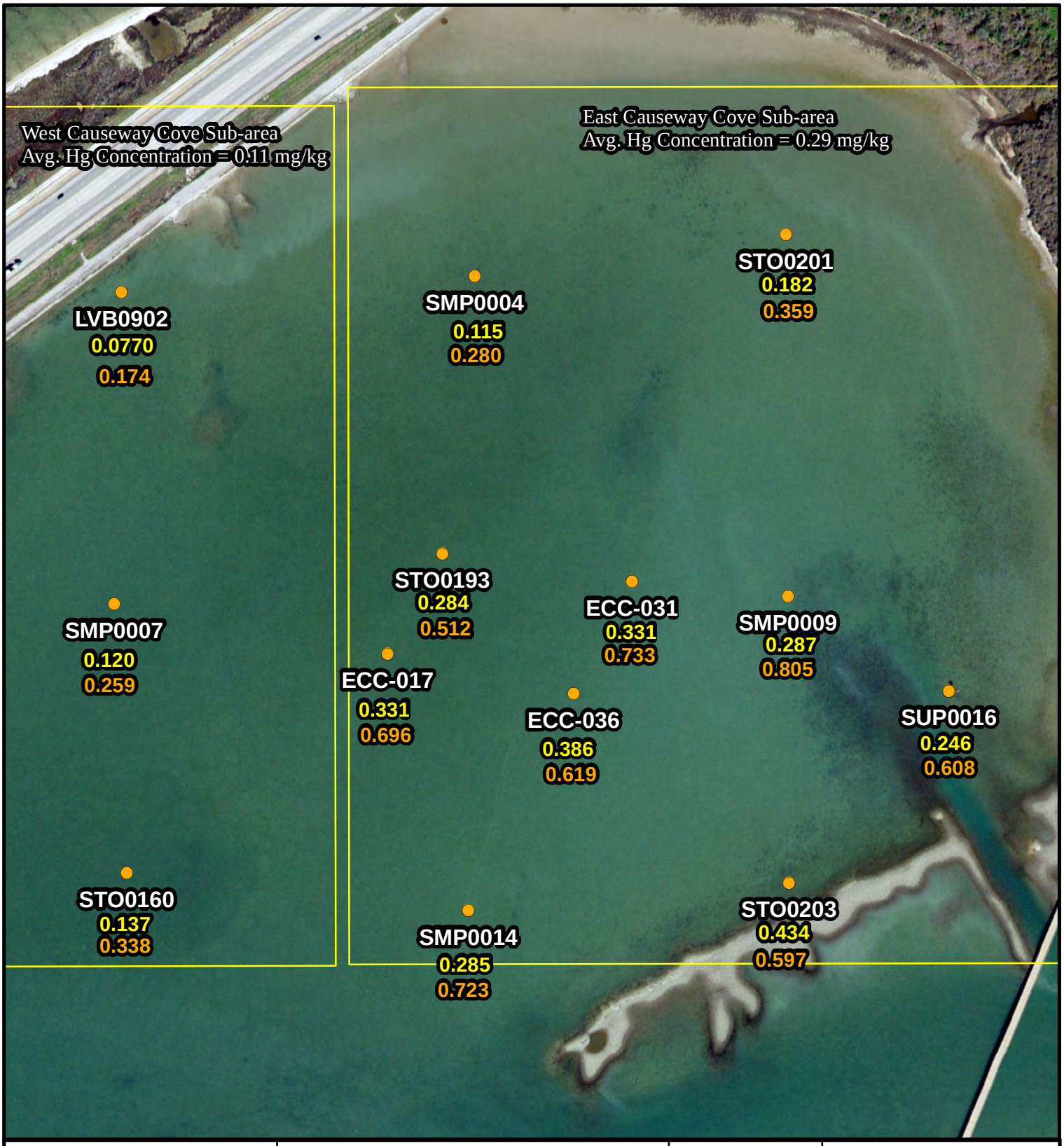
Alcoa Point Comfort Operations is located in Calhoun County, Texas, adjacent to Lavaca Bay. The portion of Lavaca Bay adjacent to the Alcoa Plant (referred to as the "Closed Area") is associated with elevated mercury concentrations in fish tissue and is closed to the taking of finfish and shellfish for consumption by order of the Texas Department of State Health Services. The Alcoa Remedial Investigation identified the Closed Area as an area where sediment contains elevated mercury concentrations. The project area and sampling strategy for the open water sediment samples within the Closed Area are documented in the OMMP (Alcoa, 2005a).

2.0 METHODS

ECC sediment samples for Hg, %M, and TOC analyses were collected and processed by Benchmark Ecological Services, Inc. (Benchmark) on 2 November 2021. The top 2 cm of sediment from each location was analyzed by ALS Laboratory Group (ALS) in Houston, Texas. Validation and evaluation of the analytical results was conducted by Carol Lovett with Benchmark in Cypress, Texas.

2.1 SAMPLE STATIONS

Sample stations were located using coordinates provided by Alcoa. The coordinates were entered into a sub-meter Global Positioning System (GPS), and the GPS was used to position personnel over each sample station. Actual coordinates for the final locations were recorded using the sub-meter differential GPS. Sediment sample station locations are shown on Figure 1.



N

0 125 250 500

Feet

Legend

- 2021 Open Water Sample Stations
- ## 2021 Open Water Total Hg Results (mg/kg - dry weight)
- ## 2021 Open Water TOC Results (wt%-dry)
- Sub-area border

Notes

2015 DOQQ
(Point Comfort Quad)
Calhoun County, TX

Lavaca Bay Biennial Sediment Monitoring Event Fall 2021

2021 Sample Station Locations and Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-109

Date: 2/11/2022

Figure 1

M:\98003\109\SEDIMENT\Arc\Post_sampling\Actual_ow_stations_2019_rev.mxd

2.2 SAMPLE COLLECTION

ECC sediment samples were collected for total Hg, %M, and TOC analysis using an Ekman grab sampler. Onboard the sample vessel, the top two centimeters of sediment were removed from the Ekman using a clean, disposable 60 mL syringe and placed in a pre-cleaned, labeled, 4-oz sample jar. The lower end of the syringe barrel (needle lock) was removed to transform the syringe barrel into an open cylinder. The open end of the syringe barrel was placed on the surface of the sediment. While holding the syringe piston stationary, the barrel was pushed 2 cm into the sediment sample, and a 0-2 cm depth sub-sample was collected. The syringe was marked at 2 cm prior to sample collection to ensure proper sample depth. Three sub-samples were removed from each Ekman grab to provide the volume of sediment required for analysis. New (clean) syringes were used to collect and process each sample, and the sub-samples were homogenized by shaking. Sediment samples were analyzed by ALS in Houston, Texas.

Sample containers were labeled with the sampler initials, sample ID, collection date, time, and intended analyses. Samples were stored in re-sealable plastic bags, bubble wrapped and immediately placed into an insulated chest with ice for storage and transport.

Sample station coordinates, sample IDs, and sample collection dates are listed in Table 1. Chain of Custody forms were completed for all samples collected and are maintained in project files.

Table 1 - Sediment Stations, Sample IDs, Field Data, and Results

Station ID	Easting[1]	Northing[1]	Sample ID	Date	Time	Water Depth[2] (ft)	Total Hg			% M		TOC		
							(mg/kg) dry wt	SDL[3] (mg/kg)	Flag	wt%	SDL[3] (wt%)	wt%-dry	SDL[3] (wt%-dry)	Flag
LVB0902	2745309.66	13433615.67	LVB0902	11/2/2021	10:35	3.9	0.0770	0.000718	-	29.2	0.0100	0.174	0.0587	J,U
SMP0004	2746185.099	13433656.19	SMP0004	11/2/2021	11:00	4.4	0.115	0.000708	-	32.8	0.0100	0.280	0.0589	J,U
STO0201	2746956.009	13433759.82	STO0201	11/2/2021	11:10	3.9	0.182	0.000807	-	37.6	0.0100	0.359	0.0583	J,U
SUP0016	2747360.30	13432628.34	SUP0016	11/2/2021	11:24	3.9	0.246	0.000757	-	36.6	0.1000	0.608	0.0591	J
SMP0009	2746961.828	13432862.86	SMP0009	11/2/2021	11:40	4.7	0.287	0.00146	-	65.8	0.0100	0.805	0.0586	J
ECC-031	2746575.445	13432899.41	ECC-031	11/2/2021	11:55	4.6	0.331	0.00127	-	62.0	0.0100	0.733	0.0590	J
STO0193	2746105.021	13432968.44	STO0193	11/2/2021	12:10	4.4	0.284	0.000950	-	48.9	0.0100	0.512	0.0578	J
ECC-017	2745969.073	13432720.15	ECC-017	11/2/2021	12:20	4.9	0.331	0.00121	-	59.4	0.0100	0.696	0.0595	J
SMP0007	2745291.973	13432844.08	SMP0007	11/2/2021	12:25	4.8	0.120	0.000685	-	30.6	0.0100	0.259	0.0584	J,U
STO0160	2745323.387	13432177.19	STO0160	11/2/2021	12:30	5.0	0.137	0.000749	-	35.8	0.0100	0.338	0.0584	J,U
SMP0014	2746170.003	13432084.32	SMP0014	11/2/2021	12:45	5.0	0.285	0.00126	J-	60.2	0.0100	0.723	0.0587	J
ECC-036	2746430.329	13432621.82	ECC-036	11/2/2021	13:00	4.7	0.386	0.00127	-	61.4	0.0100	0.619	0.0586	J
STO0203	2746963.996	13432152.60	STO0203	11/2/2021	13:10	3.6	0.434	0.00107	-	54.4	0.0100	0.597	0.0599	J
						Avg.	**0.2473**							

[1]Coordinates reported in NAD 1983 State Plane Texas South Central, Feet

[2] Water Depths are not calibrated to tidal datum

[3]SDL - Sample Detection Limit

Flags

J Analyte detected below quantitation limit

J- Sample result >RL and aqueous LCS recovery below control limits (option to assign R for very low recovery)

Sample result >RL and MS recovery below control limits (option to assign R for very low recovery)

U Sample result <RL

Sample result >RL and less than 5x highest associated blank concentration

3.0 ANALYTICAL RESULTS

Sediment samples from ECC stations (0-2 cm) were analyzed for total Hg (Method 7471B), %M, and TOC by ALS in Houston, Texas. Total Hg results were reported in mg/kg as dry weight, and TOC results were reported in percent dry weight. Benchmark received all final data packages on 20 December 2021. Data validation and evaluation was completed by Benchmark on 3 January 2022. Analytical data packets are included in Attachment A.

ECC sediment station numbers, sample IDs, analytical results, and percent moisture are listed for each sample in Table 1. ECC sediment analytical results are shown on Figure 1.

Analytical results for sediment samples were validated according to the Standard Operating Procedure for Data Validation (Appendix E) in the Quality Assurance Project Plan Alcoa (Point Comfort)/Lavaca Bay Superfund Site (August 22, 2005) (Alcoa 2005b). All analytical results were validated and may be included in the data used to evaluate the effectiveness of the approved remedy and to meet monitoring requirements specified in the Consent Decree.

4.0 REFERENCES

Alcoa, 2005a. Statement of Work for Remedial Action. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. Lavaca Bay Sediment Remediation and Long-Term Monitoring Plan, Operations, Maintenance, and Monitoring Plan. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. September 2003. Appendix H.

Alcoa, 2005b. Appendix E. Standard Operating Procedure for Data Validation. Quality Assurance Project Plan. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. August 22, 2005.

Alcoa, 2006. 2005 Remedial Action Annual Effectiveness Report. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 3, 2006.

Alcoa, 2016. Lavaca Bay Supplemental Sediment Increased Sediment Sampling Density for Eastern Causeway Cove Sediments and Geotechnical Properties. Alcoa (Point Comfort)/Lavaca Bay Superfund site. March 2016.

Attachment A
Analytical Data Packets

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

WorkOrder: HS21110203

Alcoa Sediment

Benchmark Ecological Services

Neil Henthorne
4219 S Front St
Brookshire TX 77423

20-Dec-2021

ALS Environmental
ALS Group USA, Corp
10450 Stancliff Road, Suite 210
Houston, TX 77099
T : +1 281 530 5656
F : +1 281 530 5887
www.alsglobal.com

Table of Contents

HS21110203 Alcoa Sediment Cover Page
- CoverPage
- HS21110203 Alcoa Sediment Final II
  - CoverLetter
  - TRRP CoverPage
  - Form 13 - Run Log-Ex
  - CCBExceptions
  - Sample Summary
  - LVB0902
  - SMP0004
  - STO0201
  - SUP0016
  - SMP0009
  - ECC-031
  - STO0193
  - ECC-017
  - SMP0007
  - STO0160
  - SMP0014
  - ECC-036
  - STO0203
  - 2021-OW-DUP

Table of Contents (continued)

- 2021-OW-EB
- Weight/Volume Log
- Dates Report
- Test Limits
- QC
- Acronyms
- Certifications
- SampleReceiptCheckList
- COC

HS21110203 - ME - HG_S_LowHG_W

- Form 12 - HG03_395211 Preparation Log
- Form 12 - HG03_395627 Preparation Log
- Form 13 - HG03_395211 Run Log
- Form 13 - HG03_395627 Run Log
- Form 2 - HG03_395211 CCV
- Form 2 - HG03_395627 CCV
- Form 3 - HG03_395211 CCB
- Form 3 - HG03_395627 CCB
- Form 5A - HG03_395211 MS
- Form 5A - HG03_395627 MS
- Form 7 - HG03_395211 LCS
- Form 7 - HG03_395627 LCS

HS21110203 Wet Chemistry

HS21110203 Wetchem Moist Raw Data-1

HS21110203 Wetchem Moist Raw Data-2

HS21110203 Alcoa Sediment Final II

ALS WO# HS21110203

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 01, 2021

Neil Henthorne
Benchmark Ecological Services
4219 S Front St
Brookshire, TX 77423

Work Order: **HS21110203**

Laboratory Results for: **Alcoa Sediment**

Dear Neil Henthorne,

ALS Environmental received 15 sample(s) on Nov 03, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Dane J. Wacasey

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: **HS21110203**

TRRP Laboratory Data Package Cover Page

This data package consists of all or some of the following as applicable:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 Sample identification cross-reference;

R3 Test reports (analytical data sheets) for each environmental sample that includes:

a) Items consistent with NELAC Chapter 5,
b) dilution factors,
c) preparation methods,
d) cleanup methods, and
e) if required for the project, tentatively identified compounds (TICs).

R4 Surrogate recovery data including:

a) Calculated recovery (%R), and
b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amounts,
b) Calculated %R for each analyte, and
c)The laboratory's LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %Rs and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits.

R8 Laboratory analytical duplicate (if applicable) recovery and precision:

a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for analytical duplicates.

R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 Other problems or anomalies.
The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: **HS21110203**

TRRP Laboratory Data Package Cover Page

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory have been identified by the laboratory in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [NA] This laboratory meets an exception under 30 TAC §25.6 and was last inspected by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Dane J. Wacasey

Laboratory Review Checklist: Reportable Data								
Laboratory Name: ALS Laboratory Group			LRC Date: 12/01/2021					
Project Name: Alcoa Sediment			Laboratory Job Number: HS21110203					
Reviewer Name: Dane Wacasey			Prep Batch Number(s): 172278,173010,R395080,R395825,R395827					
#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-custody (C-O-C)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW-846 Method 5035?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			1
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method quantitation limits (MQLs):**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SDL and minimize the matrix interference affects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Laboratory Review Checklist: Supporting Data	
Laboratory Name: ALS Laboratory Group	LRC Date: 12/01/2021
Project Name: Alcoa Sediment	Laboratory Job Number: HS21110203
Reviewer Name: Dane Wacasey	Prep Batch Number(s): 172278,173010,R395080,R395825,R395827

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB)**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?		X			2
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data** (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?	X				
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods** (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
O = Organic Analyses; I = Inorganic Analyses (and general chemistry, when applicable);
NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports	
Laboratory Name: ALS Laboratory Group	LRC Date: 11/30/2021
Project Name: Alcoa Sediment	Laboratory Job Number: HS21110203
Reviewer Name: Dane Wacasey	Prep Batch Number(s): 172278,173010,R395080,R395825,R395827

ER#[5]	Description
1	Batch 172433, Mercury Method SW7471B, sample SMP0014, MS and MSD ere performed on unrelated sample. Batch 173010, Total Organic Carbon Method SW9060A, sample SMP0014, MSD recovered outside the control limit due to suspect matrix effect
2	See Run Log and CCB Exceptions Report.

Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
O = Organic Analyses; I = Inorganic Analyses (and general chemistry, when applicable);
NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

FORM 13 - ANALYSIS RUN LOG

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203
Start Date: 30-Nov-2021 End Date: 30-Nov-2021

Run ID:TOC_03_396653
Instrument:TOC_03
Method:SW9060

Sample No.	D/F	Time	FileID	Analytes
LVB0902	1	30-Nov-2021 17:54		TOC
SMP0004	1	30-Nov-2021 17:54		TOC
STO0201	1	30-Nov-2021 17:54		TOC
SUP0016	1	30-Nov-2021 17:54		TOC
SMP0009	1	30-Nov-2021 17:54		TOC
ECC-031	1	30-Nov-2021 17:54		TOC
STO0193	1	30-Nov-2021 17:54		TOC
ECC-017	1	30-Nov-2021 17:54		TOC
SMP0007	1	30-Nov-2021 17:54		TOC
STO0160	1	30-Nov-2021 17:54		TOC
SMP0014	1	30-Nov-2021 17:54		TOC
ECC-036	1	30-Nov-2021 17:54		TOC
STO0203	1	30-Nov-2021 17:54		TOC
2021-OW-DUP	1	30-Nov-2021 17:54		TOC
SMP0014MS	1	30-Nov-2021 17:54		TOC
SMP0014MSD	1	30-Nov-2021 17:54		TOC
LCS-173010	1	30-Nov-2021 17:54		TOC
LCSD-173010	1	30-Nov-2021 17:54		TOC
MBLK-173010	1	30-Nov-2021 17:54		TOC
CCB-R396653 1	1	30-Nov-2021 17:54		TOC
CCV-R396653 1	1	30-Nov-2021 17:54		TOC
CCB-R396653 2	1	30-Nov-2021 17:54		TOC
CCV-R396653 2	1	30-Nov-2021 17:54		TOC
CCB-R396653 3	1	30-Nov-2021 17:54		TOC
CCV-R396653 3	1	30-Nov-2021 17:54		TOC

CCB EXCEPTIONS REPORT

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Run ID:TOC_03_396653
Instrument:TOC_03
Method:SW9060

CCB-R396653 3 Date: 30-Nov-2021 17:54 Seq: 6398382 D/F: 1 Units: wt%-dry

Analyte	Result	MDL	Report Limit
Total Organic Carbon	0.101	0.06	1

CCB-R396653 2 Date: 30-Nov-2021 17:54 Seq: 6398380 D/F: 1 Units: wt%-dry

Analyte	Result	MDL	Report Limit
Total Organic Carbon	0.097	0.06	1

CCB-R396653 1 Date: 30-Nov-2021 17:54 Seq: 6398378 D/F: 1 Units: wt%-dry

Analyte	Result	MDL	Report Limit
Total Organic Carbon	0.106	0.06	1

Client: Benchmark Ecological Services
Project: Alcoa Sediment
Work Order: HS21110203

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110203-01	LVB0902	Sediment		02-Nov-2021 10:35	03-Nov-2021 11:21	☐
HS21110203-02	SMP0004	Sediment		02-Nov-2021 11:00	03-Nov-2021 11:21	☐
HS21110203-03	STO0201	Sediment		02-Nov-2021 11:10	03-Nov-2021 11:21	☐
HS21110203-04	SUP0016	Sediment		02-Nov-2021 11:24	03-Nov-2021 11:21	☐
HS21110203-05	SMP0009	Sediment		02-Nov-2021 11:40	03-Nov-2021 11:21	☐
HS21110203-06	ECC-031	Sediment		02-Nov-2021 11:55	03-Nov-2021 11:21	☐
HS21110203-07	STO0193	Sediment		02-Nov-2021 12:10	03-Nov-2021 11:21	☐
HS21110203-08	ECC-017	Sediment		02-Nov-2021 12:20	03-Nov-2021 11:21	☐
HS21110203-09	SMP0007	Sediment		02-Nov-2021 12:25	03-Nov-2021 11:21	☐
HS21110203-10	STO0160	Sediment		02-Nov-2021 12:30	03-Nov-2021 11:21	☐
HS21110203-11	SMP0014	Sediment		02-Nov-2021 12:45	03-Nov-2021 11:21	☐
HS21110203-12	ECC-036	Sediment		02-Nov-2021 13:00	03-Nov-2021 11:21	☐
HS21110203-13	STO0203	Sediment		02-Nov-2021 13:10	03-Nov-2021 11:21	☐
HS21110203-14	2021-OW-DUP	Sediment		02-Nov-2021 12:05	03-Nov-2021 11:21	☐
HS21110203-15	2021-OW-EB	Water		02-Nov-2021 14:00	03-Nov-2021 11:21	☐

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	LVB0902	Lab ID:HS21110203-01
Collection Date:	02-Nov-2021 10:35	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.0770**		**0.000718**	**0.00508**	**mg/Kg-dry**	1	15-Nov-2021 10:58
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**29.2**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 11:59
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.174**	J	**0.0587**	**0.978**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	SMP0004	Lab ID:HS21110203-02
Collection Date:	02-Nov-2021 11:00	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.115**		**0.000708**	**0.00501**	**mg/Kg-dry**	1	15-Nov-2021 10:59
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**32.8**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 11:59
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.280**	J	**0.0589**	**0.982**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	STO0201	Lab ID:HS21110203-03
Collection Date:	02-Nov-2021 11:10	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.182**		**0.000807**	**0.00571**	**mg/Kg-dry**	1	15-Nov-2021 11:01
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**37.6**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 11:59
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.359**	J	**0.0583**	**0.971**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	SUP0016	Lab ID:HS21110203-04
Collection Date:	02-Nov-2021 11:24	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.246**		**0.000757**	**0.00535**	**mg/Kg-dry**	1	15-Nov-2021 11:03
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**36.6**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 11:59
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.608**	J	**0.0591**	**0.985**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	SMP0009	Lab ID:HS21110203-05
Collection Date:	02-Nov-2021 11:40	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.287**		**0.00146**	**0.0103**	**mg/Kg-dry**	1	15-Nov-2021 11:05
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**65.8**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.805**	J	**0.0586**	**0.976**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	ECC-031	Lab ID:HS21110203-06
Collection Date:	02-Nov-2021 11:55	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.331**		**0.00127**	**0.00897**	**mg/Kg-dry**	1	15-Nov-2021 11:06
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**62.0**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.733**	J	**0.0590**	**0.984**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	STO0193	Lab ID:HS21110203-07
Collection Date:	02-Nov-2021 12:10	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.284**		**0.000950**	**0.00672**	**mg/Kg-dry**	1	15-Nov-2021 11:08
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**48.9**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.512**	J	**0.0578**	**0.963**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	ECC-017	Lab ID:HS21110203-08
Collection Date:	02-Nov-2021 12:20	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.331**		**0.00121**	**0.00854**	**mg/Kg-dry**	1	15-Nov-2021 11:10
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**59.4**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.696**	J	**0.0595**	**0.991**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	SMP0007	Lab ID:HS21110203-09
Collection Date:	02-Nov-2021 12:25	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.120**		**0.000685**	**0.00485**	**mg/Kg-dry**	1	15-Nov-2021 11:11
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**30.6**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.259**	J	**0.0584**	**0.973**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	STO0160	Lab ID:HS21110203-10
Collection Date:	02-Nov-2021 12:30	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.137**		**0.000749**	**0.00530**	**mg/Kg-dry**	1	15-Nov-2021 11:13
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**35.8**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.338**	J	**0.0584**	**0.973**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	SMP0014	Lab ID:HS21110203-11
Collection Date:	02-Nov-2021 12:45	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.285**		**0.00126**	**0.00888**	**mg/Kg-dry**	1	15-Nov-2021 10:33
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**60.2**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.723**	J	**0.0587**	**0.978**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	ECC-036	Lab ID:HS21110203-12
Collection Date:	02-Nov-2021 13:00	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.386**		**0.00127**	**0.00899**	**mg/Kg-dry**	1	15-Nov-2021 11:24
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**61.4**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.619**	J	**0.0586**	**0.977**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	STO0203	Lab ID:HS21110203-13
Collection Date:	02-Nov-2021 13:10	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.434**		**0.00107**	**0.00759**	**mg/Kg-dry**	1	15-Nov-2021 11:26
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**54.4**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.597**	J	**0.0599**	**0.999**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	2021-OW-DUP	Lab ID:HS21110203-14
Collection Date:	02-Nov-2021 12:05	Matrix:Sediment

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7471B		**Method:SW7471B**			Prep:SW7471B / 15-Nov-2021		Analyst: MSC
Mercury	**0.369**		**0.00130**	**0.00920**	**mg/Kg-dry**	1	15-Nov-2021 11:27
MOISTURE - ASTM D2216		**Method:ASTM D2216**					Analyst: SB
Percent Moisture	**62.4**		**0.0100**	**0.0100**	**wt%**	1	16-Nov-2021 12:38
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**			Prep:SW9060 / 30-Nov-2021		Analyst: JAC
Total Organic Carbon	**0.759**	J	**0.0589**	**0.981**	**wt%-dry**	1	30-Nov-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client:	Benchmark Ecological Services	**ANALYTICAL REPORT**
Project:	Alcoa Sediment	WorkOrder:HS21110203
Sample ID:	2021-OW-EB	Lab ID:HS21110203-15
Collection Date:	02-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
MERCURY BY SW7470A		**Method:SW7470A**			Prep:SW7470A / 09-Nov-2021		Analyst: MSC
Mercury	< 0.0000300		0.0000300	0.000200	mg/L	1	09-Nov-2021 15:36
TOTAL ORGANIC CARBON BY SW9060A		**Method:SW9060**					Analyst: JAC
Organic Carbon, Total	**3.59**		**0.500**	**1.00**	**mg/L**	1	07-Nov-2021 10:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Batch ID: 172278 **Start Date:** 09 Nov 2021 08:30 **End Date:** 09 Nov 2021 11:30
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110203-15		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 172433 **Start Date:** 15 Nov 2021 07:30 **End Date:** 15 Nov 2021 09:30
Method: MERCURY PREP - SOLID - 7471B **Prep Code:** HG_S_LOWPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110203-01		0.555 (grams)	40 (mL)	72.07	4-oz glass, Neat
HS21110203-02		0.5929 (grams)	40 (mL)	67.47	4-oz glass, Neat
HS21110203-03		0.5598 (grams)	40 (mL)	71.45	4-oz glass, Neat
HS21110203-04		0.5878 (grams)	40 (mL)	68.05	4-oz glass, Neat
HS21110203-05		0.5658 (grams)	40 (mL)	70.7	4-oz glass, Neat
HS21110203-06		0.5852 (grams)	40 (mL)	68.35	4-oz glass, Neat
HS21110203-07		0.5808 (grams)	40 (mL)	68.87	4-oz glass, Neat
HS21110203-08		0.5753 (grams)	40 (mL)	69.53	4-oz glass, Neat
HS21110203-09		0.5932 (grams)	40 (mL)	67.43	4-oz glass, Neat
HS21110203-10		0.5865 (grams)	40 (mL)	68.2	4-oz glass, Neat
HS21110203-11		0.5645 (grams)	40 (mL)	70.86	4-oz glass, Neat
HS21110203-12		0.5746 (grams)	40 (mL)	69.61	4-oz glass, Neat
HS21110203-13		0.5764 (grams)	40 (mL)	69.4	4-oz glass, Neat
HS21110203-14		0.5766 (grams)	40 (mL)	69.37	4-oz glass, Neat

Weight / Prep Log

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Batch ID: 173010 **Start Date:** 30 Nov 2021 11:59 **End Date:** 30 Nov 2021 13:00
Method: TOC SOLID PREP **Prep Code:** TOC_SOLID_PR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110203-01		0.2046 (grams)	0.2 (mL)	0.9775	4-oz glass, Neat
HS21110203-02		0.2036 (grams)	0.2 (mL)	0.9823	4-oz glass, Neat
HS21110203-03		0.2059 (grams)	0.2 (mL)	0.9713	4-oz glass, Neat
HS21110203-04		0.2031 (grams)	0.2 (mL)	0.9847	4-oz glass, Neat
HS21110203-05		0.2049 (grams)	0.2 (mL)	0.9761	4-oz glass, Neat
HS21110203-06		0.2033 (grams)	0.2 (mL)	0.9838	4-oz glass, Neat
HS21110203-07		0.2077 (grams)	0.2 (mL)	0.9629	4-oz glass, Neat
HS21110203-08		0.2018 (grams)	0.2 (mL)	0.9911	4-oz glass, Neat
HS21110203-09		0.2056 (grams)	0.2 (mL)	0.9728	4-oz glass, Neat
HS21110203-10		0.2056 (grams)	0.2 (mL)	0.9728	4-oz glass, Neat
HS21110203-11		0.2044 (grams)	0.2 (mL)	0.9785	4-oz glass, Neat
HS21110203-12		0.2047 (grams)	0.2 (mL)	0.977	4-oz glass, Neat
HS21110203-13		0.2003 (grams)	0.2 (mL)	0.9985	4-oz glass, Neat
HS21110203-14		0.2039 (grams)	0.2 (mL)	0.9809	4-oz glass, Neat

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 172278 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS21110203-15	2021-OW-EB	02 Nov 2021 14:00		09 Nov 2021 08:30	09 Nov 2021 15:36	1
Batch ID: 172433 (0)	**Test Name :** MERCURY BY SW7471B				**Matrix:** Sediment	
HS21110203-01	LVB0902	02 Nov 2021 10:35		15 Nov 2021 09:30	15 Nov 2021 10:58	1
HS21110203-02	SMP0004	02 Nov 2021 11:00		15 Nov 2021 09:30	15 Nov 2021 10:59	1
HS21110203-03	STO0201	02 Nov 2021 11:10		15 Nov 2021 09:30	15 Nov 2021 11:01	1
HS21110203-04	SUP0016	02 Nov 2021 11:24		15 Nov 2021 09:30	15 Nov 2021 11:03	1
HS21110203-05	SMP0009	02 Nov 2021 11:40		15 Nov 2021 09:30	15 Nov 2021 11:05	1
HS21110203-06	ECC-031	02 Nov 2021 11:55		15 Nov 2021 09:30	15 Nov 2021 11:06	1
HS21110203-07	STO0193	02 Nov 2021 12:10		15 Nov 2021 09:30	15 Nov 2021 11:08	1
HS21110203-08	ECC-017	02 Nov 2021 12:20		15 Nov 2021 09:30	15 Nov 2021 11:10	1
HS21110203-09	SMP0007	02 Nov 2021 12:25		15 Nov 2021 09:30	15 Nov 2021 11:11	1
HS21110203-10	STO0160	02 Nov 2021 12:30		15 Nov 2021 09:30	15 Nov 2021 11:13	1
HS21110203-11	SMP0014	02 Nov 2021 12:45		15 Nov 2021 09:30	15 Nov 2021 10:33	1
HS21110203-12	ECC-036	02 Nov 2021 13:00		15 Nov 2021 09:30	15 Nov 2021 11:24	1
HS21110203-13	STO0203	02 Nov 2021 13:10		15 Nov 2021 09:30	15 Nov 2021 11:26	1
HS21110203-14	2021-OW-DUP	02 Nov 2021 12:05		15 Nov 2021 09:30	15 Nov 2021 11:27	1
Batch ID: 173010 (0)	**Test Name :** TOTAL ORGANIC CARBON BY SW9060A				**Matrix:** Sediment	
HS21110203-01	LVB0902	02 Nov 2021 10:35		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-02	SMP0004	02 Nov 2021 11:00		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-03	STO0201	02 Nov 2021 11:10		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-04	SUP0016	02 Nov 2021 11:24		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-05	SMP0009	02 Nov 2021 11:40		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-06	ECC-031	02 Nov 2021 11:55		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-07	STO0193	02 Nov 2021 12:10		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-08	ECC-017	02 Nov 2021 12:20		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-09	SMP0007	02 Nov 2021 12:25		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-10	STO0160	02 Nov 2021 12:30		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-11	SMP0014	02 Nov 2021 12:45		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-12	ECC-036	02 Nov 2021 13:00		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-13	STO0203	02 Nov 2021 13:10		30 Nov 2021 11:59	30 Nov 2021 17:54	1
HS21110203-14	2021-OW-DUP	02 Nov 2021 12:05		30 Nov 2021 11:59	30 Nov 2021 17:54	1
Batch ID: R395080 (0)	**Test Name :** TOTAL ORGANIC CARBON BY SW9060A				**Matrix:** Water	
HS21110203-15	2021-OW-EB	02 Nov 2021 14:00			07 Nov 2021 10:45	1

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R395825 (0)	**Test Name :** MOISTURE - ASTM D2216				**Matrix:** Sediment	
HS21110203-01	LVB0902	02 Nov 2021 10:35			16 Nov 2021 11:59	1
HS21110203-02	SMP0004	02 Nov 2021 11:00			16 Nov 2021 11:59	1
HS21110203-03	STO0201	02 Nov 2021 11:10			16 Nov 2021 11:59	1
HS21110203-04	SUP0016	02 Nov 2021 11:24			16 Nov 2021 11:59	1
Batch ID: R395827 (0)	**Test Name :** MOISTURE - ASTM D2216				**Matrix:** Sediment	
HS21110203-05	SMP0009	02 Nov 2021 11:40			16 Nov 2021 12:38	1
HS21110203-06	ECC-031	02 Nov 2021 11:55			16 Nov 2021 12:38	1
HS21110203-07	STO0193	02 Nov 2021 12:10			16 Nov 2021 12:38	1
HS21110203-08	ECC-017	02 Nov 2021 12:20			16 Nov 2021 12:38	1
HS21110203-09	SMP0007	02 Nov 2021 12:25			16 Nov 2021 12:38	1
HS21110203-10	STO0160	02 Nov 2021 12:30			16 Nov 2021 12:38	1
HS21110203-11	SMP0014	02 Nov 2021 12:45			16 Nov 2021 12:38	1
HS21110203-12	ECC-036	02 Nov 2021 13:00			16 Nov 2021 12:38	1
HS21110203-13	STO0203	02 Nov 2021 13:10			16 Nov 2021 12:38	1
HS21110203-14	2021-OW-DUP	02 Nov 2021 12:05			16 Nov 2021 12:38	1

WorkOrder: HS21110203
InstrumentID: HG03
Test Code: HG_S_Low
Test Number: SW7471B
Test Name: Mercury by SW7471B

METHOD DETECTION / REPORTING LIMITS

Matrix: Solid **Units:** mg/Kg

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Mercury	7439-97-6	0.00167	0.00147	0.000470	0.00332

WorkOrder: HS21110203
InstrumentID: HG03
Test Code: HG_W
Test Number: SW7470A
Test Name: Mercury by SW7470A

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Mercury	7439-97-6	0.000100	0.000118	0.0000300	0.000200

WorkOrder: HS21110203
InstrumentID: Balance1
Test Code: MOIST_ASTM
Test Number: ASTM D2216
Test Name: Moisture - ASTM D2216

METHOD DETECTION / REPORTING LIMITS

Matrix: Solid **Units:** wt%

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Percent Moisture	MOIST	0.0100	0.0100	0.0100	0.0100

WorkOrder: HS21110203
InstrumentID: TOC_03
Test Code: TOC_S
Test Number: SW9060
Test Name: Total Organic Carbon by SW9060A

METHOD DETECTION / REPORTING LIMITS

Matrix: Solid **Units:** wt%

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Total Organic Carbon	7440-44-0	0.0600	0.0520	0.0600	1.00

WorkOrder: HS21110203
InstrumentID: TOC_04
Test Code: TOC_W 9060
Test Number: SW9060
Test Name: Total Organic Carbon by SW9060A

METHOD DETECTION / REPORTING LIMITS

Matrix: Aqueous **Units:** mg/L

Type	Analyte	CAS	DCS Spike	DCS	MDL	PQL
A	Organic Carbon, Total	TOC	1.00	1.04	0.500	1.00

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

QC BATCH REPORT

Batch ID: 172278 (0) **Instrument:** HG03 **Method:** MERCURY BY SW7470A

MBLK Sample ID: **MBLK-172278** Units: **mg/L** Analysis Date: **09-Nov-2021 14:09**
Client ID: Run ID: **HG03_395211** SeqNo: **6361470** PrepDate: **09-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	< 0.0000300	0.000200								

LCS Sample ID: **LCS-172278** Units: **mg/L** Analysis Date: **09-Nov-2021 14:11**
Client ID: Run ID: **HG03_395211** SeqNo: **6361471** PrepDate: **09-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00497	0.000200	0.005	0	99.4	80 - 120				

MS Sample ID: **HS21110467-01MS** Units: **mg/L** Analysis Date: **09-Nov-2021 14:15**
Client ID: Run ID: **HG03_395211** SeqNo: **6361473** PrepDate: **09-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.000200	0.005	0.000178	89.2	75 - 125				

MSD Sample ID: **HS21110467-01MSD** Units: **mg/L** Analysis Date: **09-Nov-2021 14:21**
Client ID: Run ID: **HG03_395211** SeqNo: **6361474** PrepDate: **09-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00508	0.000200	0.005	0.000178	98.0	75 - 125	0.00464	9.05	20	

The following samples were analyzed in this batch: HS21110203-15

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

QC BATCH REPORT

Batch ID: 172433 (0) **Instrument:** HG03 **Method:** MERCURY BY SW7471B

MBLK Sample ID: **MBLK-172433** Units: **ug/Kg** Analysis Date: **15-Nov-2021 10:23**
Client ID: Run ID: **HG03_395627** SeqNo: **6371759** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	1.267	3.33								J

LCS Sample ID: **LCS-172433** Units: **ug/Kg** Analysis Date: **15-Nov-2021 10:31**
Client ID: Run ID: **HG03_395627** SeqNo: **6371762** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	306.8	3.36	336.4	0	91.2	80 - 120				

MS Sample ID: **HS21110203-11MS** Units: **ug/Kg** Analysis Date: **15-Nov-2021 10:39**
Client ID: **SMP0014** Run ID: **HG03_395627** SeqNo: **6371764** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	387.2	3.42	343.3	113.4	79.8	80 - 120				S

MSD Sample ID: **HS21110203-11MSD** Units: **ug/Kg** Analysis Date: **15-Nov-2021 10:41**
Client ID: **SMP0014** Run ID: **HG03_395627** SeqNo: **6371765** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	385.1	3.50	350.8	113.4	77.5	80 - 120	387.2	0.544	20	S

The following samples were analyzed in this batch:

HS21110203-01	HS21110203-02	HS21110203-03	HS21110203-04
HS21110203-05	HS21110203-06	HS21110203-07	HS21110203-08
HS21110203-09	HS21110203-10	HS21110203-11	HS21110203-12
HS21110203-13	HS21110203-14		

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

QC BATCH REPORT

Batch ID: 173010 (0) **Instrument:** TOC_03 **Method:** TOTAL ORGANIC CARBON BY SW9060A

MBLK Sample ID: **MBLK-173010** Units: **wt%-dry** Analysis Date: **30-Nov-2021 17:54**
Client ID: Run ID: **TOC_03_396653** SeqNo: **6398377** PrepDate: **30-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Organic Carbon	0.09453	0.985								J

LCS Sample ID: **LCS-173010** Units: **wt%-dry** Analysis Date: **30-Nov-2021 17:54**
Client ID: Run ID: **TOC_03_396653** SeqNo: **6398375** PrepDate: **30-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Organic Carbon	3.367	0.948	3.793	0	88.8	80 - 120				

LCSD Sample ID: **LCSD-173010** Units: **wt%-dry** Analysis Date: **30-Nov-2021 17:54**
Client ID: Run ID: **TOC_03_396653** SeqNo: **6398376** PrepDate: **30-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Organic Carbon	3.101	0.933	3.731	0	83.1	80 - 120	3.367	8.25	20	

MS Sample ID: **HS21110203-11MS** Units: **wt%-dry** Analysis Date: **30-Nov-2021 17:54**
Client ID: **SMP0014** Run ID: **TOC_03_396653** SeqNo: **6398373** PrepDate: **30-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Organic Carbon	4.002	0.932	3.728	0.7231	88.0	80 - 120				

MSD Sample ID: **HS21110203-11MSD** Units: **wt%-dry** Analysis Date: **30-Nov-2021 17:54**
Client ID: **SMP0014** Run ID: **TOC_03_396653** SeqNo: **6398374** PrepDate: **30-Nov-2021** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Organic Carbon	3.712	0.935	3.742	0.7231	79.9	80 - 120	4.002	7.52	20	S

The following samples were analyzed in this batch:

HS21110203-01	HS21110203-02	HS21110203-03	HS21110203-04
HS21110203-05	HS21110203-06	HS21110203-07	HS21110203-08
HS21110203-09	HS21110203-10	HS21110203-11	HS21110203-12
HS21110203-13	HS21110203-14		

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

QC BATCH REPORT

Batch ID: R395080 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON BY SW9060A

MBLK Sample ID: **MBLK-11052021** Units: **mg/L** Analysis Date: **07-Nov-2021 06:22**
Client ID: Run ID: **TOC_04_395080** SeqNo: **6358422** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	< 0.500	1.00								

LCS Sample ID: **LCS-11052021** Units: **mg/L** Analysis Date: **07-Nov-2021 06:38**
Client ID: Run ID: **TOC_04_395080** SeqNo: **6358423** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.47	1.00	10	0	105	85 - 115				

LCSD Sample ID: **LCSD-11052021** Units: **mg/L** Analysis Date: **07-Nov-2021 06:54**
Client ID: Run ID: **TOC_04_395080** SeqNo: **6358424** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.39	1.00	10	0	104	85 - 115	10.47	0.767	20	

MS Sample ID: **HS21110161-01MS** Units: **mg/L** Analysis Date: **07-Nov-2021 08:49**
Client ID: Run ID: **TOC_04_395080** SeqNo: **6358431** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	40.28	1.00	10	28.88	114	80 - 120				

The following samples were analyzed in this batch: HS21110203-15

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

QC BATCH REPORT

Batch ID: **R395825 (0)** **Instrument:** **Balance1** **Method:** **MOISTURE - ASTM D2216**

DUP Sample ID: **HS21110179-09DUP** Units: **wt%** Analysis Date: **16-Nov-2021 11:59**
Client ID: Run ID: **Balance1_395825** SeqNo: **6376648** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	16.3	0.0100					16.5	1.22	20	

The following samples were analyzed in this batch: HS21110203-01 HS21110203-02 HS21110203-03 HS21110203-04

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

QC BATCH REPORT

Batch ID: **R395827 (0)** **Instrument:** **Balance1** **Method:** **MOISTURE - ASTM D2216**

DUP Sample ID: **HS21110203-11DUP** Units: **wt%** Analysis Date: **16-Nov-2021 12:38**
Client ID: **SMP0014** Run ID: **Balance1_395827** SeqNo: **6376703** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	60.3	0.0100					60.2	0.166	20	

The following samples were analyzed in this batch:

HS21110203-05	HS21110203-06	HS21110203-07	HS21110203-08
HS21110203-09	HS21110203-10	HS21110203-11	HS21110203-12
HS21110203-13	HS21110203-14		

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: **HS21110203**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
Date	
mg/Kg-dry	Milligrams per Kilogram- Dry weight corrected

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

Sample Receipt Checklist

Work Order ID: HS21110203 **Date/Time Received:** 03-Nov-2021 11:21

Client Name: Benchmark **Received by:** Si Ma

Completed By: /S/ Nilesh D. Ranchod (eSignature) 04-Nov-2021 12:57 (Date/Time) **Reviewed by:** _____ (eSignature) _____ (Date/Time)

Matrices: **Soil/Water** Carrier name: **Client**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	2 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:258076/258075
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.0C UC/C	IR #31
Cooler(s)/Kit(s):	46470	
Date/Time sample(s) sent to storage:	11/03/2021 13:00	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 2

COC ID: 258076

HS21110203

Benchmark Ecological Services
Alcoa Sediment

ALS Project Manager:

Customer Information		Project Information	
Purchase Order	Alcoa Sediment	Project Name	Alcoa Sediment
Work Order		Project Number	
Company Name	Benchmark Ecological Services	Bill To Company	Benchmark Ecological Services
Send Report To	Neil Henthorne	Invoice Attn	Neil Henthorne
Address	4219 S Front St	Address	4219 S Front St
City/State/Zip	Brookshire, TX 77423	City/State/Zip	Brookshire TX 77423
Phone	(281) 934-3403	Phone	(281) 934-3403
Fax	(281) 934-3404	Fax	(281) 934-3404
e-Mail Address	nhenthorne@benchmarkeco.com	e-Mail Address	nhenthorne@benchmarkeco.com

A	HG_S_Low (7471B Total Mercury) [4oz jar]
B	TOC_S (SW9060 TOC) [4oz jar-shared]
C	MOIST_ASTM (D2216 Moisture %) [4oz jar-shared]
D	EB: HG_W (7470B Total Mercury) [120PHNO3]
E	EB: TOC_W 9060 (SW9060 TOC) [3xVOA H2SO4]
F	
G	
H	
I	
J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	LUB0902	11/02/21	1035	Sed	8	1	X	X	X								
2	SMP0004		1100			1	X	X	X								
3	STO0201		1110			1	X	X	X								
4	SMP0016		1124			1	X	X	X								
5	SMP0009		1140			1	X	X	X								
6	ECC-031		1155			1	X	X	X								
7	STO0193		1210			1	X	X	X								
8	ECC-017		1220			1	X	X	X								
9	SMP0007		1225			1	X	X	X								
10	STO0160		1230			1	X	X	X								

Sampler(s) Please Print & Sign: Russell Calvin

Shipment Method:

Required Turnaround Time: (Check Box) [X] STD 10 Wk Days [ ] 5 Wk Days [ ] 2 Wk Days [ ] 24 Hour [ ] Other

Results Due Date:

Relinquished by: Date: 11/2/21 Time: 1121

Received by:

Relinquished by: Date: Time:

Received by (Laboratory): SM 11/05/21 11:21

Logged by (Laboratory): Date: Time:

Checked by (Laboratory):

Notes: Bechmark - Hg and Moisture

Cooler ID	Cooler Temp.
46470	1.0

QC Package: (Check One Box Below)
[ ] Level II Std QC
[ ] Level III Std QC/Raw Data
[ ] Level IV SW846/CLP
[ ] Other
[ ] TRRP Checklist
[X] TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Form

Page 2 of 2

COC ID: 258075

HS21110203

Benchmark Ecological Services
Alcoa Sediment

ALS Project Manager:

Customer Information		Project Information	
Purchase Order	Alcoa Sediment	Project Name	Alcoa Sediment
Work Order		Project Number	
Company Name	Benchmark Ecological Services	Bill To Company	Benchmark Ecological Services
Send Report To	Neil Henthorne	Invoice Attn	Neil Henthorne
Address	4219 S Front St	Address	4219 S Front St
City/State/Zip	Brookshire, TX 77423	City/State/Zip	Brookshire TX 77423
Phone	(281) 934-3403	Phone	(281) 934-3403
Fax	(281) 934-3404	Fax	(281) 934-3404
e-Mail Address	nhenthorne@benchmarkeco.com	e-Mail Address	nhenthorne@benchmarkeco.com

A HG_S_Low (7471B Total Mercury) [4oz jar]
B TOC_S (SW9060 TOC) [8oz jar-shared]
C MOIST_ASTM (D2216 Moisture %) [4oz jar-shared]
D EB: HG_W (7470B Total Mercury) [120PHNO3]
E EB: TOC_W9060 (SW9060 TOC) [3xVOA H2SO4]
F MS/MSD
G
H
I
J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SMP0014	11/02/21	1245	Sed	8	2	X	X	X			X					
2	ECC-036		1300			1	X	X	X								
3	STO 0203		1310			1	X	X	X								
4	2021-OW-DUP		12:05			1	X	X	X								
5	2021-OW-EB	11/02/21	14:00	Water	8	4				X	X						
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Russell Calvin

Shipment Method:

Required Turnaround Time: (Check Box) [X] STD 10 Wk Days [ ] 5 Wk Days [ ] 3 Wk Days [ ] 24 Hrs

Results Due Date:

Relinquished by:	Date: 11/2/21	Time: 1121	Received by:
Relinquished by:	Date:	Time:	Received by (Laboratory): SM 11/03/21 11:21
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes: Bechmark - Hg and Moisture

Cooler ID	Cooler Temp.
4670	1.0

QC Package: (Check One Box Below)
[ ] Level 1 - Results Only
[ ] Level 2 - Results + QC Summary
[ ] Level 3 - Raw Data Package
[ ] Level 4 - Data Validation Package
[X] Other: Temperature

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date: 11/3
Name:
Company:

CUSTODY SEAL

21 Time: 0900
[illegible] Entry
Benchmark ECO.

Seal Broken By: NR
Date: 11/03/21

HS21110203 - ME - HG_S_LowHG_W

ALS WO# HS21110203

FORM 12 - PREPARATION LOG

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203
Start Date: 09-Nov-2021 08:30 End Date: 09-Nov-2021 11:30

Batch ID: 172278
Prep Code: Hg_WPr
Method: SW7470A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS21110203-15	2021-OW-EB	Water		10	10	1
HS21110467-01MS				10	10	1
HS21110467-01MSD				10	10	1
LCS-172278				10	10	1
MBLK-172278				10	10	1

FORM 12 - PREPARATION LOG

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203
Start Date: 15-Nov-2021 07:30 End Date: 15-Nov-2021 09:30

Batch ID: 172433
Prep Code: Hg_S_LowPr
Method: SW7471B
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS21110203-01	LVB0902	Sediment	0.555		40	72.07
HS21110203-02	SMP0004	Sediment	0.5929		40	67.47
HS21110203-03	STO0201	Sediment	0.5598		40	71.45
HS21110203-04	SUP0016	Sediment	0.5878		40	68.05
HS21110203-05	SMP0009	Sediment	0.5658		40	70.7
HS21110203-06	ECC-031	Sediment	0.5852		40	68.35
HS21110203-07	STO0193	Sediment	0.5808		40	68.87
HS21110203-08	ECC-017	Sediment	0.5753		40	69.53
HS21110203-09	SMP0007	Sediment	0.5932		40	67.43
HS21110203-10	STO0160	Sediment	0.5865		40	68.2
HS21110203-11	SMP0014	Sediment	0.5645		40	70.86
HS21110203-11MS			0.5826		40	68.66
HS21110203-11MSD			0.5702		40	70.15
HS21110203-12	ECC-036	Sediment	0.5746		40	69.61
HS21110203-13	STO0203	Sediment	0.5764		40	69.4
HS21110203-14	2021-OW-DUP	Sediment	0.5766		40	69.37
LCS-172433			0.5946		40	67.27
MBLK-172433			0.5998		40	66.69

FORM 13 - ANALYSIS RUN LOG

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203
Start Date: 09-Nov-2021 End Date: 09-Nov-2021

Run ID:HG03_395211
Instrument:HG03
Method:SW7470A

Sample No.	D/F	Time	FileID	Analytes
ICCV 1	1	09-Nov-2021 12:38	HG03_395211 Raw Data_6361071	HG
ICV	1	09-Nov-2021 12:40	_6361072	HG
ICB	1	09-Nov-2021 12:42	_6361073	HG
CRA	1	09-Nov-2021 12:46	_6361074	HG
CCV 2	1	09-Nov-2021 13:07	_6361384	HG
CCB 1	1	09-Nov-2021 13:09	_6361385	HG
CCV 3	1	09-Nov-2021 13:30	_6361396	HG
CCB 2	1	09-Nov-2021 13:31	_6361397	HG
CCV 4	1	09-Nov-2021 13:59	_6361408	HG
CCB 3	1	09-Nov-2021 14:01	_6361411	HG
MBLK-172278	1	09-Nov-2021 14:09	_6361470	HG
LCS-172278	1	09-Nov-2021 14:11	_6361471	HG
ZZZZZZMS	1	09-Nov-2021 14:15	_6361473	HG
ZZZZZZMSD	1	09-Nov-2021 14:21	_6361474	HG
CCV 5	1	09-Nov-2021 14:26	_6361477	HG
CCB 4	1	09-Nov-2021 14:28	_6361478	HG
CCV 6	1	09-Nov-2021 14:53	_6361793	HG
CCB 5	1	09-Nov-2021 14:55	_6361794	HG
2021-OW-EB	1	09-Nov-2021 15:36	_6361800	HG
CCV 7	1	09-Nov-2021 15:46	_6362161	HG
CCB 6	1	09-Nov-2021 15:48	_6362162	HG
CCV 8	1	09-Nov-2021 16:20	_6362173	HG
CCB 7	1	09-Nov-2021 16:22	_6362174	HG
CCV 9	1	09-Nov-2021 17:05	_6362180	HG
CCB 8	1	09-Nov-2021 17:07	_6362181	HG

FORM 13 - ANALYSIS RUN LOG

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203
Start Date: 15-Nov-2021 End Date: 15-Nov-2021

Run ID:HG03_395627
Instrument:HG03
Method:SW7470A

Sample No.	D/F	Time	FileID	Analytes
ICCV 1	1	15-Nov-2021 09:56	_6371488	HG
ICV	1	15-Nov-2021 10:01	HG03_395627 Raw Data_6371485	HG
ICB	1	15-Nov-2021 10:03	_6371486	HG
CRA	1	15-Nov-2021 10:04	_6371487	HG
MBLK-172433	1	15-Nov-2021 10:23	_6371759	Hg
CCV 2	1	15-Nov-2021 10:24	_6371760	HG
CCB 1	1	15-Nov-2021 10:26	_6371761	HG
LCS-172433	1	15-Nov-2021 10:31	_6371762	Hg
SMP0014	1	15-Nov-2021 10:33	_6371763	Hg
SMP0014MS	1	15-Nov-2021 10:39	_6371764	Hg
SMP0014MSD	1	15-Nov-2021 10:41	_6371765	Hg
CCV 3	1	15-Nov-2021 10:53	_6371772	HG
CCB 2	1	15-Nov-2021 10:55	_6371773	HG
LVB0902	1	15-Nov-2021 10:58	_6371774	Hg
SMP0004	1	15-Nov-2021 10:59	_6371775	Hg
STO0201	1	15-Nov-2021 11:01	_6371776	Hg
SUP0016	1	15-Nov-2021 11:03	_6371777	Hg
SMP0009	1	15-Nov-2021 11:05	_6371778	Hg
ECC-031	1	15-Nov-2021 11:06	_6371779	Hg
STO0193	1	15-Nov-2021 11:08	_6371780	Hg
ECC-017	1	15-Nov-2021 11:10	_6371781	Hg
SMP0007	1	15-Nov-2021 11:11	_6371782	Hg
STO0160	1	15-Nov-2021 11:13	_6371783	Hg
CCB 3	1	15-Nov-2021 11:16	_6371784	HG
CCV 4	1	15-Nov-2021 11:19	_6371785	HG
ECC-036	1	15-Nov-2021 11:24	_6371786	Hg
STO0203	1	15-Nov-2021 11:26	_6371787	Hg
2021-OW-DUP	1	15-Nov-2021 11:27	_6371788	Hg
CCV 5	1	15-Nov-2021 11:43	_6371796	HG
CCB 4	1	15-Nov-2021 11:44	_6371797	HG
CCB 5	1	15-Nov-2021 12:06	_6372106	HG
CCV 6	1	15-Nov-2021 12:08	_6372107	HG
CCV 7	1	15-Nov-2021 12:32	_6372118	HG
CCB 6	1	15-Nov-2021 12:34	_6372119	HG
CCV 8	1	15-Nov-2021 12:58	_6372412	HG
CCB 7	1	15-Nov-2021 13:00	_6372385	HG
CCV 9	1	15-Nov-2021 13:22	_6372396	HG
CCB 8	1	15-Nov-2021 13:24	_6372397	HG
CCV 10	1	15-Nov-2021 13:45	_6372807	HG
CCB 9	1	15-Nov-2021 13:48	_6372808	HG
CCB 10	1	15-Nov-2021 14:10	_6372819	HG
CCV 11	1	15-Nov-2021 14:35	_6372820	HG
CCV 12	1	15-Nov-2021 14:56	_6372831	HG
CCB 11	1	15-Nov-2021 14:59	_6372832	HG
CCV 13	1	15-Nov-2021 15:21	_6373093	HG
CCB 12	1	15-Nov-2021 15:23	_6373094	HG
CCV 14	1	15-Nov-2021 15:42	_6373104	HG
CCB 13	1	15-Nov-2021 15:45	_6373105	HG

Form 2 - Initial and Continuing Calibration Verification

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Run ID: HG03_395211
Instrument: HG03
Method: SW7470A

ICCV1 Date: 09-Nov-2021 12:38 Seq: 6361071 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.38	108	90-110	

ICV Date: 09-Nov-2021 12:40 Seq: 6361072 ICV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.21	104	90-110	

CCV2 Date: 09-Nov-2021 13:07 Seq: 6361384 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.03	101	90-110	

CCV3 Date: 09-Nov-2021 13:30 Seq: 6361396 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.19	104	90-110	

CCV4 Date: 09-Nov-2021 13:59 Seq: 6361408 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.79	96	90-110	

CCV5 Date: 09-Nov-2021 14:26 Seq: 6361477 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.4	108	90-110	

CCV6 Date: 09-Nov-2021 14:53 Seq: 6361793 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.04	101	90-110	

CCV7 Date: 09-Nov-2021 15:46 Seq: 6362161 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.77	95	90-110	

CCV8 Date: 09-Nov-2021 16:20 Seq: 6362173 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.85	97	90-110	

CCV9 Date: 09-Nov-2021 17:05 Seq: 6362180 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.82	96	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Run ID: HG03_395627
Instrument: HG03
Method: SW7470A

ICCV1 Date: 15-Nov-2021 09:56 Seq: 6371488 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.56	91	90-110	

ICV Date: 15-Nov-2021 10:01 Seq: 6371485 ICV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5	100	90-110	

CCV2 Date: 15-Nov-2021 10:24 Seq: 6371760 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.1	102	90-110	

CCV3 Date: 15-Nov-2021 10:53 Seq: 6371772 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.61	92	90-110	

CCV4 Date: 15-Nov-2021 11:19 Seq: 6371785 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.84	97	90-110	

CCV5 Date: 15-Nov-2021 11:43 Seq: 6371796 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.9	98	90-110	

CCV6 Date: 15-Nov-2021 12:08 Seq: 6372107 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.72	94	90-110	

CCV7 Date: 15-Nov-2021 12:32 Seq: 6372118 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.82	96	90-110	

CCV8 Date: 15-Nov-2021 12:58 Seq: 6372412 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.67	93	90-110	

CCV9 Date: 15-Nov-2021 13:22 Seq: 6372396 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.84	97	90-110	

CCV10 Date: 15-Nov-2021 13:45 Seq: 6372807 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.79	96	90-110	

CCV11 Date: 15-Nov-2021 14:35 Seq: 6372820 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.99	100	90-110	

CCV12 Date: 15-Nov-2021 14:56 Seq: 6372831 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.9	98	90-110	

CCV13 Date: 15-Nov-2021 15:21 Seq: 6373093 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.52	90	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Run ID: HG03_395627
Instrument: HG03
Method: SW7470A

CCV14 Date: 15-Nov-2021 15:42 Seq: 6373104 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	4.8	96	90-110	

Form 3 - BLANKS

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Run ID: HG03_395211
Instrument: HG03
Method: SW7470A

ICB	Date: 09-Nov-2021 12:42	Seq: 6361073	ICB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB1	Date: 09-Nov-2021 13:09	Seq: 6361385	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB2	Date: 09-Nov-2021 13:31	Seq: 6361397	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB3	Date: 09-Nov-2021 14:01	Seq: 6361411	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

MBLK-172278	Date: 09-Nov-2021 14:09	Seq: 6361470	MBLK	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB4	Date: 09-Nov-2021 14:28	Seq: 6361478	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB5	Date: 09-Nov-2021 14:55	Seq: 6361794	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB6	Date: 09-Nov-2021 15:48	Seq: 6362162	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB7	Date: 09-Nov-2021 16:22	Seq: 6362174	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB8	Date: 09-Nov-2021 17:07	Seq: 6362181	CCB	Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

Form 3 - BLANKS

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Run ID: HG03_395627
Instrument: HG03
Method: SW7470A

ICB Date: 15-Nov-2021 10:03 Seq: 6371486 ICB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

MBLK-172433 Date: 15-Nov-2021 10:23 Seq: 6371759 MBLK Units: mg/Kg

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.001267	0.0004702	0.003326	J

CCB1 Date: 15-Nov-2021 10:26 Seq: 6371761 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB2 Date: 15-Nov-2021 10:55 Seq: 6371773 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB3 Date: 15-Nov-2021 11:16 Seq: 6371784 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB4 Date: 15-Nov-2021 11:44 Seq: 6371797 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB5 Date: 15-Nov-2021 12:06 Seq: 6372106 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB6 Date: 15-Nov-2021 12:34 Seq: 6372119 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB7 Date: 15-Nov-2021 13:00 Seq: 6372385 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB8 Date: 15-Nov-2021 13:24 Seq: 6372397 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB9 Date: 15-Nov-2021 13:48 Seq: 6372808 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB10 Date: 15-Nov-2021 14:10 Seq: 6372819 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	-0.065	0.03	0.2	J

CCB11 Date: 15-Nov-2021 14:59 Seq: 6372832 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB12 Date: 15-Nov-2021 15:23 Seq: 6373094 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

CCB13 Date: 15-Nov-2021 15:45 Seq: 6373105 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Mercury	0.2	0.03	0.2	U

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Date Analyzed: 09-Nov-2021 14:21
Date Extracted: 09-Nov-2021 11:00
Units: ug/L

Matrix Spike: HS21110467-01MS
Client Sample ID:

Analysis Method: SW7470A

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Mercury	0.1780	4.640	5.000	89.2	5.080	5.000	98.0	75-125	9.05	20

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Date Analyzed: 15-Nov-2021 10:41
Date Extracted: 15-Nov-2021 09:30
Units: mg/Kg

Matrix Spike: HS21110203-11MS
Client Sample ID: SMP0014
Analysis Method: SW7471B

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Mercury	0.1134	0.3872	0.3433	79.8	0.3851	0.3508	77.5	80-120	0.544	20

Form 7 - Laboratory Control Sample

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Date Analyzed: 09-Nov-2021 14:11
Date Extracted: 09-Nov-2021 08:30
Units: ug/L

Lab Sample ID: LCS-172278
Analysis Method: SW7470A

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Mercury	5	4.97	99	80-120

Form 7 - Laboratory Control Sample

Client: Benchmark Ecological Services
Project: Alcoa Sediment
WorkOrder: HS21110203

Date Analyzed: 15-Nov-2021 10:31
Date Extracted: 15-Nov-2021 09:30
Units: mg/Kg

Lab Sample ID: LCS-172433 Analysis Method: SW7471B

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Mercury	0.3364	0.3068	91	80-120

Report Generated By Teledyne Leeman QuickTrace

Analyst: ALSHS.NoUser

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\11092021AW.wszf

Creation Date: 11/9/2021 12:15:51 PM

Comment:

Results

Sample Name		Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
Calibration Blank		STD	11/09/21 12:27:02 pm	0.000	-126	18.29	8.55	
Replicates	-92.0	-136.6	-142.4	-134.1				
Standard #1 (0.2 ppb)		STD	11/09/21 12:28:44 pm	0.200	881	4.45	14.04	
Replicates	842.1	886.2	863.9	933.7				
Standard #2 (0.5 ppb)		STD	11/09/21 12:30:26 pm	0.500	2086	1.63	-40.34	
Replicates	2042.8	2089.7	2125.8	2085.8				
Standard #3 (2.0 ppb)		STD	11/09/21 12:32:08 pm	2.000	10183	2.09	110.67	
Replicates	9940.1	10098.4	10256.2	10437.1				
Standard #4 (5.0 ppb)		STD	11/09/21 12:33:50 pm	5.000	24280	3.19	-14.80	
Replicates	23275.6	24694.2	25046.2	24105.2				
Standard #5 (10.0 ppb)		STD	11/09/21 12:35:33 pm	10.000	47961	9.19	-186.07	
Replicates	44063.8	44810.3	49445.6	53526.1				

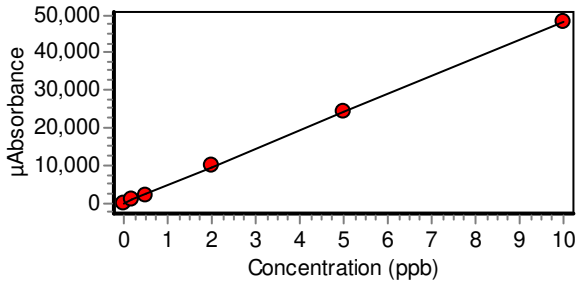
Calibration

Equation: Abs = 4904.224x + -168.238

R2: 0.99934

SEE: 542.7258

Flags:



ICCV		UNK	11/09/21 12:38:38 pm	5.380	25866	1.28		
Replicates	25508.1	25702.8	25982.1	26269.4				
ICV		UNK	11/09/21 12:40:19 pm	5.210	25058	1.55		
Replicates	24607.2	24923.8	25172.8	25528.6				
ICB		UNK	11/09/21 12:42:00 pm	-0.002	-138	201.54		
Replicates	-120.7	-167.9	-146.6	-117.2				
CRA		UNK	11/09/21 12:46:35 pm	0.190	790	4.85		
Replicates	738.6	775.1	800.9	844.3				
MBLK-172279		UNK	11/09/21 12:57:41 pm	0.024	-12	15.10		
Replicates	-35.0	-2.8	-15.6	4.2				
MBLKT1-172279		UNK	11/09/21 12:59:22 pm	0.023	-15	8.91		
Replicates	-14.8	-20.8	-0.4	-22.3				
MBLKT2-172279		UNK	11/09/21 01:01:04 pm	0.042	76	6.05		s
Replicates	65.1	87.6	65.9	85.8				

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
MBLKT3-172279					UNK	11/09/21 01:02:46 pm	0.044	86	5.68		s
	Replicates	98.7	87.8	69.6	87.8						
MBLKT4-172279					UNK	11/09/21 01:04:29 pm	-0.009	-172	9.53		
	Replicates	-172.7	-174.2	-174.7	-165.4						
MBLKT5-172279					UNK	11/09/21 01:06:11 pm	-0.005	-150	71.72		
	Replicates	-138.7	-175.0	-141.0	-145.0						
CCV					UNK	11/09/21 01:07:54 pm	5.030	24174	2.48		
	Replicates	23492.3	23964.8	24319.7	24920.7						
CCB					UNK	11/09/21 01:09:37 pm	-0.008	-166	21.49		
	Replicates	-175.6	-164.1	-170.6	-155.6						
LCS-172279					UNK	11/09/21 01:13:18 pm	5.390	25906	2.75		
	Replicates	25074.1	25657.9	26129.6	26763.7						
HS21110207-01					UNK	11/09/21 01:15:01 pm	0.025	-6	28.64		
	Replicates	-43.4	39.9	-7.1	-13.5						
HS21110207-01MS					UNK	11/09/21 01:16:42 pm	5.480	26360	0.72		
	Replicates	26581.9	26221.8	26181.6	26453.6						
HS21110207-01MSD					UNK	11/09/21 01:18:23 pm	5.600	26926	0.85		
	Replicates	26665.8	26818.4	27028.2	27191.9						
HS21110135-01					UNK	11/09/21 01:20:04 pm	0.040	66	11.10		s
	Replicates	66.8	39.3	68.0	91.6						
HS21110136-01					UNK	11/09/21 01:21:46 pm	0.064	182	12.49		s
	Replicates	140.7	231.6	166.4	187.6						
HS21110148-01					UNK	11/09/21 01:23:27 pm	0.046	96	17.66		s
	Replicates	105.2	124.1	38.6	117.6						
HS21110236-01					UNK	11/09/21 01:25:09 pm	0.060	164	9.32		s
	Replicates	155.8	139.6	156.8	202.4						
HS21110014-02					UNK	11/09/21 01:26:51 pm	0.030	21	11.17		
	Replicates	-0.9	30.6	36.1	17.8						
HS21110088-01					UNK	11/09/21 01:28:33 pm	0.084	281	8.49		s
	Replicates	312.5	299.0	277.8	233.5						
CCV					UNK	11/09/21 01:30:16 pm	5.190	24942	1.83		
	Replicates	24399.1	24760.6	25166.2	25442.6						
CCB					UNK	11/09/21 01:31:59 pm	-0.018	-213	48.15		
	Replicates	-193.9	-211.2	-175.1	-271.4						
HS21110088-02					UNK	11/09/21 01:35:48 pm	0.021	-23	15.77		
	Replicates	-20.5	-30.4	-1.1	-39.1						
HS21110200-01					UNK	11/09/21 01:37:30 pm	0.039	63	39.07		s
	Replicates	-10.9	21.0	87.0	156.0						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110200-03					UNK	11/09/21 01:39:13 pm	0.005	-104	72.10		
	Replicates	-82.9	-120.0	-110.7	-104.2						
HS21110241-01					UNK	11/09/21 01:40:55 pm	0.029	16	33.41		
	Replicates	59.3	-41.8	51.4	-3.0						
HS21110246-01					UNK	11/09/21 01:42:36 pm	0.045	92	6.75		s
	Replicates	94.0	111.0	85.0	76.6						
HS21110374-01					UNK	11/09/21 01:44:17 pm	0.010	-80	30.49		
	Replicates	-60.7	-89.6	-91.3	-78.6						
HS21110382-01					UNK	11/09/21 01:45:58 pm	0.094	328	4.92		
	Replicates	344.2	305.7	350.2	312.3						
HS21110383-01					UNK	11/09/21 01:47:40 pm	0.018	-40	34.65		
	Replicates	-72.0	-56.1	-4.8	-28.0						
HS21110400-01					UNK	11/09/21 01:49:21 pm	0.034	38	11.80		
	Replicates	63.9	38.0	17.1	33.3						
HS21110400-02					UNK	11/09/21 01:51:03 pm	0.054	137	4.86		
	Replicates	128.4	124.8	144.2	151.8						
CCV					UNK	11/09/21 01:59:28 pm	4.790	23044	6.55		s
	Replicates	20849.2	23408.9	24339.5	23579.9						
CCB					UNK	11/09/21 02:01:11 pm	-0.010	-172	15.98		
	Replicates	-171.8	-172.2	-163.8	-181.8						
HS21110415-01					UNK	11/09/21 02:04:52 pm	0.035	44	20.06		
	Replicates	27.0	13.3	45.5	91.8						
HS21110417-01					UNK	11/09/21 02:06:34 pm	0.030	17	5.96		
	Replicates	25.1	14.9	6.4	23.2						
HS21110417-02					UNK	11/09/21 02:08:16 pm	0.031	25	20.25		
	Replicates	56.4	-10.8	11.0	43.7						
MBLK-172278					UNK	11/09/21 02:09:58 pm	0.008	-86	80.33		
	Replicates	-103.3	-122.9	-63.1	-55.6						
LCS-172278					UNK	11/09/21 02:11:41 pm	4.970	23909	2.04		
	Replicates	23398.2	23644.8	24085.5	24506.6						
HS21110467-01					UNK	11/09/21 02:13:23 pm	0.178	736	13.10		s
	Replicates	572.3	756.1	829.1	784.8						
HS21110467-01MS					UNK	11/09/21 02:15:05 pm	4.640	22281	13.49		s
	Replicates	19248.9	20328.6	23780.2	25767.4						
HS21110467-01MSD					UNK	11/09/21 02:21:39 pm	5.080	24421	4.28		
	Replicates	23084.2	24161.0	24920.3	25518.3						
HS21101667-01					UNK	11/09/21 02:23:20 pm	0.019	-33	28.58		
	Replicates	-71.2	-11.4	-30.7	-19.1						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21101667-02					UNK	11/09/21 02:25:02 pm	0.200	841	3.65		
	Replicates	811.8	831.2	829.8	892.7						
CCV					UNK	11/09/21 02:26:45 pm	5.400	25995	2.13		
	Replicates	26342.9	26410.9	26024.1	25200.2						
CCB					UNK	11/09/21 02:28:28 pm	-0.018	-215	6.15		
	Replicates	-214.6	-222.9	-210.7	-212.1						
HS21101667-03					UNK	11/09/21 02:36:48 pm	0.058	156	7.82		s
	Replicates	130.9	148.7	183.7	158.7						
HS21101667-04					UNK	11/09/21 02:38:30 pm	0.085	282	1.73		
	Replicates	272.2	285.6	284.2	288.1						
HS21101681-01					UNK	11/09/21 02:40:12 pm	0.212	897	3.95		
	Replicates	861.3	863.0	925.8	937.5						
HS21101681-02					UNK	11/09/21 02:41:54 pm	0.009	-82	30.90		
	Replicates	-93.4	-82.0	-63.2	-90.5						
HS21101681-03					UNK	11/09/21 02:43:36 pm	0.012	-69	48.56		
	Replicates	-52.9	-107.6	-69.9	-44.6						
HS21101752-03					UNK	11/09/21 02:45:18 pm	-0.004	-146	92.22		
	Replicates	-158.2	-141.9	-162.1	-122.1						
HS21110031-01					UNK	11/09/21 02:47:00 pm	0.016	-48	22.59		
	Replicates	-44.3	-55.3	-24.9	-66.6						
HS21110031-02					UNK	11/09/21 02:48:43 pm	0.020	-31	23.79		
	Replicates	-63.4	-11.2	-27.5	-21.3						
HS21110031-03					UNK	11/09/21 02:50:24 pm	0.008	-86	105.52		
	Replicates	-121.9	-121.3	-37.2	-64.0						
HS21110031-04					UNK	11/09/21 02:52:06 pm	0.030	19	7.96		
	Replicates	30.2	3.1	19.1	23.6						
CCV					UNK	11/09/21 02:53:49 pm	5.040	24247	1.71		
	Replicates	23741.8	24154.1	24345.7	24746.9						
CCB					UNK	11/09/21 02:55:32 pm	-0.004	-147	65.97		
	Replicates	-137.6	-165.7	-146.1	-137.1						
HS21110031-05					UNK	11/09/21 03:27:56 pm	0.003	-110	119.27		
	Replicates	-131.4	-85.3	-115.3	-109.1						
HS21110031-06					UNK	11/09/21 03:29:38 pm	0.029	16	8.48		
	Replicates	19.1	28.2	-0.7	15.7						
HS21110031-07					UNK	11/09/21 03:31:19 pm	0.015	-51	47.33		
	Replicates	-82.5	-51.8	-1.5	-69.3						
HS21110094-01					UNK	11/09/21 03:33:01 pm	0.000	-128	899.53		
	Replicates	-138.7	-116.8	-99.6	-155.3						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110094-02					UNK	11/09/21 03:34:43 pm	-0.003	-141	126.39		
	Replicates	-148.9	-116.1	-139.4	-160.8						
HS21110203-15					UNK	11/09/21 03:36:25 pm	0.011	-72	34.41		
	Replicates	-58.8	-89.7	-85.9	-52.5						
HS21110347-01					UNK	11/09/21 03:38:07 pm	0.000	-127	926.98		
	Replicates	-152.5	-150.6	-104.9	-100.2						
MBLK-172277					UNK	11/09/21 03:41:27 pm	0.032	28	8.95		
	Replicates	47.3	27.1	21.6	15.5						
LCS-172277					UNK	11/09/21 03:43:09 pm	5.130	24643	4.90		
	Replicates	23335.7	23881.7	25664.8	25688.5						
HS21110282					UNK	11/09/21 03:44:52 pm	0.027	6	16.85		
	Replicates	13.0	-0.1	32.1	-20.9						
CCV					UNK	11/09/21 03:46:35 pm	4.770	22948	2.04		
	Replicates	22393.8	22783.5	23111.2	23501.5						
CCB					UNK	11/09/21 03:48:18 pm	-0.009	-170	24.09		
	Replicates	-173.3	-173.5	-154.3	-177.6						
HS21110282MS					UNK	11/09/21 03:53:10 pm	4.750	22826	3.42		
	Replicates	21938.6	22522.6	23057.4	23785.1						
HS21110282MSD					UNK	11/09/21 03:54:52 pm	4.800	23076	3.10		
	Replicates	22309.2	22750.5	23257.0	23987.0						
HS21110230-01					UNK	11/09/21 04:07:23 pm	0.109	403	5.53		s
	Replicates	388.3	404.0	375.3	442.8						
HS21110230-02					UNK	11/09/21 04:09:04 pm	0.017	-43	7.40		
	Replicates	-38.3	-50.5	-45.9	-37.9						
HS21110230-03					UNK	11/09/21 04:10:46 pm	0.016	-47	16.09		
	Replicates	-59.9	-48.4	-51.3	-29.8						
HS21110230-04					UNK	11/09/21 04:12:27 pm	0.275	1202	4.89		
	Replicates	1145.2	1155.4	1223.3	1284.6						
HS21110230-06					UNK	11/09/21 04:14:09 pm	0.101	359	3.67		
	Replicates	362.8	336.3	359.0	379.7						
HS21110230-08					UNK	11/09/21 04:15:51 pm	0.019	-35	35.67		
	Replicates	-29.0	-82.9	-15.9	-13.4						
HS21110230-10					UNK	11/09/21 04:17:34 pm	0.049	110	14.99		s
	Replicates	118.6	108.4	149.6	63.9						
HS21110230-12					UNK	11/09/21 04:19:16 pm	0.008	-86	100.90		
	Replicates	-46.1	-61.1	-137.9	-97.6						
CCV					UNK	11/09/21 04:20:59 pm	4.850	23303	2.22		
	Replicates	22741.2	23060.0	23465.0	23946.3						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
CCB					UNK	11/09/21 04:22:42 pm	-0.011	-178	37.39		
	Replicates	-196.5	-152.7	-174.2	-189.5						
HS21110230-14					UNK	11/09/21 04:47:48 pm	0.017	-46	49.07		
	Replicates	-33.7	-49.7	-97.8	-3.8						
HS21110230-16					UNK	11/09/21 04:49:30 pm	0.192	801	5.40		s
	Replicates	758.3	759.2	832.9	855.4						
HS21110381-01					UNK	11/09/21 04:51:12 pm	0.059	156	5.19		s
	Replicates	136.6	158.1	159.1	171.9						
HS21110381-02					UNK	11/09/21 04:52:54 pm	0.051	120	8.30		s
	Replicates	140.9	128.6	119.8	92.6						
HS21110381-03					UNK	11/09/21 04:54:36 pm	0.006	-98	73.92		
	Replicates	-66.0	-104.6	-112.1	-107.6						
CCV					UNK	11/09/21 05:05:55 pm	4.820	23178	2.42		
	Replicates	22536.4	22961.2	23354.5	23861.5						
CCB					UNK	11/09/21 05:07:38 pm	-0.014	-193	25.06		
	Replicates	-206.9	-204.3	-192.7	-170.0						

Report Generated By Teledyne Leeman QuickTrace

Analyst: ALSHS.NoUser

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\11152021AS.wszf

Creation Date: 11/15/2021 9:32:05 AM

Comment:

Results

Sample Name		Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
Calibration Blank		STD	11/15/21 09:39:50 am	0.000	-43	19.30	0.00	
Replicates	-45.0	-33.7	-53.2 -39.7					
Standard #1 (0.05 ppb)		STD	11/15/21 09:41:32 am	0.050	339	12.08	1.31	
Replicates	331.5	302.8	397.5 323.5					
Standard #2 (0.2 ppb)		STD	11/15/21 09:43:14 am	0.200	1213	1.96	-31.18	
Replicates	1193.8	1191.3	1235.4 1231.6					
Standard #3 (0.5 ppb)		STD	11/15/21 09:44:56 am	0.500	3120	2.54	-74.85	
Replicates	3022.7	3117.9	3123.1 3216.4					
Standard #4 (2.0 ppb)		STD	11/15/21 09:46:38 am	2.000	15118	0.14	37.87	
Replicates	15148.5	15117.8	15101.1 15103.3					
Standard #5 (5.0 ppb)		STD	11/15/21 09:48:21 am	5.000	37413	0.34	34.72	
Replicates	37586.5	37433.5	37309.6 37320.5					
Standard #6 (10.0 ppb)		STD	11/15/21 09:53:41 am	10.000	74198	2.23	-20.57	
Replicates	73244.0	73047.9	73875.5 76626.0					

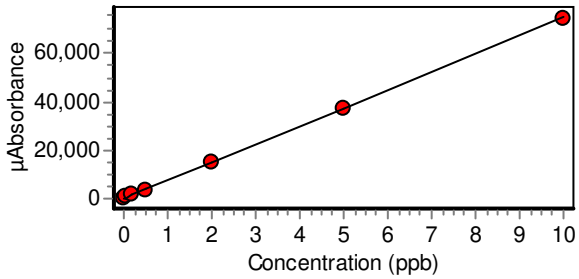
Calibration

Equation: Abs = 7439.427x + -42.875

R2: 0.99988

SEE: 365.1793

Flags:



ICCV		UNK	11/15/21 09:56:50 am	4.560	34152	19.54		s
Replicates	25688.8	32056.2	38381.2 40480.7					
ICV		UNK	11/15/21 10:01:30 am	5.000	37459	0.14		
Replicates	37531.0	37457.9	37403.2 37442.9					
ICB		UNK	11/15/21 10:03:11 am	0.005	-6	56.11		
Replicates	-23.9	-19.4	-2.7 21.8					
CRA		UNK	11/15/21 10:04:52 am	0.061	413	2.63		
Replicates	402.4	408.1	413.1 430.3					
MBLK-172317		UNK	11/15/21 10:12:36 am	0.014	60	23.18		s
Replicates	54.2	71.2	29.9 85.4					
LCS-172317		UNK	11/15/21 10:14:18 am	4.460	33459	4.87		
Replicates	31027.5	34035.4	34454.6 34318.4					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
LCSD-172317					UNK	11/15/21 10:16:00 am	4.370	32731	12.01		s
	Replicates	27828.6	31270.2	35739.3	36087.5						
HS21110158-01 X20					UNK	11/15/21 10:17:42 am	2.900	21699	1.19		
	Replicates	21513.8	21474.5	21775.7	22031.5						
HS21110158-01 X20					UNK	11/15/21 10:20:33 am	3.060	22940	0.19		
	Replicates	22936.0	22962.9	22882.0	22979.4						
MBLK-172433					UNK	11/15/21 10:23:13 am	0.019	97	18.35		s
	Replicates	120.3	62.0	94.9	111.5						
CCV					UNK	11/15/21 10:24:56 am	5.100	38214	0.26		
	Replicates	38354.1	38205.0	38113.8	38181.8						
CCB					UNK	11/15/21 10:26:39 am	-0.011	-125	13.13		
	Replicates	-124.0	-140.7	-117.2	-118.5						
LCS-172433					UNK	11/15/21 10:31:33 am	4.560	34220	0.21		
	Replicates	34313.3	34212.4	34142.0	34211.0						
HS21110203-11					UNK	11/15/21 10:33:16 am	1.600	11988	5.58		s
	Replicates	11153.2	11751.2	12404.5	12641.3						
HS21110203-11MS					UNK	11/15/21 10:39:55 am	5.640	42266	8.52		s
	Replicates	37220.9	43380.8	45737.9	42724.9						
HS21110203-11MSD					UNK	11/15/21 10:41:36 am	5.490	41170	0.82		
	Replicates	41111.0	41399.7	41456.7	40714.1						
HS21110584-01					UNK	11/15/21 10:43:17 am	0.349	2576	1.14		
	Replicates	2565.8	2579.7	2543.4	2614.7						
HS21110584-02					UNK	11/15/21 10:44:59 am	0.103	729	3.72		
	Replicates	699.0	756.2	710.2	750.9						
HS21110584-03					UNK	11/15/21 10:46:40 am	0.135	969	1.12		
	Replicates	967.5	956.6	969.1	984.1						
HS21110584-04					UNK	11/15/21 10:48:22 am	0.465	3450	0.95		
	Replicates	3429.9	3413.5	3478.9	3476.9						
HS21110584-05					UNK	11/15/21 10:50:04 am	0.168	1215	1.02		
	Replicates	1198.6	1211.6	1227.7	1221.9						
HS21110584-06					UNK	11/15/21 10:51:46 am	0.288	2122	0.72		
	Replicates	2110.3	2145.3	2115.4	2118.8						
CCV					UNK	11/15/21 10:53:29 am	4.610	34554	0.67		
	Replicates	34544.5	34677.2	34763.2	34231.6						
CCB					UNK	11/15/21 10:55:12 am	-0.001	-51	287.14		
	Replicates	-60.1	-70.2	-16.6	-57.6						
HS21110203-01					UNK	11/15/21 10:58:13 am	0.756	5631	1.12		
	Replicates	5563.0	5614.9	5630.6	5716.2						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110203-02					UNK	11/15/21 10:59:56 am	1.150	8557	13.09		s
	Replicates	7137.0	8233.5	9150.0	9708.8						
HS21110203-03					UNK	11/15/21 11:01:38 am	1.590	11866	0.37		
	Replicates	11927.6	11860.1	11854.1	11822.2						
HS21110203-04					UNK	11/15/21 11:03:21 am	2.290	17167	0.25		
	Replicates	17215.9	17191.4	17133.2	17127.4						
HS21110203-05					UNK	11/15/21 11:05:02 am	1.390	10361	4.79		
	Replicates	10386.5	9787.0	10272.7	10998.7						
HS21110203-06					UNK	11/15/21 11:06:43 am	1.840	13793	2.35		
	Replicates	13458.1	13617.9	13900.0	14197.2						
HS21110203-07					UNK	11/15/21 11:08:24 am	2.110	15766	9.32		s
	Replicates	13860.3	15455.9	16473.5	17275.9						
HS21110203-08					UNK	11/15/21 11:10:05 am	1.930	14415	0.29		
	Replicates	14398.0	14382.5	14404.2	14475.8						
HS21110203-09					UNK	11/15/21 11:11:47 am	1.230	9163	3.12		
	Replicates	8869.2	9021.3	9227.9	9532.3						
HS21110203-10					UNK	11/15/21 11:13:29 am	1.290	9655	1.85		
	Replicates	9487.0	9545.8	9698.6	9887.8						
CCV					UNK	11/15/21 11:15:12 am	4.060	30462	1.21		
	Replicates	30070.9	30270.2	30593.5	30913.9						
CCB					UNK	11/15/21 11:16:55 am	-0.001	-53	329.84		
	Replicates	-19.7	-87.1	-29.2	-76.2						
CCV					UNK	11/15/21 11:19:20 am	4.840	36275	8.54		s
	Replicates	32023.8	35931.4	38825.1	38318.4						
HS21110203-12					UNK	11/15/21 11:24:31 am	2.140	16005	0.23		
	Replicates	16051.1	15990.7	15964.3	16014.7						
HS21110203-13					UNK	11/15/21 11:26:13 am	2.850	21320	0.17		
	Replicates	21351.4	21340.1	21316.6	21270.1						
HS21110203-14					UNK	11/15/21 11:27:55 am	2.000	14973	0.50		
	Replicates	14888.3	14940.3	14999.4	15062.6						
MBLK0172432					UNK	11/15/21 11:29:38 am	0.007	10	21.29		
	Replicates	10.7	-4.4	9.3	22.9						
LCS-172432					UNK	11/15/21 11:31:20 am	4.580	34354	7.98		s
	Replicates	30305.7	35398.3	36401.3	35312.3						
HS21110578-01					UNK	11/15/21 11:33:03 am	0.545	4049	0.68		
	Replicates	4048.1	4088.2	4026.0	4033.5						
HS21110578-01MS					UNK	11/15/21 11:36:15 am	4.690	35152	1.59		
	Replicates	34735.0	34631.7	35455.6	35784.9						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110578-01MSD					UNK	11/15/21 11:37:56 am	4.590	34392	0.35		
	Replicates	34222.2	34397.3	34443.7	34506.2						
HS21110501-03					UNK	11/15/21 11:39:37 am	0.965	7199	1.12		
	Replicates	7126.6	7130.5	7261.0	7276.7						
HS21110501-04					UNK	11/15/21 11:41:19 am	0.379	2799	2.16		
	Replicates	2731.7	2765.6	2829.8	2867.5						
CCV					UNK	11/15/21 11:43:02 am	4.900	36709	1.91		
	Replicates	36036.3	37072.6	37515.3	36209.9						
CCB					UNK	11/15/21 11:44:46 am	-0.006	-85	52.43		
	Replicates	-61.6	-86.4	-115.1	-78.8						
HS21110501-05					UNK	11/15/21 11:47:23 am	0.428	3168	0.94		
	Replicates	3157.5	3131.1	3198.1	3186.2						
HS21110501-06					UNK	11/15/21 11:49:05 am	0.544	4038	0.94		
	Replicates	3984.0	4039.8	4072.2	4056.7						
HS21110501-07					UNK	11/15/21 11:50:47 am	0.268	1966	0.56		
	Replicates	1951.5	1970.5	1965.0	1977.9						
HS21110578-02					UNK	11/15/21 11:52:29 am	0.118	842	3.12		
	Replicates	813.0	835.7	839.6	879.4						
HS21110578-03					UNK	11/15/21 11:54:11 am	0.316	2327	1.28		
	Replicates	2298.1	2356.3	2304.4	2350.3						
HS21110578-04					UNK	11/15/21 11:55:53 am	1.050	7804	0.76		
	Replicates	7732.3	7788.9	7819.4	7874.7						
HS21110578-05					UNK	11/15/21 11:57:36 am	0.882	6577	1.91		
	Replicates	6414.1	6543.3	6657.6	6694.1						
HS21110578-06					UNK	11/15/21 11:59:18 am	0.358	2647	0.90		
	Replicates	2640.5	2617.4	2653.1	2675.1						
HS21110578-07					UNK	11/15/21 12:01:00 pm	0.399	2952	3.24		
	Replicates	2842.9	2912.3	2981.1	3070.3						
HS21110578-08					UNK	11/15/21 12:02:41 pm	1.040	7768	0.29		
	Replicates	7774.5	7781.1	7733.9	7780.9						
CCV					UNK	11/15/21 12:04:25 pm	3.720	27854	1.98		
	Replicates	27282.5	27586.2	27988.4	28560.0						
CCB					UNK	11/15/21 12:06:08 pm	0.000	-43	691.58		
	Replicates	-51.1	-27.0	-22.2	-72.5						
CCV					UNK	11/15/21 12:08:13 pm	4.720	35371	2.08		
	Replicates	34381.2	35330.8	36133.3	35638.8						
HS21110578-09					UNK	11/15/21 12:11:14 pm	0.378	2793	0.64		
	Replicates	2796.0	2782.4	2775.7	2816.5						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110578-10					UNK	11/15/21 12:12:55 pm	0.252	1845	1.63		
	Replicates	1884.9	1813.4	1830.8	1851.4						
HS21110578-11					UNK	11/15/21 12:14:37 pm	0.268	1972	1.52		
	Replicates	1982.5	1969.2	1932.0	2005.4						
HS21110578-12					UNK	11/15/21 12:16:18 pm	0.161	1165	2.35		
	Replicates	1192.0	1144.1	1187.5	1137.5						
HS21110578-13					UNK	11/15/21 12:18:00 pm	0.037	235	5.23		s
	Replicates	241.9	243.9	213.6	242.1						
HS21110578-14					UNK	11/15/21 12:19:42 pm	0.159	1148	2.94		
	Replicates	1102.5	1150.6	1187.8	1151.3						
HS21110578-15					UNK	11/15/21 12:21:24 pm	8.520	63888	1.79		
	Replicates	62558.5	63453.6	64301.3	65236.8						
MBLK-172430					UNK	11/15/21 12:23:06 pm	0.001	-36	424.65		
	Replicates	-30.3	-60.1	-55.8	1.2						
LCS-172430					UNK	11/15/21 12:28:51 pm	5.040	37773	3.77		
	Replicates	38500.2	39232.8	37407.0	35951.7						
HS21110100-02					UNK	11/15/21 12:30:33 pm	0.255	1873	2.08		
	Replicates	1831.2	1857.6	1878.6	1925.4						
CCV					UNK	11/15/21 12:32:17 pm	4.820	36126	2.88		
	Replicates	36237.9	37195.4	36376.9	34695.3						
CCB					UNK	11/15/21 12:34:00 pm	-0.002	-58	112.20		
	Replicates	-38.1	-59.9	-77.9	-54.1						
HS21110100-02MS					UNK	11/15/21 12:37:50 pm	4.150	31072	2.39		
	Replicates	30314.2	30672.6	31288.4	32012.4						
HS21110100-02MSD					UNK	11/15/21 12:43:35 pm	4.480	33620	0.22		
	Replicates	33595.9	33550.2	33608.7	33725.8						
HS21110100-03					UNK	11/15/21 12:45:17 pm	0.044	288	8.68		s
	Replicates	269.5	316.5	308.5	258.0						
HS21110100-04					UNK	11/15/21 12:46:59 pm	0.025	146	6.33		s
	Replicates	134.3	147.0	162.4	141.2						
HS21110100-05					UNK	11/15/21 12:48:40 pm	0.077	532	6.20		s
	Replicates	542.7	496.5	577.7	513.0						
HS21110100-06					UNK	11/15/21 12:50:22 pm	0.030	184	12.69		s
	Replicates	194.6	215.6	176.6	147.7						
HS21110100-07					UNK	11/15/21 12:52:04 pm	0.041	267	9.87		s
	Replicates	288.8	252.7	230.7	295.4						
HS21110162-01					UNK	11/15/21 12:53:46 pm	0.097	683	3.20		
	Replicates	684.8	692.1	650.4	704.8						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110162-02					UNK	11/15/21 12:55:28 pm	0.016	74	24.76		s
	Replicates	47.7	50.5	97.8	100.6						
HS21110162-03					UNK	11/15/21 12:57:10 pm	0.058	392	4.24		
	Replicates	366.9	390.3	404.4	407.3						
CCV					UNK	11/15/21 12:58:53 pm	4.670	35015	9.81		s
	Replicates	30245.3	34757.3	37655.9	37399.6						
CCB					UNK	11/15/21 01:00:37 pm	0.002	-30	154.76		
	Replicates	-33.1	-56.6	-11.0	-19.1						
HS21110162-04					UNK	11/15/21 01:03:33 pm	0.082	575	5.97		s
	Replicates	525.9	599.3	568.8	607.3						
HS21110162-05					UNK	11/15/21 01:05:16 pm	0.250	1832	9.16		s
	Replicates	1628.3	1773.9	1893.8	2031.6						
HS21110162-06					UNK	11/15/21 01:06:58 pm	0.233	1709	1.25		
	Replicates	1701.9	1740.4	1703.1	1690.1						
HS21110162-07					UNK	11/15/21 01:08:39 pm	0.009	26	29.06		
	Replicates	2.6	45.9	39.9	17.1						
HS21110162-08					UNK	11/15/21 01:10:21 pm	0.027	162	8.90		s
	Replicates	173.2	140.7	153.4	180.6						
HS21110162-09					UNK	11/15/21 01:12:03 pm	0.070	481	9.20		s
	Replicates	466.9	441.6	464.3	551.3						
HS21110162-10					UNK	11/15/21 01:13:45 pm	0.063	429	2.70		
	Replicates	411.3	439.5	427.0	436.8						
HS21110162-11					UNK	11/15/21 01:15:26 pm	0.061	412	8.15		s
	Replicates	377.0	410.6	397.3	463.8						
HS21110162-13					UNK	11/15/21 01:17:08 pm	0.084	587	3.22		
	Replicates	563.5	593.6	578.4	610.7						
HS21110162-14					UNK	11/15/21 01:18:50 pm	0.029	173	12.45		s
	Replicates	164.1	143.6	176.9	207.7						
CCV					UNK	11/15/21 01:22:30 pm	4.840	36267	4.02		
	Replicates	34456.9	35716.0	37330.8	37562.5						
CCB					UNK	11/15/21 01:24:14 pm	0.002	-26	108.84		
	Replicates	-32.1	-2.0	-44.6	-27.0						
HS21110162-15					UNK	11/15/21 01:28:11 pm	0.059	397	2.98		
	Replicates	379.3	408.4	405.7	396.2						
MBLK-172431					UNK	11/15/21 01:29:53 pm	0.014	61	15.01		s
	Replicates	57.2	44.2	81.8	61.5						
LCS-172431					UNK	11/15/21 01:31:35 pm	4.690	35179	5.20		s
	Replicates	32621.0	35299.1	36921.3	35874.3						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110133-02					UNK	11/15/21 01:33:18 pm	0.014	60	13.30		s
	Replicates	67.7	46.6	74.5	49.5						
HS21110133-02MS					UNK	11/15/21 01:35:00 pm	4.500	33703	9.44		s
	Replicates	29742.7	32601.1	35638.0	36831.5						
HS21110133-02MSD					UNK	11/15/21 01:36:42 pm	4.370	32796	8.58		s
	Replicates	29598.9	31360.7	34477.2	35745.8						
HS21110133-04					UNK	11/15/21 01:38:24 pm	-0.002	-61	27.37		
	Replicates	-67.0	-55.3	-63.6	-59.6						
HS21110133-06					UNK	11/15/21 01:40:05 pm	0.011	39	15.48		
	Replicates	56.0	32.7	26.7	38.9						
HS21110133-08					UNK	11/15/21 01:41:47 pm	-0.005	-79	97.21		
	Replicates	-91.0	-67.5	-120.0	-37.3						
HS21110133-10					UNK	11/15/21 01:43:29 pm	0.001	-32	228.79		
	Replicates	-61.3	-24.8	-39.8	-1.8						
CCV					UNK	11/15/21 01:45:12 pm	4.790	35884	0.60		
	Replicates	35668.9	35776.8	35927.0	36162.5						
CCB					UNK	11/15/21 01:48:25 pm	-0.014	-149	20.08		
	Replicates	-170.3	-156.6	-119.9	-148.6						
HS21110133-12					UNK	11/15/21 01:51:32 pm	0.002	-29	145.54		
	Replicates	-45.7	-27.7	-2.6	-41.9						
HS21110133-13					UNK	11/15/21 01:53:14 pm	0.002	-25	123.13		
	Replicates	-26.3	-44.8	-34.6	6.9						
HS21110133-14					UNK	11/15/21 01:54:56 pm	-0.001	-52	445.63		
	Replicates	-65.6	-23.9	-100.4	-16.6						
HS21110407-01					UNK	11/15/21 01:56:38 pm	-0.001	-47	822.35		
	Replicates	-64.7	-28.4	-7.1	-89.1						
HS21110407-02					UNK	11/15/21 01:58:21 pm	-0.002	-58	137.87		
	Replicates	-43.8	-81.2	-37.0	-70.8						
HS21110407-05					UNK	11/15/21 02:00:03 pm	0.000	-41	293.76		
	Replicates	-44.3	0.6	-78.6	-43.4						
HS21110407-06					UNK	11/15/21 02:01:45 pm	0.001	-34	155.44		
	Replicates	-33.4	-15.2	-38.4	-48.6						
HS21110407-07					UNK	11/15/21 02:03:28 pm	-0.002	-55	180.17		
	Replicates	-73.8	-44.4	-74.9	-28.8						
HS21110407-11					UNK	11/15/21 02:05:10 pm	0.009	22	21.99		
	Replicates	17.9	40.8	24.1	6.4						
HS21110407-12					UNK	11/15/21 02:06:52 pm	0.012	45	18.39		
	Replicates	55.9	59.7	23.7	42.6						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
CCV					UNK	11/15/21 02:08:35 pm	3.920	29396	0.41		
	Replicates	29287.8	29298.4	29471.1	29527.8						
CCB					UNK	11/15/21 02:10:18 pm	-0.065	-532	7.74		
	Replicates	-537.4	-545.1	-477.9	-566.2						
CCV					UNK	11/15/21 02:35:14 pm	4.990	37430	4.07		
	Replicates	38587.4	38656.8	37047.5	35430.1						
HS21110407-13					UNK	11/15/21 02:38:39 pm	0.030	186	29.07		s
	Replicates	259.5	212.2	167.9	103.4						
HS21110407-16					UNK	11/15/21 02:40:21 pm	0.031	191	6.81		s
	Replicates	180.9	174.3	200.6	207.9						
HS21110407-18					UNK	11/15/21 02:42:03 pm	-0.002	-56	107.46		
	Replicates	-61.7	-62.6	-35.1	-62.8						
HS21110501-01					UNK	11/15/21 02:43:45 pm	0.034	212	12.88		s
	Replicates	256.4	178.5	211.5	200.5						
HS21110501-02					UNK	11/15/21 02:45:27 pm	0.358	2641	1.33		
	Replicates	2594.3	2637.1	2653.6	2679.6						
MBLK-172434					UNK	11/15/21 02:47:09 pm	0.010	30	32.62		
	Replicates	53.5	1.4	19.4	43.7						
LCS-172434					UNK	11/15/21 02:48:52 pm	4.990	37422	3.96		
	Replicates	36249.5	39039.8	38322.9	36077.1						
HS21110217-01					UNK	11/15/21 02:51:42 pm	0.114	815	2.27		
	Replicates	813.5	815.7	840.0	792.4						
HS21110217-01MS					UNK	11/15/21 02:53:24 pm	4.830	36208	2.46		
	Replicates	36596.7	37180.7	35951.4	35102.4						
HS21110217-01MSD					UNK	11/15/21 02:55:06 pm	4.640	34806	9.35		s
	Replicates	30557.0	33967.7	37653.3	37046.2						
CCV					UNK	11/15/21 02:56:49 pm	4.900	36736	6.07		s
	Replicates	33531.3	37102.7	38665.6	37643.4						
CCB					UNK	11/15/21 02:59:40 pm	-0.005	-78	43.94		
	Replicates	-63.0	-97.1	-68.3	-83.0						
HS21110217-02					UNK	11/15/21 03:02:45 pm	0.018	95	10.41		s
	Replicates	97.2	107.8	99.3	74.3						
HS21110217-03					UNK	11/15/21 03:04:27 pm	0.040	259	5.03		s
	Replicates	261.1	245.4	279.9	250.7						
HS21110217-04					UNK	11/15/21 03:06:09 pm	0.071	491	4.37		
	Replicates	482.6	523.9	489.6	469.1						
HS21110556-06					UNK	11/15/21 03:07:51 pm	3.590	26927	0.67		
	Replicates	26728.5	26841.2	27001.7	27137.2						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Residual	Flags
HS21110556-07					UNK	11/15/21 03:09:33 pm	1.080	8040	0.72		
	Replicates	8113.6	7996.6	7989.6	8060.8						
HS21110556-11					UNK	11/15/21 03:11:16 pm	2.250	16879	0.29		
	Replicates	16871.4	16948.8	16859.4	16837.9						
HS21110556-12					UNK	11/15/21 03:12:58 pm	0.836	6231	0.38		
	Replicates	6263.3	6227.2	6228.5	6205.5						
HS21110598-01					UNK	11/15/21 03:14:40 pm	0.146	1050	4.70		
	Replicates	1122.2	1048.4	1028.6	1002.6						
HS21110598-05					UNK	11/15/21 03:16:22 pm	0.181	1317	1.84		
	Replicates	1328.5	1339.9	1316.4	1282.1						
HS21110598-09					UNK	11/15/21 03:18:05 pm	0.098	691	2.49		
	Replicates	678.1	716.9	689.1	678.4						
CCV					UNK	11/15/21 03:21:22 pm	4.520	33912	0.75		
	Replicates	33952.5	34002.4	34144.7	33549.4						
CCB					UNK	11/15/21 03:23:06 pm	0.000	-42	175.18		
	Replicates	27.1	-12.8	-89.6	-91.8						
HS21110684-03					UNK	11/15/21 03:26:00 pm	0.838	6248	0.86		
	Replicates	6283.4	6168.7	6259.5	6280.2						
HS21110695-01					UNK	11/15/21 03:27:42 pm	0.161	1165	2.62		
	Replicates	1186.8	1182.3	1118.3	1172.8						
HS21110695-02					UNK	11/15/21 03:29:24 pm	0.177	1285	3.38		
	Replicates	1294.2	1230.4	1276.4	1338.9						
HS21110772-01					UNK	11/15/21 03:31:07 pm	0.995	7428	0.23		
	Replicates	7421.5	7406.1	7436.3	7446.3						
HS21110893-01					UNK	11/15/21 03:32:49 pm	0.857	6391	0.28		
	Replicates	6390.3	6388.8	6413.3	6369.8						
HS21110893-02					UNK	11/15/21 03:34:31 pm	0.725	5399	0.24		
	Replicates	5402.2	5393.7	5414.8	5383.7						
HS21110893-03					UNK	11/15/21 03:36:14 pm	1.100	8190	0.69		
	Replicates	8171.4	8144.4	8172.1	8273.1						
HS21110893-04					UNK	11/15/21 03:37:56 pm	0.848	6324	0.43		
	Replicates	6318.7	6314.4	6298.5	6362.5						
HS21110893-05					UNK	11/15/21 03:39:38 pm	1.180	8839	0.07		
	Replicates	8844.4	8830.2	8838.4	8842.6						
CCV					UNK	11/15/21 03:42:09 pm	4.800	35990	0.30		
	Replicates	35862.5	35959.2	36021.2	36115.9						
CCB					UNK	11/15/21 03:45:02 pm	-0.010	-117	31.52		
	Replicates	-130.7	-134.0	-83.2	-118.7						

HS21110203 Wet Chemistry

ALS WO# HS21110203

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
1	Unknown	NPOC	RINSE		10_18_2021	1.000	NPOC:0.06454mg/	
2	Unknown	NPOC	RINSE		10_18_2021	1.000	NPOC:0.06455mg/	
3	Unknown	NPOC	RINSE		10_18_2021	1.000	NPOC:0.07074mg/	
4	Standard	NPOC	CAL	3100604915	10_25_2021	1.000		
5	Unknown	NPOC	ICB		10_25_2021	1.000	NPOC:0.09179mg/	
6	Unknown	NPOC	ICV	3100604423	10_25_2021	1.000	NPOC:10.60mg/L	
7	Unknown	NPOC	ICB		10_25_2021	1.000	NPOC:0.05172mg/	
8	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.73mg/L	
9	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.06181mg/	
10	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.05600mg/	
11	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.287mg/L	
12	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.83mg/L	
13	Unknown	NPOC	HS21101075-01DF10		10_25_2021	1.000	NPOC:0.2805mg/L	
14	Unknown	NPOC	HS21101075-01MSD		10_25_2021	1.000	NPOC:12.37mg/L	
15	Unknown	NPOC	HS21101075-02DF10		10_25_2021	1.000	NPOC:0.3788mg/L	
16	Unknown	NPOC	HS21101075-03DF10		10_25_2021	1.000	NPOC:0.2410mg/L	
17	Unknown	NPOC	HS21101075-04DF10		10_25_2021	1.000	NPOC:0.3913mg/L	
18	Unknown	NPOC	HS21101075-05DF10		10_25_2021	1.000	NPOC:0.2171mg/L	
19	Unknown	NPOC	HS21101075-06DF10		10_25_2021	1.000	NPOC:0.1665mg/L	
20	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.66mg/L	
21	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.05208mg/	
22	Unknown	NPOC	HS21101075-07DF10		10_25_2021	1.000	NPOC:0.1747mg/L	
23	Unknown	NPOC	HS21101075-08DF10		10_25_2021	1.000	NPOC:0.1648mg/L	
24	Unknown	NPOC	HS21101075-09DF10		10_25_2021	1.000	NPOC:0.1167mg/L	
25	Unknown	NPOC	HS21101075-10DF10		10_25_2021	1.000	NPOC:0.1071mg/L	
26	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.76mg/L	
27	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.05571mg/	
28	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.06486mg/	
29	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.320mg/L	
30	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.96mg/L	
31	Unknown	NPOC	HS21101075-11DF10		10_25_2021	1.000	NPOC:0.1323mg/L	
32	Unknown	NPOC	HS21101075-11MSD		10_25_2021	1.000	NPOC:11.21mg/L	
33	Unknown	NPOC	HS21101075-12DF10		10_25_2021	1.000	NPOC:0.2792mg/L	
34	Unknown	NPOC	HS21101080-01DF10		10_25_2021	1.000	NPOC:0.1261mg/L	
35	Unknown	NPOC	HS21101080-02DF10		10_25_2021	1.000	NPOC:0.1407mg/L	
36	Unknown	NPOC	HS21101080-03DF10		10_25_2021	1.000	NPOC:0.1267mg/L	
37	Unknown	NPOC	HS21101080-04DF10		10_25_2021	1.000	NPOC:0.1381mg/L	
38	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.74mg/L	
39	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.09212mg/	
40	Unknown	NPOC	HS21101080-05DF10		10_25_2021	1.000	NPOC:0.1654mg/L	
41	Unknown	NPOC	HS21101080-06DF10		10_25_2021	1.000	NPOC:0.1460mg/L	
42	Unknown	NPOC	HS21101080-07DF10		10_25_2021	1.000	NPOC:0.1360mg/L	
43	Unknown	NPOC	HS21101080-08DF10		10_25_2021	1.000	NPOC:0.1453mg/L	
44	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.54mg/L	
45	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1296mg/L	
46	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.05576mg/	
47	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.292mg/L	
48	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.94mg/L	
49	Unknown	NPOC	HS21101080-09DF10		10_25_2021	1.000	NPOC:0.2259mg/L	
50	Unknown	NPOC	HS21101080-09MSD		10_25_2021	1.000	NPOC:11.03mg/L	
51	Unknown	NPOC	HS21101080-10DF10		10_25_2021	1.000	NPOC:0.1935mg/L	

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
52	Unknown	NPOC	HS21101080-11DF10		10_25_2021	1.000	NPOC:0.1278mg/L	
53	Unknown	NPOC	HS21101080-12DF10		10_25_2021	1.000	NPOC:0.1284mg/L	
54	Unknown	NPOC	HS21101080-13DF10		10_25_2021	1.000	NPOC:0.1196mg/L	
55	Unknown	NPOC	HS21101080-14DF10		10_25_2021	1.000	NPOC:0.2314mg/L	
56	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.69mg/L	
57	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.02809mg/	
58	Unknown	NPOC	HS21101083-01DF10		10_25_2021	1.000	NPOC:0.2332mg/L	
59	Unknown	NPOC	HS21101083-02DF10		10_25_2021	1.000	NPOC:0.2108mg/L	
60	Unknown	NPOC	HS21101083-03DF10		10_25_2021	1.000	NPOC:0.2038mg/L	
61	Unknown	NPOC	HS21101083-04DF10		10_25_2021	1.000	NPOC:0.3380mg/L	
62	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.53mg/L	
63	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1115mg/L	
64	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.06795mg/	
65	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.230mg/L	
66	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.89mg/L	
67	Unknown	NPOC	HS21101083-05DF10		10_25_2021	1.000	NPOC:0.4956mg/L	
68	Unknown	NPOC	HS21101083-05MSD		10_25_2021	1.000	NPOC:11.17mg/L	
69	Unknown	NPOC	HS21101083-06DF10		10_25_2021	1.000	NPOC:0.2640mg/L	
70	Unknown	NPOC	HS21101083-07DF10		10_25_2021	1.000	NPOC:0.2414mg/L	
71	Unknown	NPOC	HS21101083-08DF10		10_25_2021	1.000	NPOC:0.2102mg/L	
72	Unknown	NPOC	HS21101083-09DF10		10_25_2021	1.000	NPOC:0.1629mg/L	
73	Unknown	NPOC	HS21101083-10DF10		10_25_2021	1.000	NPOC:0.1838mg/L	
74	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.60mg/L	
75	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1118mg/L	
76	Unknown	NPOC	HS21101083-11DF10		10_25_2021	1.000	NPOC:0.1718mg/L	
77	Unknown	NPOC	HS21101083-12DF10		10_25_2021	1.000	NPOC:0.1978mg/L	
78	Unknown	NPOC	HS21101083-13DF10		10_25_2021	1.000	NPOC:0.2415mg/L	
79	Unknown	NPOC	HS21101083-14DF10		10_25_2021	1.000	NPOC:0.2981mg/L	
80	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.57mg/L	
81	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1184mg/L	

	Status	Date / Time	Vial
1	Completed	10/25/2021	64
2	Completed	10/25/2021	65
3	Completed	10/25/2021	66
4	Completed	10/25/2021	1, 2, 3, 4, 5,
5	Completed	10/25/2021	1
6	Completed	10/25/2021	8
7	Completed	10/25/2021	1
8	Completed	10/25/2021	9
9	Completed	10/25/2021	10
10	Completed	10/25/2021	11
11	Completed	10/25/2021	12
12	Completed	10/25/2021	13
13	Completed	10/25/2021	14
14	Completed	10/25/2021	15
15	Completed	10/25/2021	16
16	Completed	10/26/2021	17
17	Completed	10/26/2021	18
18	Completed	10/26/2021	19
19	Completed	10/26/2021	20
20	Completed	10/26/2021	9
21	Completed	10/26/2021	10
22	Completed	10/26/2021	21
23	Completed	10/26/2021	22
24	Completed	10/26/2021	23
25	Completed	10/26/2021	24
26	Completed	10/26/2021	9
27	Completed	10/26/2021	10
28	Completed	10/26/2021	11
29	Completed	10/26/2021	12
30	Completed	10/26/2021	13
31	Completed	10/26/2021	25
32	Completed	10/26/2021	26
33	Completed	10/26/2021	27
34	Completed	10/26/2021	28
35	Completed	10/26/2021	29
36	Completed	10/26/2021	30
37	Completed	10/26/2021	31
38	Completed	10/26/2021	32
39	Completed	10/26/2021	33
40	Completed	10/26/2021	34
41	Completed	10/26/2021	35
42	Completed	10/26/2021	36
43	Completed	10/26/2021	37
44	Completed	10/26/2021	32
45	Completed	10/26/2021	33
46	Completed	10/26/2021	11
47	Completed	10/26/2021	12
48	Completed	10/26/2021	13
49	Completed	10/26/2021	38
50	Completed	10/26/2021	39
51	Completed	10/26/2021	40

	Status	Date / Time	Vial
52	Completed	10/26/2021	41
53	Completed	10/26/2021	42
54	Completed	10/26/2021	43
55	Completed	10/26/2021	44
56	Completed	10/26/2021	32
57	Completed	10/26/2021	33
58	Completed	10/26/2021	45
59	Completed	10/26/2021	46
60	Completed	10/26/2021	47
61	Completed	10/26/2021	48
62	Completed	10/26/2021	49
63	Completed	10/26/2021	50
64	Completed	10/26/2021	11
65	Completed	10/26/2021	12
66	Completed	10/26/2021	13
67	Completed	10/26/2021	51
68	Completed	10/26/2021	52
69	Completed	10/26/2021	53
70	Completed	10/26/2021	54
71	Completed	10/26/2021	55
72	Completed	10/26/2021	56
73	Completed	10/26/2021	57
74	Completed	10/26/2021	49
75	Completed	10/26/2021	50
76	Completed	10/26/2021	58
77	Completed	10/26/2021	59
78	Completed	10/26/2021	60
79	Completed	10/26/2021	61
80	Completed	10/26/2021	49
81	Completed	10/26/2021	50

TOC-Control L Report

2021_10_25_002.tlx

Instr.Information

Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Cal. Curve

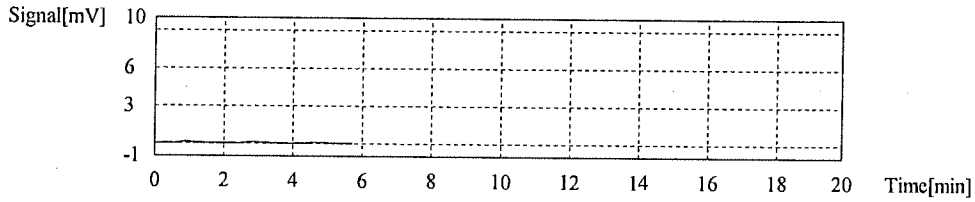
Sample Name:	CAL
Sample ID:	3100604915
Cal. Curve:	10_25_2021_CAL.2021_10_25_18_24_47.cal
Status	Completed

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.1779	50uL	1.000	*******		10/25/2021 6:33:22 PM
2	0.000	50uL	1.000	*******		10/25/2021 6:36:36 PM
3	0.000	50uL	1.000	*******		10/25/2021 6:39:50 PM

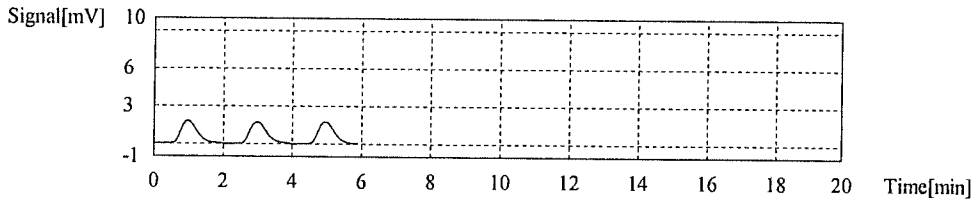
Acid Add.	1.500%
Sparge Gas Flow	80mL/min
Sp. Time	120.0sec
Mean Area	0.05930



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	5.679	50uL	1.000	*******		10/25/2021 6:48:38 PM
2	5.762	50uL	1.000	*******		10/25/2021 6:51:52 PM
3	5.629	50uL	1.000	*******		10/25/2021 6:55:02 PM

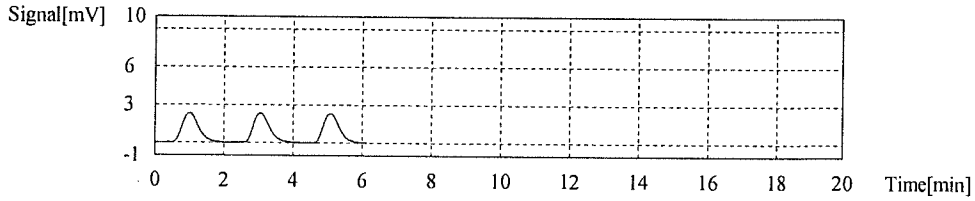
Acid Add.	1.500%
Sparge Gas Flow	80mL/min
Sp. Time	120.0sec
Mean Area	5.690



Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	7.704	50uL	1.000	*******		10/25/2021 7:03:55 PM
2	7.453	50uL	1.000	*******		10/25/2021 7:07:06 PM
3	7.508	50uL	1.000	*******		10/25/2021 7:10:22 PM

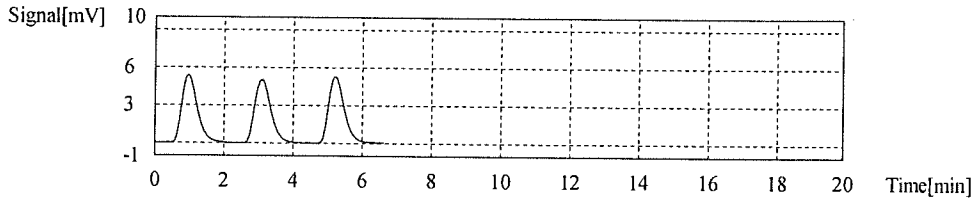
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 7.555



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	16.62	50uL	1.000	*******		10/25/2021 7:19:15 PM
2	16.58	50uL	1.000	*******		10/25/2021 7:22:33 PM
3	16.79	50uL	1.000	*******		10/25/2021 7:26:01 PM

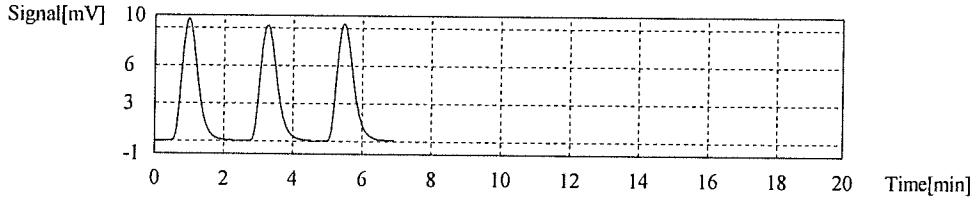
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 16.66



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	30.96	50uL	1.000	*******		10/25/2021 7:35:05 PM
2	31.10	50uL	1.000	*******		10/25/2021 7:38:17 PM
3	31.16	50uL	1.000	*******		10/25/2021 7:41:41 PM

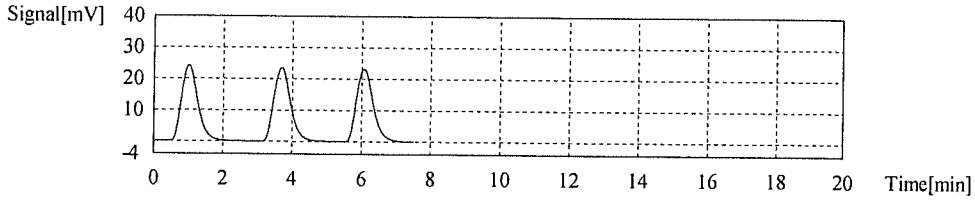
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 31.07



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	79.40	50uL	1.000	*******		10/25/2021 7:51:09 PM
2	79.56	50uL	1.000	*******		10/25/2021 7:54:09 PM
3	79.35	50uL	1.000	*******		10/25/2021 7:57:24 PM

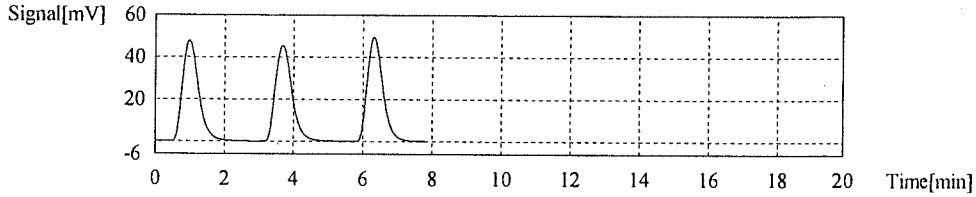
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 79.44



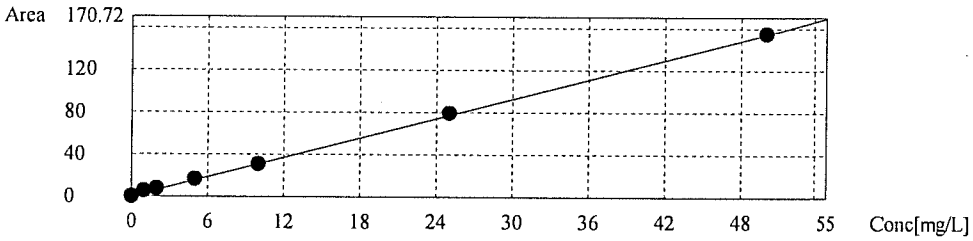
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	156.1	50uL	1.000	*******		10/25/2021 8:06:53 PM
2	154.0	50uL	1.000	*******		10/25/2021 8:10:05 PM
3	155.5	50uL	1.000	*******		10/25/2021 8:13:11 PM

Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 155.2



Slope: 3.086
Intercept 0.000
r^2 0.9997
r 0.9999
RSE(%) N/A
Zero Shift Yes



Sample

Sample Name: ICV
Sample ID: 3100604423
Origin: I0_25_2021_CAL.cal
Status Completed
Chk. Result

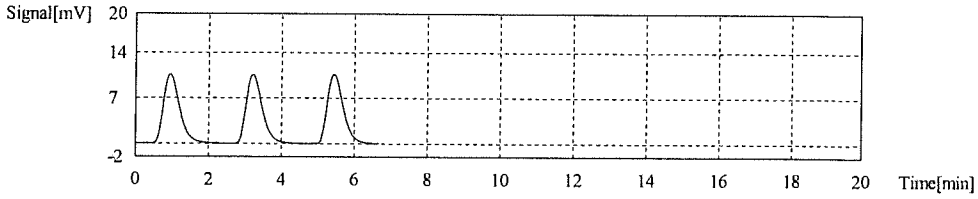
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.60mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.74	10.61mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:38:14 PM
2	32.74	10.61mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:41:41 PM
3	32.67	10.59mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:45:09 PM

Mean Area 32.72
Mean Conc. 10.60mg/L



Sample

TOC-Control L Report

2021_10_25_002.tlx

Sample Name: ICB
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

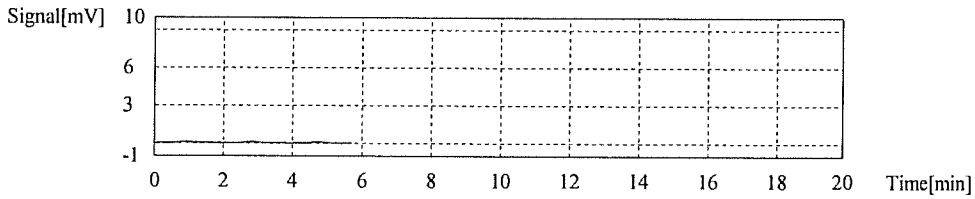
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.05172mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1343	0.04352mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:54:04 PM
2	0.1944	0.06299mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:57:34 PM
3	0.1502	0.04867mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 9:01:04 PM

Mean Area 0.1596
Mean Conc. 0.05172mg/L



	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
1	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:26.00mg/	
2	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1267m	
3	Unknown	NPOC	MBLK-11062021		10_25_2021	1.000	NPOC:0.07158	
4	Unknown	NPOC	LCS-11062021	3100604423	10_25_2021	1.000	NPOC:10.65mg/	
5	Unknown	NPOC	LCSD-11062021	3100604423	10_25_2021	1.000	NPOC:10.75mg/	
6	Unknown	NPOC	HS2110166-02DF1		10_25_2021	1.000	NPOC:9.161mg/	
7	Unknown	NPOC	HS21110140-01		10_25_2021	1.000	NPOC:10.92mg/	
8	Unknown	NPOC	HS21110111-02		10_25_2021	1.000	NPOC:1.172mg/	
9	Unknown	NPOC	HS21110111-02MS		10_25_2021	1.000	NPOC:11.93mg/	
10	Unknown	NPOC	HS21110230-04		10_25_2021	1.000	NPOC:35.46mg/	
11	Unknown	NPOC	HS21110230-06		10_25_2021	1.000	NPOC:12.89mg/	
12	Unknown	NPOC	HS21110230-08		10_25_2021	1.000	NPOC:7.693mg/	
13	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.70mg/	
14	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1187m	
15	Unknown	NPOC	HS21110230-10		10_25_2021	1.000	NPOC:10.55mg/	
16	Unknown	NPOC	HS21110230-12		10_25_2021	1.000	NPOC:7.807mg/	
17	Unknown	NPOC	HS21110230-14		10_25_2021	1.000	NPOC:12.01mg/	
18	Unknown	NPOC	HS21110230-16		10_25_2021	1.000	NPOC:35.75mg/	
19	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.91mg/	
20	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1958m	
21	Unknown	NPOC	MBLK-11062021		10_25_2021	1.000	NPOC:0.1019m	
22	Unknown	NPOC	LCS-11062021	3100604423	10_25_2021	1.000	NPOC:10.59mg/	
23	Unknown	NPOC	LCSD-11062021	3100604423	10_25_2021	1.000	NPOC:10.52mg/	
24	Unknown	NPOC	HS21110254-01		10_25_2021	1.000	NPOC:4.160mg/	
25	Unknown	NPOC	HS21110254-01MS		10_25_2021	1.000	NPOC:14.79mg/	
26	Unknown	NPOC	HS21110255-01		10_25_2021	1.000	NPOC:5.393mg/	
27	Unknown	NPOC	HS21110338-01		10_25_2021	1.000	NPOC:9.817mg/	
28	Unknown	NPOC	HS21110357-01		10_25_2021	1.000	NPOC:5.305mg/	
29	Unknown	NPOC	HS21110357-02		10_25_2021	1.000	NPOC:4.138mg/	
30	Unknown	NPOC	HS21110357-03		10_25_2021	1.000	NPOC:5.258mg/	
31	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.80mg/	
32	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1293m	
33	Unknown	NPOC	HS21110357-04		10_25_2021	1.000	NPOC:7.981mg/	
34	Unknown	NPOC	HS21110191-01		10_25_2021	1.000	NPOC:4.261mg/	
35	Unknown	NPOC	HS21110110-01		10_25_2021	1.000	NPOC:0.6359m	
36	Unknown	NPOC	HS21110320-01		10_25_2021	1.000	NPOC:1.399mg/	
37	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.63mg/	
38	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.03768	
39	Unknown	NPOC	MBLK-11062021		10_25_2021	1.000	NPOC:0.1044m	
40	Unknown	NPOC	LCS-11062021	3100604423	10_25_2021	1.000	NPOC:10.61mg/	
41	Unknown	NPOC	LCSD-11062021	3100604423	10_25_2021	1.000	NPOC:10.56mg/	
42	Unknown	NPOC	HS21110320-02		10_25_2021	1.000	NPOC:1.357mg/	
43	Unknown	NPOC	HS21110320-02MS		10_25_2021	1.000	NPOC:12.54mg/	
44	Unknown	NPOC	HS21110320-03		10_25_2021	1.000	NPOC:1.794mg/	
45	Unknown	NPOC	HS21110320-04		10_25_2021	1.000	NPOC:2.212mg/	
46	Unknown	NPOC	HS21110320-05		10_25_2021	1.000	NPOC:1.640mg/	
47	Unknown	NPOC	HS21110320-06		10_25_2021	1.000	NPOC:1.548mg/	
48	Unknown	NPOC	HS21110320-07		10_25_2021	1.000	NPOC:2.518mg/	
49	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.67mg/	
50	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.03288	
51	Unknown	NPOC	HS21110320-08		10_25_2021	1.000	NPOC:2.078mg/	

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
52	Unknown	NPOC	HS21110320-09		10_25_2021	1.000	NPOC:3.260mg/	
53	Unknown	NPOC	HS21110320-10		10_25_2021	1.000	NPOC:1.486mg/	
54	Unknown	NPOC	HS21110320-11		10_25_2021	1.000	NPOC:0.9493m	
55	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.70mg/	
56	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1262m	
57	Unknown	NPOC	CCV	317195504	TOC_W 906	1.000	NPOC:25.05mg/	
58	Unknown	NPOC	CCB		TOC_W 906	1.000	NPOC:0.07388	
59	Unknown	NPOC	MBLK-11052021		TOC_W 906	1.000	NPOC:0.07546	
60	Unknown	NPOC	LCS-11052021	3100604423	TOC_W 906	1.000	NPOC:10.47mg/	
61	Unknown	NPOC	LCSD-11052021	3100604423	TOC_W 906	1.000	NPOC:10.39mg/	
62	Unknown	NPOC	HS21101670-01DF		TOC_W 906	1.000	NPOC:29.32mg/	
63	Unknown	NPOC	HS21101670-11DF		TOC_W 906	1.000	NPOC:40.44mg/	
64	Unknown	NPOC	HS21101670-12DF		TOC_W 906	1.000	NPOC:35.05mg/	
65	Unknown	NPOC	HS21110164-02DF		TOC_W 906	1.000	NPOC:28.58mg/	
66	Unknown	NPOC	HS21110164-03DF		TOC_W 906	1.000	NPOC:30.98mg/	
67	Unknown	NPOC	HS21110161-01		TOC_W 906	1.000	NPOC:28.88mg/	
68	Unknown	NPOC	HS21110161-01MS		TOC_W 906	1.000	NPOC:40.28mg/	
69	Unknown	NPOC	CCV	317195504	TOC_W 906	1.000	NPOC:25.77mg/	
70	Unknown	NPOC	CCB		TOC_W 906	1.000	NPOC:0.2115m	
71	Unknown	NPOC	HS21110161-06		TOC_W 906	1.000	NPOC:29.70mg/	
72	Unknown	NPOC	HS21110161-07		TOC_W 906	1.000	NPOC:1369mg/	
73	Unknown	NPOC	HS21110161-08		TOC_W 906	1.000	NPOC:186.6mg/	
74	Unknown	NPOC	HS21110203-15		TOC_W 906	1.000	NPOC:3.587mg/	
75	Unknown	NPOC	CCV	317195504	TOC_W 906	1.000	NPOC:26.15mg/	
76	Unknown	NPOC	CCB		TOC_W 906	1.000	NPOC:0.2899m	

	Status	Date / Time	Vial
1	Completed	11/6/2021 2:	1
2	Completed	11/6/2021 2:	2
3	Completed	11/6/2021 2:	3
4	Completed	11/6/2021 3:	4
5	Completed	11/6/2021 3:	5
6	Completed	11/6/2021 3:	6
7	Completed	11/6/2021 3:	7
8	Completed	11/6/2021 4:	8
9	Completed	11/6/2021 4:	9
10	Completed	11/6/2021 4:	10
11	Completed	11/6/2021 5:	11
12	Completed	11/6/2021 5:	12
13	Completed	11/6/2021 5:	1
14	Completed	11/6/2021 6:	2
15	Completed	11/6/2021 6:	13
16	Completed	11/6/2021 6:	14
17	Completed	11/6/2021 6:	15
18	Completed	11/6/2021 7:	16
19	Completed	11/6/2021 7:	1
20	Completed	11/6/2021 7:	2
21	Completed	11/6/2021 8:	3
22	Completed	11/6/2021 8:	4
23	Completed	11/6/2021 8:	5
24	Completed	11/6/2021 9:	17
25	Completed	11/6/2021 9:	18
26	Completed	11/6/2021 9:	19
27	Completed	11/6/2021 9:	20
28	Completed	11/6/2021 1	21
29	Completed	11/6/2021 1	22
30	Completed	11/6/2021 1	23
31	Completed	11/6/2021 1	24
32	Completed	11/6/2021 1	25
33	Completed	11/6/2021 1	26
34	Completed	11/6/2021 1	27
35	Completed	11/7/2021 1	28
36	Completed	11/7/2021 1	29
37	Completed	11/7/2021 1:	24
38	Completed	11/7/2021 1:	25
39	Completed	11/7/2021 1:	3
40	Completed	11/7/2021 1:	4
41	Completed	11/7/2021 1:	5
42	Completed	11/7/2021 1:	30
43	Completed	11/7/2021 1:	31
44	Completed	11/7/2021 1:	32
45	Completed	11/7/2021 2:	33
46	Completed	11/7/2021 2:	34
47	Completed	11/7/2021 2:	35
48	Completed	11/7/2021 2:	36
49	Completed	11/7/2021 3:	24
50	Completed	11/7/2021 3:	25
51	Completed	11/7/2021 4:	37

	Status	Date / Time	Vial
52	Completed	11/7/2021 4:	38
53	Completed	11/7/2021 4:	39
54	Completed	11/7/2021 4:	40
55	Completed	11/7/2021 5:	41
56	Completed	11/7/2021 5:	42
57	Completed	11/7/2021 5:	41
58	Completed	11/7/2021 6:	42
59	Completed	11/7/2021 6:	3
60	Completed	11/7/2021 6:	4
61	Completed	11/7/2021 6:	5
62	Completed	11/7/2021 7:	43
63	Completed	11/7/2021 7:	44
64	Completed	11/7/2021 7:	45
65	Completed	11/7/2021 7:	46
66	Completed	11/7/2021 8:	47
67	Completed	11/7/2021 8:	48
68	Completed	11/7/2021 8:	49
69	Completed	11/7/2021 9:	41
70	Completed	11/7/2021 9:	42
71	Completed	11/7/2021 9:	50
72	Completed	11/7/2021 1	51
73	Completed	11/7/2021 1	52
74	Completed	11/7/2021 1	53
75	Completed	11/7/2021 1	41
76	Completed	11/7/2021 1	42

TOC-Control L Report

2021_11_06_001.tlx

Instr.Information

Instrument Options TOC/ASI/IC Unit/
Catalyst Regular Sensitivity

Sample

Sample Name: CCV
Sample ID: 317195504
Origin: TOC_W 9060.met
Status Completed
Chk. Result

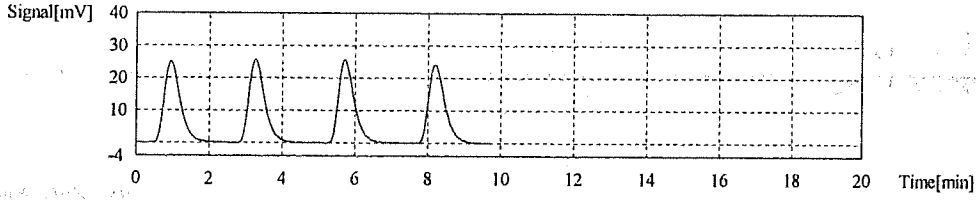
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.05mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	77.04	24.96mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 5:45:05 AM
2	78.51	25.44mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 5:47:49 AM
3	77.90	25.24mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 5:50:31 AM
4	75.82	24.57mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 5:53:12 AM

Mean Area 77.32
Mean Conc. 25.05mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

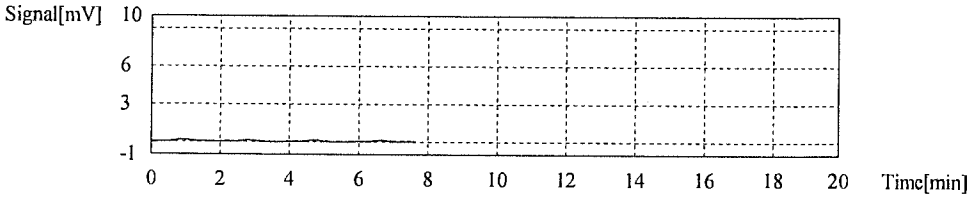
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.07388mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3000	0.09721mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:01:15 AM
2	0.2378	0.07705mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:03:22 AM
3	0.1983	0.06425mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:05:29 AM
4	0.1760	0.05703mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:07:37 AM

Mean Area 0.2280
Mean Conc. 0.07388mg/L



Sample

Sample Name: MBLK-11052021
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

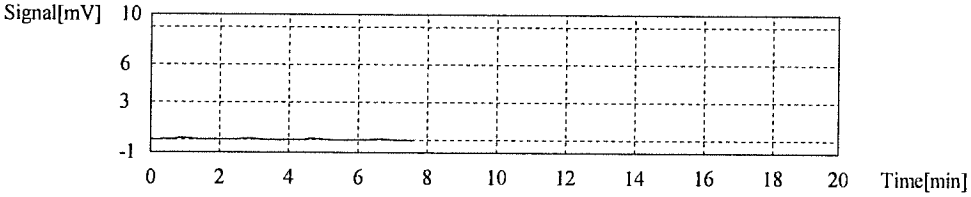
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.07546mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2263	0.07333mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:15:45 AM
2	0.2513	0.08143mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:17:52 AM
3	0.2415	0.07825mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:19:59 AM
4	0.2125	0.06885mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:22:06 AM

Mean Area 0.2329
Mean Conc. 0.07546mg/L



Sample

Sample Name: LCS-11052021
Sample ID: 3100604423
Origin: TOC_W 9060.met
Status Completed
Chk. Result

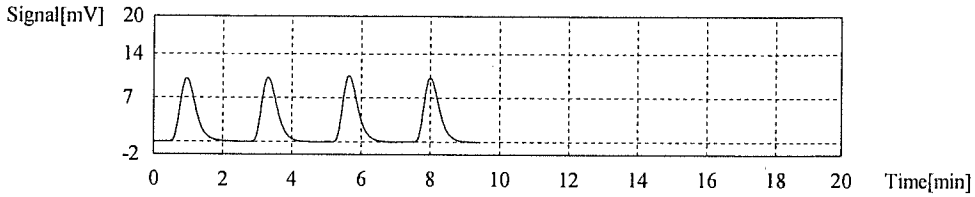
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.47mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.94	10.35mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:30:35 AM
2	32.64	10.58mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:33:11 AM
3	32.63	10.57mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:35:45 AM
4	32.02	10.38mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:38:22 AM

Mean Area 32.31
Mean Conc. 10.47mg/L



Sample

Sample Name: LCSD-11052021
Sample ID: 3100604423
Origin: TOC_W 9060.met
Status Completed
Chk. Result

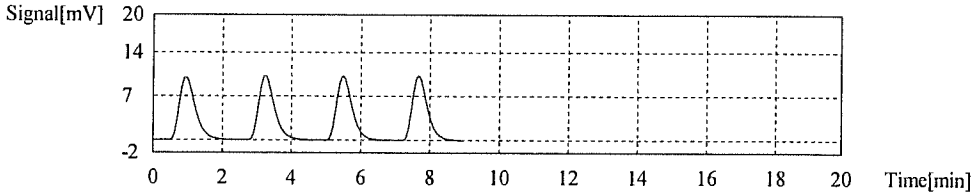
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.39mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.14	10.41mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:46:46 AM
2	32.86	10.65mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:49:14 AM
3	31.97	10.36mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:51:39 AM
4	31.34	10.15mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 6:54:08 AM

Mean Area 32.08
Mean Conc. 10.39mg/L



Sample

Sample Name: HS21110161-01
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

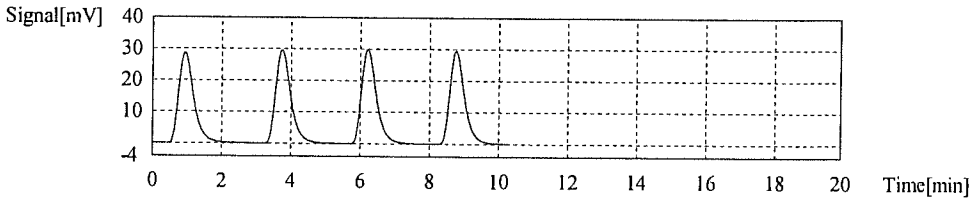
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:28.88mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	87.89	28.48mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:24:30 AM
2	90.01	29.16mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:27:14 AM
3	90.14	29.21mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:30:01 AM
4	88.53	28.69mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:32:41 AM

Mean Area 89.14
Mean Conc. 28.88mg/L



Sample

Sample Name: HS21110161-01MS
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

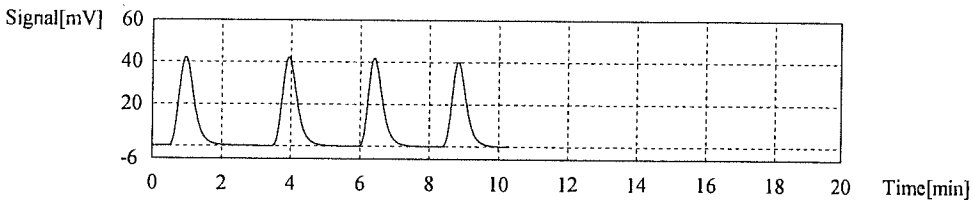
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:40.28mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	130.5	42.28mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:41:49 AM
2	126.9	41.12mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:44:34 AM
3	121.3	39.30mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:47:14 AM
4	118.5	38.40mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 8:49:54 AM

Mean Area 124.3
Mean Conc. 40.28mg/L



Sample

Sample Name: CCV
Sample ID: 317195504
Origin: TOC_W 9060.met
Status Completed
Chk. Result

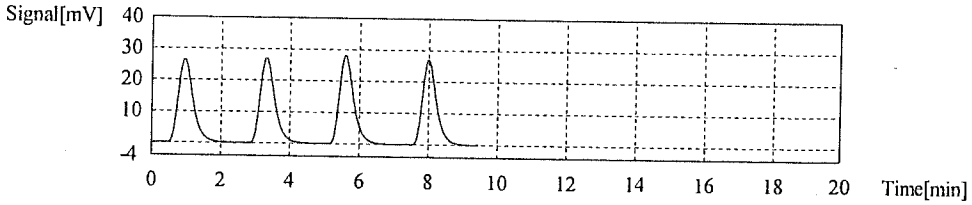
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.77mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	79.49	25.76mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:13:00 AM
2	80.49	26.08mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:15:34 AM
3	80.16	25.97mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:18:13 AM
4	77.96	25.26mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:20:50 AM

Mean Area 79.53
Mean Conc. 25.77mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

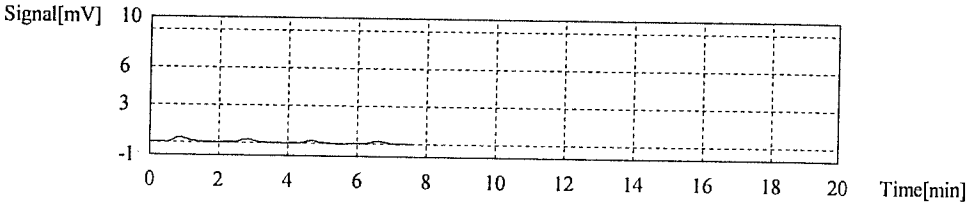
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2115mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.9524	0.3086mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:28:53 AM
2	0.6233	0.2020mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:31:00 AM
3	0.5345	0.1732mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:33:07 AM
4	0.5003	0.1621mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 9:35:14 AM

Mean Area 0.6526
Mean Conc. 0.2115mg/L



Sample

Sample Name: HS21110203-15
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

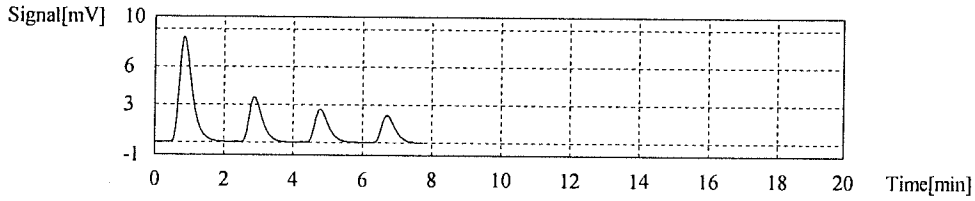
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:3.587mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	21.73	7.041mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 10:38:47 AM
2	9.415	3.051mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 10:40:54 AM
3	7.120	2.307mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 10:43:02 AM
4	6.011	1.948mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 10:45:09 AM

Mean Area 11.07
Mean Conc. 3.587mg/L



Sample

Sample Name: CCV
Sample ID: 317195504
Origin: TOC_W 9060.met
Status Completed
Chk. Result

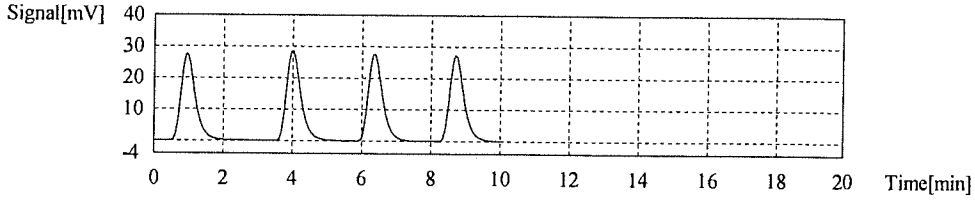
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:26.15mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	80.00	25.92mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:08:50 AM
2	83.38	27.02mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:11:27 AM
3	80.47	26.07mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:14:03 AM
4	78.95	25.58mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:16:36 AM

Mean Area 80.70
Mean Conc. 26.15mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: TOC_W 9060.met
Status Completed
Chk. Result

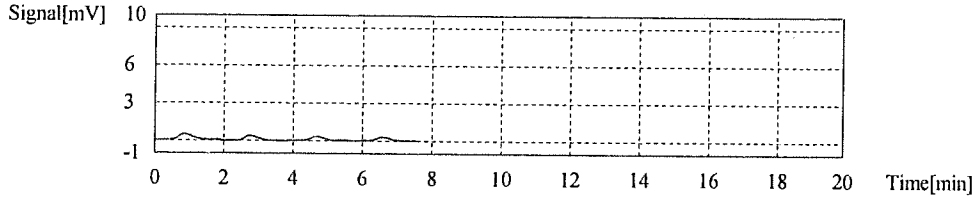
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2899mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.204	0.3901mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:24:39 AM
2	1.010	0.3273mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:26:49 AM
3	0.7128	0.2310mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:28:56 AM
4	0.6524	0.2114mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/7/2021 11:31:03 AM

Mean Area 0.8948
Mean Conc. 0.2899mg/L



HS21110203 Wetchem Moist Raw Data-1

ALS WO# HS21110203

ALS Environmental

Analyst	Saron berhane	Temp In Deg C	110
Method	Moisture_HS_01	Temp Out Deg C	105
Data Analyzed	16-Nov-21 11:59 am	Oven ID	Oven 6
		Balance ID	NA HST BAL013

SampleID	Type	Dish	PanWt (g)	Wet Wt (g)	1st Wt (g)	2nd Wt (g)	3rd Wt (g)	% Moisture	% Solid
HS21110130-08	SAMP	22	0.8279	7.1476	6.5557	6.5557	0	19.90	80.10
HS21110130-09	SAMP	23	0.8212	6.8392	6.1844	6.1845	0	21.60	78.40
HS21110130-10	SAMP	24	0.8368	6.6106	6.0382	6.0382	0	21.30	78.70
HS21110149-02	SAMP	25	0.8387	6.2338	5.9708	5.9708	0	17.70	82.30
HS21110149-03	SAMP	26	0.8318	7.4111	7.2365	7.2369	0	13.60	86.40
HS21110149-04	SAMP	27	0.8319	7.8526	7.1663	7.1665	0	19.30	80.70
HS21110179-02	SAMP	28	0.8469	8.7974	7.9199	7.92	0	19.60	80.40
HS21110179-04	SAMP	29	0.8311	7.0095	6.4197	6.4198	0	20.30	79.70
HS21110179-05	SAMP	30	0.8357	6.9818	6.4935	6.4936	0	19.00	81.00
HS21110179-06	SAMP	31	0.8254	6.6394	6.3191	6.3191	0	17.30	82.70
HS21110179-07	SAMP	32	0.8328	6.2619	6.2966	6.2967	0	12.70	87.30
HS21110179-08	SAMP	33	0.832	7.1316	6.7277	6.7278	0	17.30	82.70
HS21110179-09	SAMP	34	0.8304	6.8939	6.5856	6.5857	0	16.50	83.50
HS21110179-09DUP	DUP	35	0.8337	6.8933	6.6013	6.6013	0	16.30	83.70
HS21110179-10	SAMP	36	0.8239	7.257	7.4093	7.4093	0	9.25	90.75
HS21110179-11	SAMP	37	0.835	7.0063	6.501	6.5011	0	19.10	80.90
HS21110179-12	SAMP	38	0.835	7.321	6.7459	6.7461	0	19.30	80.70
HS21110203-01	SAMP	39	0.8205	8.5849	6.9025	6.9026	0	29.20	70.80
HS21110203-02	SAMP	40	0.8429	9.4352	7.1793	7.1794	0	32.80	67.20
HS21110203-03	SAMP	41	0.8308	6.5129	4.898	4.898	0	37.60	62.40
HS21110203-04	SAMP	42	0.8206	8.0479	5.9221	5.9221	0	36.60	63.40

HS21110203 Wetchem Moist Raw Data-2

ALS WO# HS21110203

ALS Environmental

Analyst	Saron berhane	Temp In Deg C	110
Method	Moisture_HS_01	Temp Out Deg C	105
Data Analyzed	16-Nov-21 12:38 pm	Oven ID	Oven 6
		Balance ID	NA HST BAL013

SampleID	Type	Dish	PanWt (g)	Wet Wt (g)	1st Wt (g)	2nd Wt (g)	3rd Wt (g)	% Moisture	% Solid
HS21110203-05	SAMP	43	0.8327	7.1117	3.2667	3.2667	0	65.80	34.20
HS21110203-06	SAMP	44	0.8229	7.063	3.5075	3.5078	0	62.00	38.00
HS21110203-07	SAMP	45	0.8399	8.3544	5.111	5.1111	0	48.90	51.10
HS21110203-08	SAMP	46	0.8327	8.4093	4.2439	4.244	0	59.40	40.60
HS21110203-09	SAMP	47	0.8411	9.1406	7.1806	7.1808	0	30.60	69.40
HS21110203-10	SAMP	48	0.8235	8.9556	6.5705	6.5704	0	35.80	64.20
HS21110203-11	SAMP	49	1.2958	7.2312	4.1721	4.1723	0	60.20	39.80
HS21110203-11DUP	DUP	50	1.2918	7.2324	4.1631	4.1636	0	60.30	39.70
HS21110203-12	SAMP	51	1.2885	6.1804	3.6758	3.6758	0	61.40	38.60
HS21110203-13	SAMP	52	1.2885	6.7352	4.359	4.3591	0	54.40	45.60
HS21110203-14	SAMP	53	1.2842	6.1329	3.5884	3.589	0	62.40	37.60
HS21110314-01	SAMP	54	1.2799	9.7398	9.4262	9.4269	0	16.40	83.60
HS21110314-02	SAMP	55	1.2888	6.6452	6.9187	6.9189	0	15.30	84.70
HS21110314-03	SAMP	56	1.287	7.0866	7.3244	7.3244	0	14.80	85.20
HS21110314-04	SAMP	57	1.2896	7.0766	7.2113	7.2114	0	16.30	83.70
HS21110314-05	SAMP	58	1.2876	9.5634	9.5965	9.5966	0	13.10	86.90
HS21110314-06	SAMP	59	1.2903	8.0228	7.9585	7.9589	0	16.90	83.10
HS21110314-07	SAMP	60	1.2803	8.2025	8.1093	8.1094	0	16.70	83.30
HS21110314-09	SAMP	61	1.2898	7.7937	7.5914	7.592	0	19.10	80.90
HS21110314-10	SAMP	62	1.2881	6.9066	7.2729	7.273	0	13.30	86.70
HS21110314-11	SAMP	63	1.2771	6.8631	6.9179	6.918	0	17.80	82.20

APPENDIX D1
LAVACA BAY FINFISH AND SHELLFISH MONITORING REPORT

LAVACA BAY FINFISH AND SHELLFISH MONITORING REPORT 2021

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

January 2022

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 PURPOSE AND SCOPE 1
1.2 SITE DESCRIPTION 1
2.0 METHODS 2
2.1 SAMPLE STATIONS 2
2.2 SAMPLE COLLECTION 8
2.2.1 RED DRUM 8
2.2.2 JUVENILE BLUE CRAB 8
2.3 SAMPLE PROCESSING 9
2.3.1 RED DRUM 9
2.3.2 JUVENILE BLUE CRAB 10
3.0 ANALYTICAL RESULTS 10
4.0 REFERENCES 11

LIST OF FIGURES

Figure 1. Closed Area Red Drum Sample Stations and Analytical Results…….…..…….…4
Figure 2. Adjacent Area Red Drum Sample Stations and Analytical Results…….....…...5
Figure 3. Closed Area Juvenile Blue Crab Sample Stations and Analytical Results…….….....…..6
Figure 4. Adjacent Area Juvenile Blue Crab Sample Stations and Analytical Results….…….....7

LIST OF TABLES

Table 1. Tissue Samples Analyzed per Zone…….…….…….3
Table 2. Closed Area Red Drum Sample Stations, Sample IDs, Processing Data, and Analytical Results……..…..…….12
Table 3. Adjacent Area Red Drum Sample Stations, Sample IDs, Processing Data, and Analytical Results……..…..…….13
Table 4. Closed Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results……..…..…….14
Table 5. Adjacent Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results……..…..…….18

LIST OF ATTACHMENTS

Attachment A: Analytical Data Packets

LIST OF ACRONYMS AND ABBREVIATIONS

Battelle	Battelle Marine Sciences Laboratory
Benchmark	Benchmark Ecological Services, Inc.
DI	Deionized (water)
GPS	Global Positioning System
ID	Identification
µg/g	micrograms per gram
mm	millimeter
OMMP	Operations, Maintenance, and Monitoring Plan
QA/QC	Quality Assurance/Quality Control
Site	Lavaca Bay Superfund Site

1.0 INTRODUCTION

A key factor in the success of the Lavaca Bay Remedy is the reduction in tissue mercury concentrations through targeted source control efforts, sediment removal efforts, capping, enhanced natural recovery, and/or natural recovery. The Consent Decree (March 2005) for the Lavaca Bay Superfund Site (Site) requires annual monitoring of finfish and shellfish for total mercury.

1.1 PURPOSE AND SCOPE

The objective of the program is to monitor the recovery of mercury levels in finfish and shellfish. The monitoring data collected under this program are used to assess the effectiveness of remedial actions implemented at the Site. This document presents a summary of sampling and analytical methods and the results of the 2021 monitoring project. A detailed description of the methods and procedures for this project are presented in the Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan (OMMP, Appendix I of the Consent Decree, March 2005).

1.2 SITE DESCRIPTION

The Alcoa Point Comfort Operations Plant is located in Calhoun County, Texas, adjacent to Lavaca Bay. An area in the bay adjacent to the Alcoa Plant is associated with elevated mercury concentrations in fish tissue and is closed to the taking of finfish and blue crabs for consumption by order of the Texas Department of Health (now called Department of State Health Services). This area is referred to as the "Closed Area" and is delineated in the figures contained in this report. The monitoring areas specified in the OMMP include both the Closed Area and designated areas outside the Closed Area (referred to as "Adjacent Areas" or the "Open Area").

2.0 METHODS

Red drum and juvenile blue crab tissue samples for the 2021 Finfish and Blue Crab Monitoring Project were collected and processed by Benchmark Ecological Services, Inc. (Benchmark), and analyzed by Battelle Marine Sciences Laboratory (Battelle) in Sequim, Washington. Samples were collected between 23 September 2021 and 18 November 2021. Validation and evaluation of the analytical results were conducted by ECS Environmental Chemistry Services, Inc., in Houston, Texas.

2.1 SAMPLE STATIONS

A total of 30 red drum samples were collected from 10 stations inside the Closed Area (Figure 1), and 30 samples were collected from 10 stations in the Adjacent Area (outside the Closed Area) (Figure 2). A total of 30 juvenile blue crab composite samples were collected from 10 stations inside the Closed Area (Figure 3). Thirty composite crab samples were also collected from 10 stations in Adjacent Areas (Figure 4).

As described in the OMMP (p. 3-3), the objectives for selecting sample stations are to achieve equal geographic representation of the four quadrants (or zones) within the Closed Area. As also stated in the OMMP (p. 3-3), netting success will be variable, and stations from which samples are collected and the number of samples per station may vary. The actual numbers of stations sampled for red drum and juvenile blue crab during the 2021 monitoring event are shown for each of the four Closed Area zones in Figures 1 and 3, respectively. Table 1 shows the number of red drum and juvenile blue crab samples collected per zone.

Table 1 – Tissue Samples Analyzed per Zone

Zone	Red Drum Samples	Juvenile Blue Crab Samples
Zone 1	9	3
Zone 2	9	15
Zone 3	6	3
Zone 4	6	9

The distribution of red drum samples ranged from 6 samples in Zones 3 and 4 (6 samples per zone) to 9 samples in Zones 1 and 2 (9 samples per zone). The number of juvenile blue crab samples ranged from 3 samples in Zones 1 and 3 (3 samples per zone) to 15 samples in Zone 2. The uneven distribution of samples among the zones was due to the uneven distribution of suitable habitat within the Zones.

The primary objective for the placement of both Adjacent Area and Closed Area monitoring stations was to achieve uniform distribution of stations within the sampling areas. The goal was to establish stations that would provide a geographically uniform distribution of samples (OMMP, p. 3-3). The general goal for both sampling areas was to collect approximately the same number of samples from 10 to 12 stations, distributed evenly over the sampling area. Whenever possible, from one year to the next, red drum and juvenile blue crab samples are collected from the same stations.

N

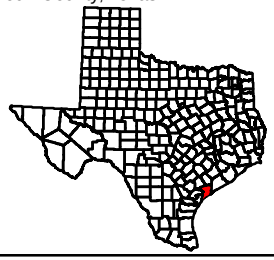
0 1,500 3,000 Feet

Legend

- Red Drum Stations
- #.## Total Hg (ug/g wet weight)
- Zone Boundaries
- Closed Area Boundary

Notes

2015 0.5m NAIP DOQQ (Point Comfort)
Calhoun County, Texas



Lavaca Bay Finfish and Shellfish Monitoring Report 2021

Closed Area Red Drum Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-109
Date: 1/21/2022

Figure 1

M:\98003\109\TISSUE\arc\Results\cls_rdr_21_results.mxd

N

0 0.5 1 Miles

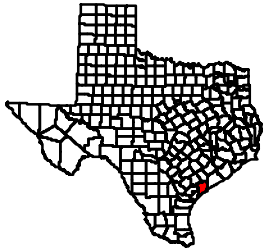
Legend

Red Drum Stations

#.## Total Hg (ug/g wet weight)

Notes

2015 0.5m NAIP DOQQ (Point Comfort)
Calhoun County, Texas



Lavaca Bay Finfish and Shellfish Monitoring Report 2021

Adjacent Area Red Drum Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-109
Date: 12/14/2021

Figure 2

\\BESINAS1\M-Drive\98003\109\TISSUE\arc\Results\adj_rdr_21_results.mxd

N

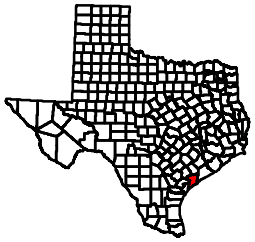
0 1,500 3,000 Feet

Legend

- Juvenile Blue Crab Stations
- #.## Total Hg (ug/g wet weight)
- Zone Boundaries
- Closed Area

Notes

2015 0.5m NAIP DOQQ (Point Comfort)
Calhoun County, Texas



Lavaca Bay Finfish and Shellfish Monitoring Report 2021

Closed Area Juvenile Blue Crab Sample Stations and Analytical Results

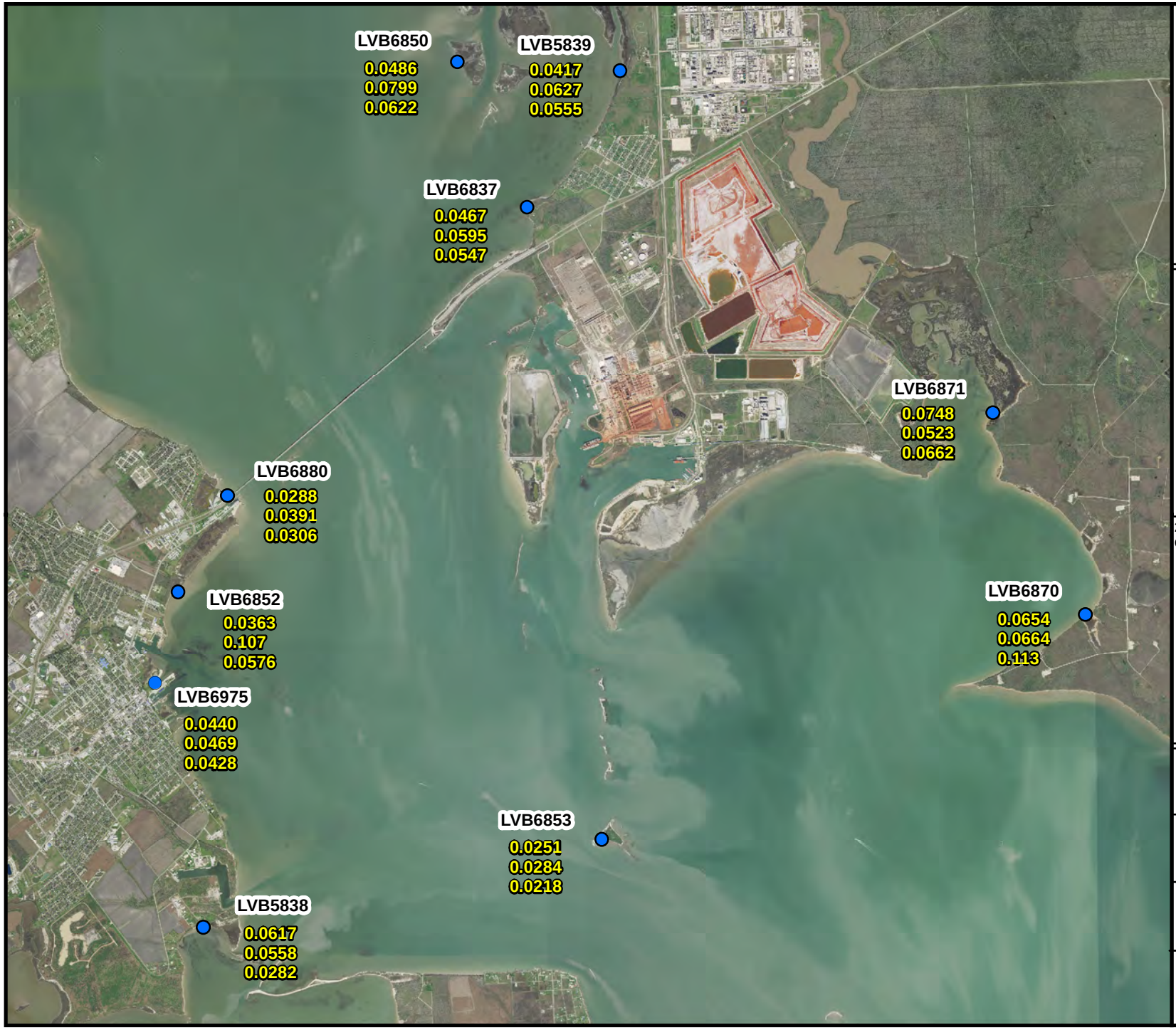
Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-109
Date: 1/21/2022

Figure 3

M:\98003\109\TISSUE\arc\Results\cls_blc_21_results.mxd



N

0 0.5 1 Miles

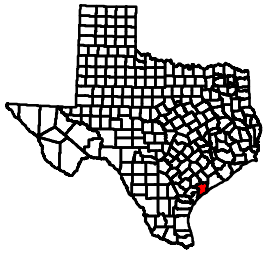
Legend

Juvenile Blue Crab Stations

#.## Total Hg (ug/g wet weight)

Notes

2015 0.5m NAIP DOQQ (Point Comfort)
Calhoun County, Texas



Lavaca Bay Finfish and Shellfish Monitoring Report 2021

Adjacent Area Juvenile Blue Crab Sample Stations and Analytical Results

Prepared for
Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-109
Date: 1/21/2022

Figure 4

M:\98003\109\TISSUE\arc\Results\adj_blc_21_results.mxd

2.2 SAMPLE COLLECTION

2.2.1 Red Drum

Red drum were collected from the Closed Area and Adjacent Areas between 23 September 2021 and 18 November 2021. In the Closed Area, 30 red drum tissue samples were collected from the 10 sample stations shown in Figure 1. In the Adjacent Areas, 30 red drum tissue samples were collected from the 10 sample stations shown on Figure 2. Sampling was conducted from a 20-foot aluminum boat. A Global Positioning System (GPS) was used to determine the positions of all sample stations.

Red drum specimens were collected using gill nets (6 feet x 150 feet) with 6-inch stretch mesh and with rod and reel. Multiple nets (1-3) were set at each sample station in the evening and left over night. The nets were retrieved the following morning, and the fish were removed. Gill netting and angling were conducted at set stations shown in Figures 1 and 2. Red drum with total lengths between 508 and 711 mm (20 to 28 inches) were removed from the gill nets or hooks, placed in plastic bags, and labeled with station identification (ID), date, and time. According to Texas Parks and Wildlife regulations, only red drum measuring between 20 and 28 inches (total length) may be legally harvested by recreational fisherman. Labeled bags were immediately placed in an insulated box with ice for storage. Undersized and oversized red drum and specimens of other species were returned to the water.

The following information (at a minimum) was recorded on data sheets:

Station ID	Initials of field personnel	End date
Gear type	Set date	End time
Water depth	Set time	List of photo log entries

2.2.2 Juvenile Blue Crab

Juvenile blue crabs were collected from the Closed Area and Adjacent Areas between 23 September 2021 and 21 October 2021. In the Closed Area, 30 blue crab tissue samples were collected from 10 stations shown in Figure 3, and in the Adjacent Area, 30 blue crab tissue samples were collected from 10 sample stations shown in Figure 4. Sampling was conducted from a 20-foot aluminum boat. A Global Positioning System was used to determine the positions of all sample stations.

Juvenile blue crabs were collected using barrel-type minnow traps baited with commercial crab bait (Gulf menhaden). Traps were checked at least every 4 days. Crabs were removed from the traps, inspected, and sorted by size in a clean sorting tray. Injured, dead, undersized, and oversized blue crabs, as well as by-catch, were returned to the water. Crabs that were between 25-75 mm in width were retained. Width is the distance between the tips of the primary lateral spines of the carapace. Crabs collected in the field were placed in resealable bags labeled with station ID, date, and collection time. Labeled bags were immediately placed in an insulated chest with ice. Data sheets were used to record the same sample site information listed above for finfish samples.

2.3 SAMPLE PROCESSING

2.3.1 Red Drum

Red drum samples were processed on the date of collection in the Alcoa Clean Lab (located at the Alcoa Point Comfort Facility) and remained on ice until processing was complete. Fish were weighed, measured, rinsed with deionized (DI) water, and scaled. Processing data were recorded digitally and are listed in Table 2 (Closed Area specimens) and Table 3 (Adjacent Area specimens). After scale removal, individual fish were placed in clean plastic bags and returned to cold storage until further processing.

In the clean lab, the fish were again rinsed with DI water and placed on pre-cleaned Teflon cutting boards. The right fillet (with skin) was removed with pre-cleaned, hexane-rinsed stainless steel fillet knives. The fillets were cut into small cubes, mixed, and weighed (in grams). A random 30.0-55.5 gram sub-sample was removed, weighed, and placed in a pre-cleaned sample container supplied by the analytical laboratory. Fillet weights and sample weights were recorded digitally on sample processing data sheets and are listed in Tables 2 and 3 for Closed Area and Adjacent Area specimens, respectively. Sample jars were labeled with sample number, species, collection date, time, and initials of processing personnel.

The containers with samples were placed into resealable plastic bags and stored at 4 ±2 degrees Celsius. A Chain of Custody form was completed for all samples collected. Sample containers were shipped to Battelle overnight on the date of collection. No red drum samples arrived at the laboratory later than the acceptable overnight shipping period, which was modified and described in the 2015 RAAER (Alcoa, 2015). All samples arrived with acceptable hold temperatures and were checked in for analysis by the laboratory.

2.3.2 Juvenile Blue Crab

Blue crabs were registered within 24 hours of collection at the Alcoa Clean Lab (located at the Alcoa Point Comfort Facility) and remained on ice or in a refrigerator until processing was complete. In the laboratory, crabs were rinsed with DI water and sorted by size on pre-cleaned Teflon cutting boards. Individual blue crabs were measured, weighed, and placed into sample containers. Each sample was a composite of 5 crabs measuring 25 to 75 mm in width. Individual crab weights and total sample weights were recorded on digital sample processing data sheets. Data associated with Closed Area and Adjacent Area juvenile blue crab monitoring are listed in Tables 4 and 5, respectively. Sample containers were labeled with the sample ID, collection date, time, and initials of processing personnel and were placed into resealable plastic bags in a secure refrigerator in the Clean Lab. Samples were shipped overnight to Battelle for analysis.

3.0 ANALYTICAL RESULTS

Red drum and juvenile blue crab samples were analyzed for total mercury and percent moisture by Battelle. Total mercury results were reported in µg/g as wet weight. Benchmark received the final data packet from the analytical laboratory on 7 January 2022, and Analytical QA/QC was completed by Benchmark on 24 January 2022. Analytical results for red drum collected from the Closed Area are presented in Table 2, and the results for red drum collected from the Adjacent Areas are presented in Table 3. Analytical results for juvenile blue crabs collected from the Closed Area are presented in Table 4, and results for juvenile blue crabs collected from the Adjacent Areas are presented in Table 5. Analytical data packets are included in Attachment A.

Analytical results for both red drum and juvenile blue crab samples were validated by Carol Lovett with Benchmark in Cypress, Texas according to the Standard Operating Procedure Data Validation (Appendix E) in the Quality Assurance Project Plan Alcoa (Point Comfort)/Lavaca Bay Superfund Site (August 22, 2005). All analytical results were validated and may be included in the data used to evaluate the effectiveness of the approved remedy and to meet monitoring requirements specified in the Consent Decree.

4.0 REFERENCES

Alcoa, 2005. Appendix B. *Statement of Work for Remedial Action. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan.* Alcoa (Point Comfort) / Lavaca Bay Superfund Site. October 2003. Appendix I.

Alcoa, 2015. *2014 Remedial Action Annual Effectiveness Report.* Alcoa (Point Comfort) / Lavaca Bay Superfund Site. March 31, 2015.

Table 2 - Closed Area Red Drum Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Total Length (mm)	Standard Length (mm)	Total Weight (g)	Tissue Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
CLO5818	B12b-TF-18889	09/23/21	8:45	684	560	2770	287.0	42.2	82.2	0.815	-
CLO5818	B12b-TF-18890	09/23/21	8:45	512	420	1290	184.6	50.7	79.9	0.910	-
CLO5804	B12b-TF-18891	09/23/21	7:00	587	485	2044	264.1	48.9	79.2	0.985	-
CLO6802	B12b-TF-18892	09/23/21	8:05	579	480	1810	234.9	48.5	77.9	0.323	-
CLO5815	B12b-TF-18893	09/23/21	7:10	623	495	2359	329.1	51.6	80.1	0.298	-
CLO5815	B12b-TF-18894	09/23/21	7:10	536	430	1319	191.3	50.3	78.2	0.273	-
CLO5804	B12b-TF-18895	09/27/21	7:00	641	525	2816	436.3	52.4	79.5	0.451	-
CLO5802	B12b-TF-18898	09/27/21	6:45	533	430	1444	189.5	45.7	79.7	1.01	-
LVB5508	B12b-TF-18899	09/27/21	7:25	530	430	1410	193.3	48.9	80.5	0.877	-
LVB5508	B12b-TF-18900	09/27/21	7:25	525	420	1262	198.5	40.8	79.1	0.471	-
CLO5803	B12b-TF-18903	09/30/21	8:10	516	420	1314	187.5	42.6	80.1	1.02	-
CLO6802	B12b-TF-18914	10/06/21	8:30	631	520	2649	381.8	52.2	78.4	0.356	-
CLO6802	B12b-TF-18915	10/06/21	8:30	653	539	3163	464.4	49.9	78.4	0.379	-
LVB5508	B12b-TF-18916	10/06/21	7:40	513	415	1293	180.0	45.3	79.9	0.981	-
CLO5803	B12b-TF-18918	10/07/21	8:00	517	420	1311	186.2	47.0	79.2	0.739	-
CLO5803	B12b-TF-18919	10/11/21	8:42	588	480	1851	268.9	50.1	79.0	0.881	-
CLO5815	B12b-TF-18925	10/18/21	7:35	690	570	3295	461.7	48.5	79.0	0.372	-
LVB5504	B12b-TF-18928	10/18/21	8:00	656	540	2817	358.4	49.0	79.3	0.902	-
CLO5802	B12b-TF-18929	10/19/21	7:30	709	590	3572	541.3	50.8	78.0	0.194	-
LVB5504	B12b-TF-18935	10/25/21	7:50	510	410	1215	189.6	50.0	78.2	0.958	-
LVB5504	B12b-TF-18936	10/26/21	8:30	513	420	1278	187.7	51.9	79.2	1.22	-
CLO5818	B12b-TF-18937	11/01/21	9:20	639	530	2661	388.2	53.3	78.0	0.402	-
CLO1414	B12b-TF-18938	11/01/21	9:45	540	440	1516	182.5	52.0	78.9	0.412	-
CLO1414	B12b-TF-18939	11/01/21	9:45	595	500	2281	344.0	51.8	79.5	0.336	-
CLO5802	B12b-TF-18941	11/03/21	7:38	685	565	3040	489.0	49.5	79.1	0.281	-
CLO1414	B12b-TF-18942	11/08/21	7:00	691	575	3307	550.4	50.2	77.6	0.455	-
CLO5816	B12b-TF-18947	11/11/21	6:50	660	535	2487	332.6	42.8	78.7	0.336	-
CLO5816	B12b-TF-18948	11/11/21	6:50	710	590	3504	517.4	49.1	78.9	0.426	-
CLO5804	B12b-TF-18950	11/18/21	6:30	583	475	1895	300.6	47.6	79.9	0.604	-
CLO5816	B12b-TF-18951	11/18/21	7:00	631	510	2905	462.6	49.1	76.1	0.400	-
Average Values				**599**	**491**	**2196**	**316.1**	**48.8**	**79.1**	**0.602**	**-**

Table 3 - Adjacent Area Red Drum Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Total Length (mm)	Standard Length (mm)	Total Weight (g)	Tissue Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
LVB6950	B12b-TF-18897	09/27/21	9:00	639	520	2778	395.6	52.3	77.6	0.294	-
CLO5830	B12b-TF-18901	09/28/21	8:30	571	465	2033	262.4	47.3	77.4	0.174	-
LVB6870	B12b-TF-18902	09/28/21	9:20	564	460	1790	294.8	50.1	78.1	0.543	-
CLO5830	B12b-TF-18904	09/30/21	8:35	703	575	3795	561.2	46.9	77.1	0.230	-
LVB5839	B12b-TF-18905	09/30/21	7:00	633	535	2776	401.2	50.9	79.9	0.347	-
LVB5839	B12b-TF-18906	09/30/21	7:00	694	580	3641	445.8	54.0	79.0	0.320	-
LVB5841	B12b-TF-18907	10/04/21	8:45	590	475	1815	247.4	49.3	79.0	0.251	-
LVB5841	B12b-TF-18908	10/04/21	8:45	602	485	2097	309.4	54.7	78.9	0.183	-
LVB6850	B12b-TF-18909	10/04/21	7:50	582	480	2209	263.2	49.5	78.0	0.305	-
LVB5839	B12b-TF-18910	10/04/21	7:35	637	530	2672	367.1	49.9	79.5	0.327	-
LVB6950	B12b-TF-18912	10/06/21	8:50	685	555	3615	426.0	48.4	77.2	0.226	-
LVB6950	B12b-TF-18913	10/06/21	8:50	670	545	3309	533.8	49.6	77.5	0.261	-
CLO5830	B12b-TF-18917	10/07/21	8:50	667	550	3246	528.2	51.1	77.1	0.241	-
LVB6837	B12b-TF-18920	10/11/21	7:30	688	580	3133	420.2	53.8	79.5	0.287	-
LVB6871	B12b-TF-18921	10/12/21	8:30	562	465	1816	298.3	55.5	78.6	0.274	-
LVB6870	B12b-TF-18922	10/12/21	8:50	522	420	1400	198.3	30.0	79.0	0.302	-
LVB6837	B12b-TF-18923	10/18/21	7:00	654	530	2974	426.3	47.4	78.6	0.452	-
LVB6837	B12b-TF-18924	10/18/21	7:00	664	560	3427	532.7	48.1	77.1	0.280	-
LVB5838	B12b-TF-18926	10/18/21	11:00	539	440	1492	216.7	49.3	78.1	0.185	-
LVB5838	B12b-TF-18927	10/18/21	11:00	510	410	1256	200.7	47.8	78.8	0.183	-
LVB6870	B12b-TF-18931	10/20/21	8:30	679	570	3308	476.2	51.0	76.4	0.441	-
LVB6871	B12b-TF-18932	10/20/21	7:50	509	420	1359	225.0	51.1	78.1	0.237	-
LVB6871	B12b-TF-18933	10/20/21	7:50	560	455	1785	290.5	53.1	79.2	0.290	-
LVB5841	B12b-TF-18934	10/21/21	8:05	639	525	2755	428.3	51.5	77.4	0.261	-
LVB6850	B12b-TF-18940	11/01/21	7:10	665	555	3251	406.7	51.4	79.4	0.552	-
LVB6850	B12b-TF-18943	11/08/21	6:25	649	540	2799	416.2	40.5	78.3	0.388	-
LVB5838	B12b-TF-18944	11/09/21	7:20	612	505	2125	312.6	51.3	79.6	0.222	-
LVB6880	B12b-TF-18945	11/09/21	8:10	708	580	3350	538.5	51.2	80.8	0.324	-
LVB6880	B12b-TF-18946	11/09/21	8:10	559	450	1775	267.5	52.2	79.0	0.311	-
LVB6880	B12b-TF-18949	11/15/21	7:15	511	410	1261	205.1	49.9	77.7	0.138	-
Average Values				**616**	**506**	**2501**	**363.2**	**49.6**	**78.4**	**0.294**	**-**

Table 4 - Closed Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
CLO6802	B12b-TS-19370	09/22/21	17:00	68.9	22.4	52.5	69.4	0.0576	-
				60.6	14.2				
				62.3	12.5				
				28.7	1.8				
				29.8	1.6				
CLO5803	B12b-TS-19375	09/22/21	16:00	58.6	11.8	21.3	69.6	0.153	-
				30.1	2.2				
				30.3	2.6				
				31.3	3.0				
				27.0	1.7				
CLO5814	B12b-TS-19377	09/22/21	16:50	34.2	3.1	13.5	72.3	0.0538	-
				25.1	1.3				
				43.4	6.3				
				25.7	1.4				
				27.7	1.4				
CLO6802	B12b-TS-19378	09/26/21	17:30	26.6	1.7	24.4	63.7	0.0656	-
				67.3	17.0				
				26.4	1.5				
				32.3	2.5				
				27.6	1.7				
CLO5900	B12b-TS-19380	09/23/21	10:56	25.5	1.3	25.6	73.4	0.0581	-
				63.6	13.5				
				33.4	2.7				
				46.1	6.7				
				27.5	1.4				
CLO5900	B12b-TS-19387	09/28/21	12:55	25.3	1.3	9.7	72.1	0.0436	-
				27.4	1.5				
				35.3	3.3				
				27.7	1.4				
				30.3	2.2				
CLO5802	B12b-TS-19388	09/23/21	11:25	30.4	2.1	8.8	67.3	0.0531	-
				32.4	2.3				
				30.4	1.6				
				29.2	1.6				
				25.4	1.2				
LVB5513	B12b-TS-19390	09/26/21	17:50	63.3	16.2	54.6	67.9	0.0785	-
				27.1	1.4				
				53.2	9.6				
				45.0	7.8				
				64.5	19.6				

Table 4 - Closed Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
CLO6802	B12b-TS-19393	09/26/21	17:30	25.9	1.4	17.9	63.4	0.0481	-
				57.2	11.3				
				27.3	1.5				
				30.1	1.9				
				28.6	1.8				
CLO5803	B12b-TS-19396	09/30/21	8:17	32.5	2.8	13.0	67.7	0.205	-
				25.5	1.7				
				29.2	2.5				
				30.3	2.5				
				33.8	3.5				
LVB5517	B12b-TS-19397	09/27/21	8:36	30.6	2.5	36.0	63.1	0.0875	-
				37.2	3.9				
				26.1	1.2				
				27.8	1.6				
				74.0	26.8				
CLO5814	B12b-TS-19398	09/26/21	17:40	32.7	3.0	10.6	66.7	0.0565	-
				25.0	1.1				
				37.9	3.6				
				25.0	0.9				
				29.7	2.0				
LVB5504	B12b-TS-19400	09/28/21	12:45	51.5	11.0	35.2	64.9	0.239	-
				25.4	1.3				
				30.0	2.4				
				65.8	16.3				
				37.0	4.2				
LVB5513	B12b-TS-19404	09/28/21	13:05	65.0	21.2	46.4	65.2	0.116	-
				45.3	7.0				
				32.6	2.9				
				37.0	3.8				
				53.2	11.5				
LVB5513	B12b-TS-19405	09/30/21	16:40	48.3	8.6	31.1	69.7	0.0631	-
				27.9	1.6				
				40.7	4.5				
				42.6	5.9				
				51.9	10.5				
LVB5504	B12b-TS-19406	10/04/21	10:25	32.1	2.3	32.1	67.6	0.122	-
				54.1	12.8				
				45.9	7.4				
				31.9	3.1				
				46.3	6.5				

Table 4 - Closed Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
LVB5508	B12b-TS-19408	09/30/21	16:15	26.9	1.5	19.3	65.9	0.120	-
				34.5	2.5				
				36.2	3.1				
				31.7	2.1				
				53.0	10.1				
CLO5802	B12b-TS-19409	09/30/21	8:00	25.0	0.9	25.0	68.8	0.108	-
				28.3	1.5				
				26.4	1.3				
				62.7	18.7				
				34.4	2.6				
LVB5517	B12b-TS-19410	10/04/21	9:30	41.0	4.9	15.1	64.7	0.0622	-
				33.5	2.8				
				35.8	3.5				
				31.4	2.3				
				27.1	1.6				
LVB5504	B12b-TS-19411	10/04/21	9:30	37.6	4.1	16.4	66.3	0.145	-
				29.4	1.5				
				32.6	2.9				
				42.0	5.6				
				28.5	2.3				
CLO5803	B12b-TS-19414	09/30/21	8:17	35.7	3.4	34.0	67.7	0.293	-
				37.5	4.1				
				57.6	17.1				
				35.1	4.1				
				39.2	5.3				
CLO5900	B12b-TS-19415	09/29/21	18:00	34.8	2.8	11.8	69.1	0.0692	-
				39.7	4.3				
				26.1	1.2				
				30.6	1.8				
				29.9	1.7				
CLO5814	B12b-TS-19416	09/30/21	10:00	31.3	1.7	16.6	69.1	0.0457	-
				32.1	2.1				
				28.3	1.6				
				50.3	8.5				
				32.8	2.7				
LVB5508	B12b-TS-19417	10/04/21	10:20	30.2	2.4	22.0	67.5	0.106	-
				47.0	6.3				
				52.0	10.3				
				27.0	1.5				
				27.3	1.5				

Table 4 - Closed Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
CLO5815	B12b-TS-19418	09/30/21	10:15	26.0	1.2	8.1	70.9	0.0463	-
				30.9	1.8				
				38.2	1.4				
				28.2	1.5				
				33.6	2.2				
LVB5517	B12b-TS-19420	10/07/21	10:15	29.2	2.1	9.2	65.9	0.0554	-
				30.1	2.1				
				30.6	2.3				
				27.6	1.5				
				25.0	1.2				
LVB5508	B12b-TS-19422	10/13/21	10:30	35.8	3.6	10.8	63.3	0.125	-
				29.7	1.7				
				29.9	2.1				
				27.7	1.3				
				29.6	2.1				
CLO5815	B12b-TS-19423	10/11/21	9:50	31.5	2.1	7.4	67.0	0.0732	-
				25.2	1.0				
				25.0	1.3				
				26.5	1.3				
				29.4	1.7				
CLO5802	B12b-TS-19424	10/12/21	9:55	28.3	1.3	7.8	64.9	0.067	-
				25.7	1.1				
				25.1	1.0				
				30.5	1.7				
				32.2	2.7				
CLO5815	B12b-TS-19425	10/14/21	14:20	31.9	1.7	7.5	65.3	0.0583	-
				27.7	1.2				
				27.1	0.8				
				29.4	1.9				
				33.2	1.9				
Average Values				**35.6**	**4.3**	**21.5**	**67.3**	**0.096**	**-**

Table 5 - Adjacent Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
LVB6871	B12b-TS-19369	09/23/21	9:40	33.9	3.7	20.2	69.7	0.0748	-
				42.4	7.7				
				32.4	3.6				
				32.6	2.4				
				32.2	2.8				
LVB5839	B12b-TS-19371	09/22/21	15:15	39.7	5.1	21.2	72.5	0.0417	-
				38.5	5.4				
				42.5	6.1				
				29.4	2.1				
				29.1	2.5				
LVB5839	B12b-TS-19372	09/22/21	15:15	27.1	2.0	18.5	69.9	0.0627	-
				27.7	2.0				
				31.2	3.1				
				45.0	6.6				
				40.5	4.8				
LVB5838	B12b-TS-19373	09/23/21	18:15	25.1	1.6	27.1	67.6	0.0617	-
				40.5	5.9				
				57.5	14.9				
				30.6	2.2				
				30.9	2.5				
LVB5838	B12b-TS-19374	09/23/21	18:15	72.9	21.6	39.2	66.0	0.0558	-
				42.7	5.3				
				28.6	2.1				
				52.7	8.9				
				25.0	1.3				
LVB6850	B12b-TS-19376	09/23/21	12:00	37.8	4.1	35.6	69.7	0.0486	-
				40.5	6.3				
				37.2	4.7				
				56.1	17.6				
				31.6	2.9				
LVB6880	B12b-TS-19379	09/23/21	17:20	28.0	1.7	21.1	69.8	0.0288	-
				51.4	7.3				
				47.8	7.3				
				35.8	2.8				
				31.3	2.0				
LVB6837	B12b-TS-19381	09/22/21	15:30	56.1	11.6	22.3	73.2	0.0467	-
				27.1	2.1				
				28.8	2.5				
				32.6	3.2				
				30.2	2.9				

Table 5 - Adjacent Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
LVB6837	B12b-TS-19382	09/23/21	11:50	30.8	2.8	19.0	71.4	0.0595	-
				40.1	5.2				
				31.2	3.1				
				36.2	3.5				
				34.7	4.4				
LVB6837	B12b-TS-19383	09/27/21	10:28	30.1	2.7	36.2	68.7	0.0547	-
				34.0	3.6				
				58.1	10.7				
				33.4	3.4				
				54.4	15.8				
LVB6870	B12b-TS-19384	09/23/21	10:00	39.6	4.9	27.4	69.3	0.0654	-
				39.2	6.5				
				32.3	3.7				
				29.0	2.3				
				46.1	10.0				
LVB6870	B12b-TS-19385	09/27/21	9:50	34.8	4.0	17.2	66.4	0.0664	-
				37.4	5.3				
				25.8	1.5				
				41.2	4.8				
				25.4	1.6				
LVB6870	B12b-TS-19386	09/27/21	9:50	25.9	1.3	31.0	66.0	0.113	-
				57.1	16.9				
				29.0	2.6				
				41.0	7.7				
				30.6	2.5				
LVB6880	B12b-TS-19389	09/26/21	19:00	29.7	1.6	16.0	66.7	0.0391	-
				34.8	2.4				
				28.3	1.5				
				27.4	1.8				
				50.8	8.7				
LVB5839	B12b-TS-19391	09/23/21	12:10	28.8	2.0	38.5	68.6	0.0555	-
				37.6	5.8				
				49.2	11.2				
				57.5	17.7				
				25.3	1.8				
LVB5838	B12b-TS-19392	09/26/21	16:20	33.1	2.9	22.2	74.9	0.0282	-
				56.3	10.2				
				41.3	3.6				
				35.0	3.7				
				26.5	1.8				

Table 5 - Adjacent Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
LVB6871	B12b-TS-19394	09/27/21	9:25	58.0	15.8	64.2	66.7	0.0523	-
				55.8	17.5				
				45.0	9.2				
				67.9	18.8				
				29.8	2.9				
LVB6871	B12b-TS-19395	09/29/21	17:00	58.8	21.2	41.4	68.5	0.0662	-
				26.3	1.7				
				32.1	2.8				
				49.2	10.6				
				36.0	5.1				
LVB6975	B12b-TS-19399	09/26/21	16:00	61.1	14.2	21.2	65.7	0.0440	-
				32.1	2.1				
				25.8	1.3				
				30.7	2.2				
				26.7	1.4				
LVB6850	B12b-TS-19401	09/28/21	11:00	58.3	11.6	42.1	66.2	0.0799	-
				30.0	2.2				
				52.8	10.4				
				34.7	3.3				
				55.1	14.6				
LVB6850	B12b-TS-19402	09/30/21	16:00	57.0	11.8	30.0	65.0	0.0622	-
				36.7	3.3				
				45.2	6.5				
				29.4	2.2				
				45.3	6.2				
LVB6880	B12b-TS-19403	09/28/21	10:45	32.7	2.7	22.2	68.6	0.0306	-
				60.7	13.9				
				34.7	3.0				
				25.4	1.4				
				26.6	1.2				
LVB6975	B12b-TS-19407	09/30/21	10:30	27.7	2.0	22.0	64.0	0.0469	-
				59.3	12.2				
				33.6	3.4				
				27.8	2.1				
				29.7	2.3				
LVB6975	B12b-TS-19412	10/03/21	17:40	42.0	7.6	33.9	65.0	0.0428	-
				25.6	1.7				
				33.4	2.6				
				33.3	3.9				
				64.5	18.1				

Table 5 - Adjacent Area Juvenile Blue Crab Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Width (mm)	Crab Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
LVB6852	B12b-TS-19413	10/03/21	17:20	44.1	4.3	14.1	67.7	0.0363	-
				29.2	2.2				
				26.0	1.9				
				26.1	1.6				
				38.9	4.1				
LVB6852	B12b-TS-19419	10/05/21	11:55	34.2	3.5	30.1	65.5	0.107	-
				27.9	1.8				
				28.8	2.0				
				60.6	20.1				
				31.0	2.7				
LVB6852	B12b-TS-19421	10/07/21	10:45	26.6	1.5	26.4	67.2	0.0576	-
				28.9	2.1				
				66.9	18.2				
				30.1	2.3				
				29.3	2.3				
LVB6853	B12b-TS-19426	10/18/21	10:00	57.7	15.6	52.9	73.7	0.0251	-
				59.5	18.1				
				45.4	7.4				
				32.6	3.6				
				46.1	8.2				
LVB6853	B12b-TS-19427	10/21/21	9:00	35.7	4.0	49.4	70.9	0.0284	-
				55.5	14.4				
				54.8	12.5				
				46.0	8.1				
				47.2	10.4				
LVB6853	B12b-TS-19428	10/21/21	9:00	37.3	4.9	44.2	73.1	0.0218	-
				46.2	8.8				
				56.8	15.6				
				43.6	6.7				
				46.1	8.2				
Average Values				**39.1**	**6.0**	**30.2**	**68.6**	**0.053**	**-**

Attachment A
Analytical Data Packets

Marine and Coastal Research Laborary
1529 West Sequim Bay Road
Sequim, Washington 98382

Telephone: (360) 681-3604
Facsimile: (360) 681-3699

January 7, 2021

Neil Henthorne
Benchmark Ecological Services
4219 Front Street
Brookshire, Texas 77423

Dear Neil:

Enclosed you will find the data package for the Fall 2021 tissue samples received at the PNNL Marine and Coastal Research Laboratory between 9/24/2021 and 11/19/2021 for total mercury analysis. Included in the package you will find the sample data and QA/QC summary, the instrument raw data, and the chain of custody documentation. Please don't hesitate to give me a call at 360-681-3604 if you have any questions.

Sincerely,

Sincerely,

Nick Ward
Project Manager, enc.

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 W. Sequim Bay Rd.
Sequim, WA 98382

DATA PACKAGE
ALCOA POINT COMFORT OPERATIONS
FISH AND SHELLFISH MONITORING

FALL 2021

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 W. Sequim Bay Rd.
Sequim, WA 98382

ALCOA POINT COMFORT OPERATIONS
FISH AND SHELLFISH MONITORING
FALL 2021

TISSUE SAMPLES Page

Chain-of-Custody and Sample Log-In Forms 3
Sample Results - Total Mercury in Tissue..... 80
QA/QC Narrative..... 89
Raw Data - Total Mercury in Tissue 92
Percent Moisture Raw Data..... 144

FISH AND SHELLFISH MONITORING STUDY

Chain-of-Custody Forms and Sample Log-In Sheets

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8157 3479 9886	1	1
Company	**Area**			
BESI	Lavaca Bay			

Shipping Container Packed By *(signature)*: [signature]

Laboratory Use Only

Received For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18889	TF	9/23/21	8:45	1	X	X	3663-1		
B126-TF-18890	TF	9/23/21	8:45	1	X	X	3663-2		
B126-TF-18891	TF	9/23/21	7:00	1	X	X	3663-3		
B126-TF-18892	TF	9/23/21	8:05	1	X	X	3663-4		
B126-TF-18893	TF	9/23/21	7:10	1	X	X	3663-5		
B126-TF-18894	TF	9/23/21	7:10	1	X	X	3663-6		
B126-DI-18896	DI	9-23-21	1405	1		X	3664-1		

Relenquished By	Date	Time	Received By	Date	Time
[signature]	9/23/21	17:00	[signature]	9/24/21	14:15

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8138 6252 1758	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B12b-TF-18895	TF	9-27-21	7:00	1	X	X	3663-7		
B12b-TF-18897	TF	9-27-21	9:00	1	X	X	3663-8		
B12b-TF-18898	TF	9-27-21	6:45	1	X	X	3663-9		
B12b-TF-18899	TF	9-27-21	7:25	1	X	X	3663-10		
B12b-TF-18900	TF	9-27-21	7:25	1	X	X	3663-11		
B12b-TS-19369	TS	9-23-21	9:40	1	X	X	3663-12		
B12b-TS-19370	TS	9-22-21	17:00	1	X	X	3663-13		
B12b-TS-19371	TS	9-22-21	15:15	1	X	X	3663-14		
B12b-TS-19372	TS	9-22-21	15:15	1	X	X	3663-15		

Relenquished By	Date	Time	Received By	Date	Time
	9-27-21	16:30		9-28-21	12:15

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8138 6252 1758	1	1
Company	**Area**			
BESI	Lavaca Bay			

Shipping Container Packed By *(signature)*

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B12b-TS-19373	TS	9-23-21	18:15	1	X	X	3663-16		
B12b-TS-19374	TS	9-23-21	18:15	1	X	X	3663-17		
B12b-TS-19375	TS	9-22-21	16:00	1	X	X	3663-18		
B12b-TS-19376	TS	9-23-21	12:00	1	X	X	3663-19		
B12b-TS-19377	TS	9-22-21	16:50	1	X	X	3663-20		
B12b-TS-19378	TS	9-26-21	17:30	1	X	X	3663-21		
B12b-TS-19379	TS	9-23-21	17:20	1	X	X	3663-22		
B12b-TS-19380	TS	9-23-21	10:56	1	X	X	3663-23		
B12b-TS-19381	TS	9-22-21	15:30	1	X	X	3663-24		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
	9-27-21	16:30		9-28-21	12:15			

Seal Number	Condition

Remarks

(360) 681-3604

Page ~~12~~ 2 of ~~2~~ 3

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
RESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8138 6252 1758	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	MS/MSD	Duplicate					Lab ID	Remarks	Temp (deg C)
B126-TS-19382	TS	9-23-21	11:50	1	X	X							3663-25		
B126-TS-19383	TS	9-27-21	10:28	1	X	X							3663-26		
B126-TS-19384	TS	9-23-21	10:00	1	X	X							3663-27		
B126-TS-19385	TS	9-27-21	9:50	1	X	X		X					3663-28		
B126-TS-19386	TS	9-27-21	9:50	1	X	X	X						3663-29		

Relenquished By	Date	Time	Received By	Date	Time
	9-27-21	16:30		9-28-21	12:15

Opened By	Date	Time

Seal Number	Condition

Remarks

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8105 8062 1443	1	1
Company	**Area**	Laboratory Use Only		
BESI	Lavaca Bay			
Shipping Container Packed By *(signature)*		**eceived For Laboratory E**	**Date**	**Time**
[signature]				

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Analyses	Lab ID	Remarks	Temp (deg C)
B12b-TF-18901	TF	09-28-21	08:30	1	X	X		3663-30		
B12b-TF-18902	TF	09-28-21	09:20	1	X	X		3663-31		
B12b-TS-19387	TS	9-28-21	12:55	1	X	X		3663-32		
B12b-TS-19388	TS	9-23-21	11:25	1	X	X		3663-33		
B12b-TS-19389	TS	9-26-21	19:00	1	X	X		3663-34		
B12b-TS-19390	TS	9-26-21	17:50	1	X	X		3663-35		
B12b-TS-19391	TS	9-23-21	12:10	1	X	X		3663-36		
B12b-TS-19392	TS	9-26-21	16:20	1	X	X		3663-37		
B12b-TS-19393	TS	9-26-21	17:30	1	X	X		3663-38		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[signature]	9-28-21	17:00	[signature]	9-29-21	13:45			

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8157 3479 9901	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	MS/MSD	Dup						Lab ID	Remarks	Temp (deg C)
B126-TF-18903	TF	9-30-21	08:10	1	X	X								3663-39		
B126-TF-18904	TF	9-30-21	7:35	1	X	X								3663-40		
B126-TF-18905	TF	9-30-21	7:00	1	X	X	X							3663-41		
B126-TF-18906	TF	9-30-21	7:00	1	X	X		X						3663-42		
B126-TS-19394	TS	9-27-21	9:25	1	X	X								3663-43		
B126-TS-19395	TS	9-29-21	17:00	1	X	X								3663-44		
B126-TS-19396	TS	9-30-21	8:17	1	X	X								3663-45		
B126-TS-19397	TS	9-27-21	8:36	1	X	X								3663-46		
B126-TS-19398	TS	9-26-21	17:40	1	X	X								3663-47		

Relenquished By	Date	Time	Received By	Date	Time
	9-30-21	16:00		10-1-21	11:30

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARTFS	8157 3479 9901	1	1
Company	**Area**			
BESI	Lower Bay			

Shipping Container Packed By *(signature)*: [signature]

Laboratory Use Only

Received For Laboratory By	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TS-19399	TS	9-26-21	16:00	1	X	X	3663-48		

Relenquished By	Date	Time	Received By	Date	Time
[signature]	9-30-21	16:00	[signature]	10-1-21	11:30

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BEST	Lower Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8138 6252 1173	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	DUP	MS/MSD	Lab ID	Remarks	Temp (deg C)
B126-TF-18907	TF	10-04-21	08:45	1	X	X	X	MS	3663-49	No Duplicate	
B126-TF-18908	TF	10-04-21	08:45	1	X	X			3663-50		
B126-TF-18909	TF	10-04-21	07:50	1	X	X			3663-51		
B126-TF-18910	TF	10-04-21	07:35	1	X	X			3663-52		
B126-TS-19400	TS	9-28-21	12:45	1	X	X	X		3663-53		
B126-TS-19401	TS	9-28-21	11:00	1	X	X		X	3663-54		
B126-TS-19402	TS	9-30-21	16:00	1	X	X			3663-55		
B126-TS-19403	TS	9-28-21	10:45	1	X	X			3663-56		
B126-TS-19404	TS	9-28-21	13:05	1	X	X			3663-57		

Relenquished By	Date	Time	Received By	Date	Time
	10-04-21	17:00		10-5-21	11:50

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS

Company	Area
BESI	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8138 6252 1173	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TS-19405	TS	9-30-21	16:40	1	X	X	3663-58		
B126-TS-19406	TS	10-04-21	10:25	1	X	X	3663-59		
B126-TS-19407	TS	9-30-21	10:30	1	X	X	3663-60		
B126-TS-19408	TS	9-30-21	16:15	1	X	X	3663-61		
B126-TS-19409	TS	9-30-21	08:00	1	X	X	3663-62		
B126-TS-19410	TS	10-04-21	09:30	1	X	X	3663-63		
B126-DI-18911	DI	10-04-21	13:40	1		X	3664-2		

Relenquished By	Date	Time	Received By	Date	Time
	10-04-21	17:00		10-5-21	11:50

Opened By	Date	Time

Seal Number	Condition

Remarks

360 - 681 - 36041

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARCFS

Company	Area
BESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8157 3479 9897	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Analyses	Lab ID	Remarks	Temp (deg C)
~~B126-TS-19411~~	~~TS~~	~~10-04-21~~	~~09:30~~	~~1~~	~~X~~	~~X~~				
B126-TS-19412	TS	10-03-21	17:40	1	X	X		3663-64		
B126-TS-19413	TS	10-03-21	17:20	1	X	X		3663-65		
~~B126-TS-19414~~	~~TS~~	~~09-30-21~~	~~11:20~~	~~1~~	~~X~~	~~X~~				
B126-TS-19415	TS	9-29-21	08:00	1	X	X		3663-66		
B126-TS-19414	TS	9-30-21	08:17	1	X	X		3663-67		
B126-TS-19411	TS	10-04-21	10:25	1	X	X		3663-68		

Relenquished By	Date	Time	Received By	Date	Time
	10-05-21	16:30		10-6-21	12:20

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitorin	ARCFS	8157 3479 9474	1	1
Company	**Area**	Laboratory Use Only		
BESI	Lavaca Bay			
Shipping Container Packed By *(signature)*		**eceived For Laboratory E**	**Date**	**Time**
[signature]				

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Analyses	Lab ID	Remarks	Temp (deg C)
B126-TF-18912	TF	10-06-21	08:50	1	X	X		3663-69		
B126-TF-18913	TF	10-06-21	08:50	1	X	X		3663-70		
B126-TF-18914	TF	10-06-21	08:30	1	X	X		3663-71		
B126-TF-18915	TF	10-06-21	08:30	1	X	X		3663-72		
B126-TF-18916	TF	10-06-21	07:40	1	X	X		3663-73		
B126-TS-19416	TS	~~10~~ 9-30-21	10:00	1	X	X		3663-74		
B126-TS-19417	TS	10-01-21	10:20	1	X	X		3663-75		
B126-TS-19418	TS	9-30-21	10:15	1	X	X		3663-76		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[signature]	10-06-21	17:00	[signature]	10-7-21	11:25			
						Seal Number	**Condition**	

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8105 8062 1465	1	1
Company	**Area**	Laboratory Use Only		
BESI	Lavaca Bay			
Shipping Container Packed By *(signature)*		**eceived For Laboratory E**	**Date**	**Time**
[signature]				

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18917	TF	10-07-21	08:50	1	X	X	3663-77		
B126-TF-18918	TF	10-07-21	08:00	1	X	X	3663-78		
B126-TS-19419	TS	10-05-21	11:55	1	X	X	3663-79		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[signature]	10-07-21	15:00	[signature]	10-8-21	12:05			

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8138 6252 1769	1	1
Company	**Area**			
BESI	Lavaca Bay			

Shipping Container Packed By *(signature)*: [signature]

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	MS/MSD	OAP						Lab ID	Remarks	Temp (deg C)
B126-TF-18919	TF	10-11-21	08:42	1	X	X								3663-80		
B126-TF-18920	TF	10-11-21	07:30	1	X	X								3663-81		
B126-TS-19420	TS	10-05-21	17:30	1	X	X	X							3663-82		
B126-TS-19421	TS	10-07-21	10:45	1	X	X		X						3663-83		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[signature]	10-11-21	17:00	[signature]	10-12-21	12:00			

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8138 6252 1151	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	DUP	MS/MSD					Lab ID	Remarks	Temp (deg C)
B126-TF-18921	TF	10-12-21	08:30	1	X	X	X						3663-84		
B126-TF-18922	TF	10-12-21	08:50	1	X	X		X					3663-85		

Relinquished By	Date	Time	Received By	Date	Time
	10-12-21	17:00		10-13-21	12:00

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARTFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8157 2369 2013	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg							Lab ID	Remarks	Temp (deg C)
B126-TS-19422	TS	10-13-21	10:30	1	X	X									0.6
B126-TS-19423	TS	10-11-21	09:50	1	X	X									0.6

Relenquished By	Date	Time	Received By	Date	Time
	10-14-21	17:00		10/15/21	12:00

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3641

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	AREFS
Company	**Area**
BEST	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8157 2364 2035	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg							Lab ID	Remarks	Temp (deg C)
B126-TF-18923	TF	10-18-21	07:00	1	X	X							3663-88		
B126-TF-18924	TF	10-18-21	07:00	1	X	X							3663-89		
B126-TF-18925	TF	10-18-21	07:35	1	X	X							3663-90		
B126-TF-18926	TF	10-18-21	11:00	1	X	X							3663-91		
B126-TF-18927	TF	10-18-21	11:00	1	X	X							3663-92		
B126-TF-18928	TF	10-18-21	08:00	1	X	X							3663-93		
B126-TS-19424	TS	10-12-21	09:55	1	X	X							3663-94		

Relenquished By	Date	Time	Received By	Date	Time
	10-18-21	11:00		10-19-21	11:00

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3601

Chain of Custody Record

Task	Event
2021 Tissue Monitorin	ARTFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8157 2369 3649	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg							Lab ID	Remarks	Temp (deg C)
B126-TF-18929	TF	10-19-21	07:30	1	X	X							3663-95		
B126-DI-18930	DI	10-19-21	12:52	1		X								Not rcv'd	
B126-TS-19425	TS	10-14-21	14:20	1	X	X							3663-96		
B126-TS-19426	TS	10-18-21	10:00	1	X	X							3663-97		

Relenquished By	Date	Time	Received By	Date	Time
	10-19-21	17:00		10-26-21	11:50

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8157 2369 3650	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Analyses	Lab ID	Remarks	Temp (deg C)
B126-TF-18931	TF	10-20-21	08:30	1	X	X		3663-98		
B126-TF-18932	TF	10-20-21	07:50	1	X	X		3663-99		
B126-TF-18933	TF	10-20-21	07:50	1	X	X		3663-100		

Relenquished By	Date	Time	Received By	Date	Time
	10-20-21	16:00		10-21-21	12:25

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8157 2369 3660	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18934	TF	10-21-21	08:05	1	X	X	3663-101		
B126-DI-18930	DI	10-19-21	12:52	1		X	3664-3		
B126-TS-19427	TS	10-21-21	09:00	1	X	X	3663-102		
B126-TS-19428	TS	10-21-21	09:00	1	X	X	3663-103		

Relenquished By	Date	Time	Received By	Date	Time
	10-21-21	16:00		10-22-21	12:15

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARTFS
Company	**Area**
BESI	Lauren Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8157 2369 3671	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18935	TF	10-25-21	07:50	1	X	X	3663-104		

Relenquished By	Date	Time	Received By	Date	Time
	10-25-21	17:00		10-26-21	14:35

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8157 2369 3682	1	1
Company	**Area**			
BESI	Lavaca Bay			

Shipping Container Packed By *(signature)*

Laboratory Use Only		
eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B12b-TF-189136	TF	10-26-21	08:30	1	X	X	3663-17105 BA		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
	10-26-21	12:00		10-27-21	14:00			

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By *(signature)*

Airbill Number	Container	Of
8157 3479 9430	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18937	TF	11-01-21	09:20	1	X	X	3663-106		
B126-TF-18938	TF	11-01-21	09:45	1	X	X	3663-107		
B126-TF-18939	TF	11-01-21	09:45	1	X	X	3663-108		
B126-TF-18940	TF	11-01-21	07:10	1	X	X	3663-109		

Relenquished By	Date	Time	Received By	Date	Time
	11-01-21	17:00		11/2/21	15:15

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARTFS	8157 3479 9441	1	1
Company	**Area**			
BESI	Lavaca Bay			
Shipping Container Packed By (signature)		**Laboratory Use Only**		
[signature]		**eceived For Laboratory E**	**Date**	**Time**

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B1B6-TF-18941	TF	11-03-21	07:38	1	X	X	3663-110		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[signature]	11-03-21	17:00	[signature]	11-4-21	12:00			

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARTFS	8157 3479 9452	1	1
Company	**Area**	Laboratory Use Only		
BESI	Lavaca Bay			
Shipping Container Packed By (signature)		**eceived For Laboratory E**	**Date**	**Time**
[illegible]				

Field Sample ID	Matrix	Date	Time	No. of Cont.s	Total Hg	% Moisture							Lab ID	Remarks	Temp (deg C)
B126-TF-18942	TF	11-8-21	0700	1	X	X							3663-111		
B126-TF-18943	TF	11-8-21	0625	1	X	X							3663-112		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[illegible]	11-8-21	16:00	[illegible]	11-9-21	12:40			
						Seal Number	**Condition**	

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event
2021 Tissue Monitorin	ARCFS
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8157 3479 9463	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B1b6-TF-18944	TF	11-09-21	07:20	1	X	X	3663-113		
B1b6-TF-18945	TF	11-09-21	08:10	1	X	X	3663-114		
B1b6-TF-18946	TF	11-09-21	08:10	1	X	X	3663-115		

Relenquished By	Date	Time	Received By	Date	Time
	11-09-21	15:00		11-10-21	14:30

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8138 6252 1714	1	1
Company	**Area**			
BESI	Lavaca Bay			

Laboratory Use Only

Shipping Container Packed By (signature)	eceived For Laboratory E	Date	Time
[signature]			

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18947	TF	11-11-21	06:50	1	X	X	3663-116		
B126-TF-18949	TF	11-11-21	06:50	1	X	X	3663-117		

Relenquished By	Date	Time	Received By	Date	Time	Opened By	Date	Time
[signature]	11-11-21	15:00	[signature]	11-12-21	12:55			

Seal Number	Condition

Remarks

(360) - 681 - 3604

Chain of Custody Record

Task	Event
2021 Tissue Monitoring	ARIES
Company	**Area**
BESI	Lavaca Bay

Shipping Container Packed By (signature)

Airbill Number	Container	Of
8166 9466 4590	1	1

Laboratory Use Only

eceived For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	Lab ID	Remarks	Temp (deg C)
B126-TF-18949	TF	11-15-21	09:05	1	X	X	3663-118		0.3

Relenquished By	Date	Time	Received By	Date	Time
	11-15-21	15:00		11-16-21	13:40

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

Page 1 of 1

Chain of Custody Record

Task	Event	Airbill Number	Container	Of
2021 Tissue Monitoring	ARIFS	8166 9466 4580	1	1
Company	**Area**			
BESI	Lavaca Bay			

Shipping Container Packed By *(signature)*

Laboratory Use Only

Received For Laboratory E	Date	Time

Field Sample ID	Matrix	Date	Time	No. of Cont.s	% Moisture	Total Hg	DUP	MS/MSD					Lab ID	Remarks	Temp (deg C)
~~B126-TF-18949~~															
B126-TF-18950	TF	11-18-21	06:30	1	X	X	X						3663-119		
B126-TF-18951	TF	11-18-21	07:00	1	X	X		X					3663-120		
B126-DI-18952	DI	11-18-21	08:30	1		X							3664-4		

Relenquished By	Date	Time	Received By	Date	Time
	11-18-21	15:00		11-19-21	8:00

Opened By	Date	Time

Seal Number	Condition

Remarks

(360) 681-3604

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 1-6 Batch: 1

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.7 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 9/24/21 14:15

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] Preservation Date/Time: 9/24/21 14:45

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 7-29 Batch: 2

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy: _____
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF — *Samples must be filtered prior to preservation!*

Cooler 1: 2.1 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 9/28/21 12:15

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [x] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot#
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot#
- [x] Refrigerate/Freeze Notes: Lab 130 deep freeze
- [ ] Other Notes: _____

Completed By: [signature] **Preservation Date/Time:** 9/28/21 13:05

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 30-38 Batch: 3

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 5.5 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 9-29-21 13:45

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [x] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [x] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] Preservation Date/Time: 9-29-21 14:15

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 39-48 Batch: 4

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy:
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory ALL HALF

Cooler 1: 1.7 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Samples must be filtered prior to preservation!

Sample condition(s): Acceptable Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 10-1-21 11:30

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:			Notes:	Lot#
	[ ]	0.2% HNO3		
	[ ]	0.5% HCl (Hg samples)		
	[X]	Refrigerate/Freeze		
	[ ]	Other		

Completed By: [signature] Preservation Date/Time: 10-1-21 12:00

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 49-63 Batch: 5

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory ALL HALF

Cooler 1: 2.5 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 10-5-21 11:50

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:			Notes:	Lot#
	[ ]	0.2% HNO3		
	[ ]	0.5% HCl (Hg samples)		
	[X]	Refrigerate/Freeze		
	[ ]	Other		

Completed By: [signature] Preservation Date/Time: 10-5-21 12:35

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 64-68 Batch: 6

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy:
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 2.2 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 10-6-21 12:20

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] Preservation Date/Time: 10-6-21 12:40

Storage Shelf: Lab 130 / deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 69-76 Batch: 7

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy:
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 0.9 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 10-7-21 11:25

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [x] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [x] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] Preservation Date/Time: 10-7-21 11:45

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 77-79 Batch: 8

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box	
X			Custody seal present — Seal intact? (YES) NO	Cooler 1: 2.4 °C
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)	Cooler 2: °C Cooler 3: °C Cooler 4: °C
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy:	
X			All chain of custody forms were signed and dated	
		X	Sample(s) were filtered at the laboratory — ALL HALF	*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 10-8-21 12:05

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] Preservation Date/Time: 10-8-21 12:20

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 80 - 83 Batch: 9

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 2.0 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] Sample Receipt Date/Time: 10-12-21 12:00

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] Preservation Date/Time: 10-12-21

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 84-85 Batch: 10

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy:
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 0.7 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] Sample Receipt Date/Time: 10-13-21 12:00

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] Preservation Date/Time: 10-13-21 12:15

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 86-87 Batch: 11

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box	
X			Custody seal present — Seal intact? (YES) NO	Cooler 1: 0.6 °C
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)	Cooler 2: °C Cooler 3: °C Cooler 4: °C
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy:	
X			**All** chain of custody forms were signed and dated	
		X	Sample(s) were filtered at the laboratory — ALL HALF	*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] **Sample Receipt Date/Time:** 10-15-21 ~~12:00~~ 12:00 KMM 10/15/21

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 10-15-21 12:05

Storage Shelf: Lab 130 deep freeze freeze dryer shelf

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 88-94 Batch: 12

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#

Special Instructions:

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? YES NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.6 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy:

*Samples must be filtered **prior** to preservation!*

Sample condition(s): Acceptable Other (explain):

Container type: Teflon / Poly Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] **Sample Receipt Date/Time:** 10-19-21 11:00

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 10-19-21 11:25

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 95-97 Batch: 13

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#

Special Instructions:

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
X			Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy: Sample B12b-DF-18930 not received
X			All chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory ALL HALF

Cooler 1: 1.9 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Samples must be filtered prior to preservation!

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] Sample Receipt Date/Time: 10-20-21 11:50

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] Preservation Date/Time: 10-20-21 12:05

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 98-100 Batch: 14

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy: _____
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 2.4 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 10-21-21 12:25

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] **Preservation Date/Time:** 10-21-21 12:40

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 101-103 Batch: 15

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#

Special Instructions:

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 2.3 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy:

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] **Sample Receipt Date/Time:** 10-22-21 12:15

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 10-22-21 12:30

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 104 Batch: 16

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#

Special Instructions:

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? YES NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.1 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy:

*Samples must be filtered **prior** to preservation!*

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Cap. Vial Baggie Other:

Notes:

Completed By: **Sample Receipt Date/Time:** 10-26-21 14:35

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: **Preservation Date/Time:** 10-26-21 ~~14:35~~ 14:45 BA

Storage Shelf: Lab130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 105 Batch: 17

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.2 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 10-27-21 14:00

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] **Preservation Date/Time:** 10-27-21 14:15

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 106-109 Batch: 18

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.1 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 11/2/21 15:15

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] **Preservation Date/Time:** 11/2/21 15:30

Storage Shelf: Lab 0130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 110 Batch: 19

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#

Special Instructions:

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? YES NO
X			Cooler temperature (acceptable range: less than 6°C or solids: frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Comment/Remedy:

Cooler 1: 0.7 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

*Samples must be filtered **prior** to preservation!*

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] **Sample Receipt Date/Time:** 11-4-21 12:00

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 11-4-21 12:10

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 111-112 Batch: 20

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids: frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.2 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 11-9-21 12:40

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] **Preservation Date/Time:** 11-9-21 ~~12:4~~ 12:55 BA

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 113-115 Batch: 21

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy: _____
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.2 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 11-10-21 14:30

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot#
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 11-10-21 14:45

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 116-117 Batch: 22

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 1.5 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy: _____

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 11-12-21 12:55

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot# _____
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot# _____
- [X] Refrigerate/Freeze Notes: _____
- [ ] Other Notes: _____

Completed By: [signature] **Preservation Date/Time:** 11-12-21 13:05

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 118 Batch: 23

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Special Instructions: _____

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids: frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc) Comment/Remedy: _____
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 0.3 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes: _____

Completed By: [signature] **Sample Receipt Date/Time:** 11-16-21 13:40

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [x] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: _____ Lot#
- [ ] 0.5% HCl (Hg samples) Notes: _____ Lot#
- [x] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 11-16-21 13:50

Storage Shelf: Lab 130 deepfreeze

Comments/Observations:

PNNL-SEQUIM LOG-IN CHECKLIST

Procedure SQM-A-001

Central File #: 3663 Sample No(s): 119-120 Batch: 24

Project Name: Alcoa Project Manager: Ward

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#

Special Instructions:

See LIMS Sample Tracking for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
X			Custody seal present — Seal intact? (YES) NO
X			Cooler temperature (acceptable range: less than 6°C or solids:frozen) (if multiple coolers, note temp. of each cooler)
		X	Project Manager notified of any custody/login discrepancies (cooler temp, sample IDs, etc)
X			**All** chain of custody forms were signed and dated
		X	Sample(s) were filtered at the laboratory — ALL HALF

Cooler 1: 3.4 °C
Cooler 2: °C
Cooler 3: °C
Cooler 4: °C

Comment/Remedy:

*Samples must be filtered **prior** to preservation!*

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon (Poly) Glass Cap. Vial Baggie Other:

Notes:

Completed By: [signature] **Sample Receipt Date/Time:** 13:00 11-19-21

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at the laboratory (noted on: CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [X] Sample(s) were preserved at the laboratory

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [X] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] **Preservation Date/Time:** 13:25 11-19-21

Storage Shelf: Lab 130 deep freeze

Comments/Observations:

SAMPLE LOGIN

Project Manager: Ward
Date Received: 9/24/2021
Batch: 1
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18889	NA	3663-1	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/2021	08:45
B12b-TF-18890	NA	3663-2	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/2021	08:45
B12b-TF-18891	NA	3663-3	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/2021	07:00
B12b-TF-18892	NA	3663-4	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/2021	08:05
B12b-TF-18893	NA	3663-5	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/2021	07:10
B12b-TF-18894	NA	3663-6	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/2021	07:10

SAMPLE LOGIN

Project Manager: Ward
Date Received: 9/28/21
Batch: 2
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18895	NA	3663-7	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	7:00
B12b-TF-18897	NA	3663-8	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	9:00
B12b-TF-18898	NA	3663-9	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	6:45
B12b-TF-18899	NA	3663-10	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	7:25
B12b-TF-18900	NA	3663-11	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	7:25
B12b-TS-19369	NA	3663-12	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	9:40
B12b-TS-19370	NA	3663-13	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/22/21	17:00
B12b-TS-19371	NA	3663-14	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/22/21	15:15
B12b-TS-19372	NA	3663-15	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/22/21	15:15
B12b-TS-19373	NA	3663-16	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	18:15
B12b-TS-19374	NA	3663-17	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	18:15
B12b-TS-19375	NA	3663-18	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/22/21	16:00
B12b-TS-19376	NA	3663-19	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	12:00
B12b-TS-19377	NA	3663-20	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/22/21	16:50
B12b-TS-19378	NA	3663-21	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	17:30
B12b-TS-19379	NA	3663-22	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	17:20
B12b-TS-19380	NA	3663-23	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	10:56
B12b-TS-19381	NA	3663-24	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/22/21	15:30
B12b-TS-19382	NA	3663-25	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	11:50
B12b-TS-19383	NA	3663-26	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	10:28
B12b-TS-19384	NA	3663-27	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	10:00
B12b-TS-19385	NA	3663-28	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, Dup	9/27/21	9:50
B12b-TS-19386	NA	3663-29	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, MS/MSD	9/27/21	9:50

SAMPLE LOGIN

Project Manager: Ward
Date Received: 9/29/21
Batch: 3
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18901	NA	3663-30	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/28/21	8:30
B12b-TF-18902	NA	3663-31	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/28/21	9:20
B12b-TS-19387	NA	3663-32	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/28/21	12:55
B12b-TS-19388	NA	3663-33	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	11:25
B12b-TS-19389	NA	3663-34	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	19:00
B12b-TS-19390	NA	3663-35	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	17:50
B12b-TS-19391	NA	3663-36	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/23/21	12:10
B12b-TS-19392	NA	3663-37	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	16:20
B12b-TS-19393	NA	3663-38	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	17:30

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/1/21
Batch: 4
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18903	NA	3663-39	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	8:10
B12b-TF-18904	NA	3663-40	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	8:35
B12b-TF-18905	NA	3663-41	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, MS/MSD	9/30/21	7:00
B12b-TF-18906	NA	3663-42	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, Duplicate	9/30/21	7:00
B12b-TS-19394	NA	3663-43	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	9:25
B12b-TS-19395	NA	3663-44	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/29/21	17:00
B12b-TS-19396	NA	3663-45	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	8:17
B12b-TS-19397	NA	3663-46	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/27/21	8:36
B12b-TS-19398	NA	3663-47	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	17:40
B12b-TS-19399	NA	3663-48	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/26/21	16:00

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/5/21
Batch: 5
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18907	NA	3663-49	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	8:45
B12b-TF-18908	NA	3663-50	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	8:45
B12b-TF-18909	NA	3663-51	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	7:50
B12b-TF-18910	NA	3663-52	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	7:35
B12b-TS-19400	NA	3663-53	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, Duplicate	9/28/21	12:45
B12b-TS-19401	NA	3663-54	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, MS/MSD	9/28/21	11:00
B12b-TS-19402	NA	3663-55	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	16:00
B12b-TS-19403	NA	3663-56	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/28/21	10:45
B12b-TS-19404	NA	3663-57	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/28/21	13:05
B12b-TS-19405	NA	3663-58	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	16:40
B12b-TS-19406	NA	3663-59	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	10:25
B12b-TS-19407	NA	3663-60	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	10:30
B12b-TS-19408	NA	3663-61	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	16:15
B12b-TS-19409	NA	3663-62	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	8:00
B12b-TS-19410	NA	3663-63	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	9:30

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/6/21
Batch: 6
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TS-19412	NA	3663-64	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/3/21	17:40
B12b-TS-19413	NA	3663-65	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/3/21	17:20
B12b-TS-19415	NA	3663-66	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/29/21	18:00
B12b-TS-19414	NA	3663-67	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	8:17
B12b-TS-19411	NA	3663-68	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/4/21	10:25

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/7/21
Batch: 7
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18912	NA	3663-69	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/6/21	8:50
B12b-TF-18913	NA	3663-70	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/6/21	8:50
B12b-TF-18914	NA	3663-71	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/6/21	8:30
B12b-TF-18915	NA	3663-72	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/6/21	8:30
B12b-TF-18916	NA	3663-73	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/6/21	7:40
B12b-TS-19416	NA	3663-74	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	10:00
B12b-TS-19417	NA	3663-75	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/6/21	10:20
B12b-TS-19418	NA	3663-76	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	9/30/21	10:15

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/8/21
Batch: 8
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18917	NA	3663-77	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/7/21	8:50
B12b-TF-18918	NA	3663-78	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/7/21	8:00
B12b-TS-19419	NA	3663-79	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/5/21	11:55

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/12/21
Batch: 9
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18919	NA	3663-80	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/11/21	8:42
B12b-TF-18920	NA	3663-81	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/11/21	7:30
B12b-TS-19420	NA	3663-82	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, MS/MSD	10/5/21	17:30
B12b-TS-19421	NA	3663-83	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, Duplicate	10/7/21	10:45

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/13/21
Batch: 10
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18921	NA	3663-84	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, Duplicate	10/12/21	8:30
B12b-TF-18922	NA	3663-85	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, MS/MSD	10/12/21	8:50

SAMPLE LOGIN

Pacific Northwest
NATIONAL LABORATORY

Project Manager: Ward
Date Received: 10/15/21
Batch: 11
Login Designee: K. Munson
Project: Alcoa

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TS-19422	NA	3663-86	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/13/21	10:30
B12b-TS-19423	NA	3663-87	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/11/21	9:50

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/19/21
Batch: 12
Login Designee: Anderson
Project: Alcoa

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18923	NA	3663-88	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	7:00
B12b-TF-18924	NA	3663-89	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	7:00
B12b-TF-18925	NA	3663-90	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	7:35
B12b-TF-18926	NA	3663-91	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	11:00
B12b-TF-18927	NA	3663-92	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	11:00
B12b-TF-18928	NA	3663-93	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	8:00
B12b-TS-19424	NA	3663-94	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/12/21	9:55

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/20/21
Batch: 13
Login Designee: Anderson
Project: Alcoa

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18929	NA	3663-95	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/19/21	7:30
B12b-TS-19425	NA	3663-96	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/19/21	12:52
B12b-TS-19426	NA	3663-97	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/18/21	10:00

SAMPLE LOGIN

Project Manager: Ward
Date Received: 10/21/21
Batch: 14
Login Designee: Anderson
Project: Alcoa

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18931	NA	3663-98	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/20/21	8:30
B12b-TF-18932	NA	3663-99	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/20/21	7:50
B12b-TF-18933	NA	3663-100	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/20/21	7:50

SAMPLE LOGIN

Pacific Northwest
NATIONAL LABORATORY

Project Manager: Ward
Date Received: 10/22/21
Batch: 15
Login Designee: Anderson
Project: Alcoa

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18934	NA	3663-101	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/21/21	8:05
B12b-TS-19427	NA	3663-102	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/21/21	9:00
B12b-TS-19428	NA	3663-103	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/21/21	9:00

SAMPLE LOGIN

Pacific Northwest
NATIONAL LABORATORY

Project Manager: Ward
Date Received: 10/26/21
Batch: 16
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18935	NA	3663-104	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/25/21	7:50

SAMPLE LOGIN

Pacific Northwest
NATIONAL LABORATORY

Project Manager: Ward
Date Received: 10/27/21
Batch: 17
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18936	NA	3663-105	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	10/26/21	8:30

SAMPLE LOGIN

Project Manager: Ward
Date Received: 11/2/21
Batch: 18
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18937	NA	3663-106	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/1/21	9:20
B12b-TF-18938	NA	3663-107	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/1/21	9:45
B12b-TF-18939	NA	3663-108	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/1/21	9:45
B12b-TF-18940	NA	3663-109	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/1/21	7:10

SAMPLE LOGIN

Pacific Northwest
NATIONAL LABORATORY

Project Manager: Ward
Date Received: 11/4/21
Batch: 19
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18941	NA	3663-110	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/3/21	7:38

SAMPLE LOGIN

Project Manager: Ward
Date Received: 11/9/21
Batch: 20
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18942	NA	3663-111	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/8/21	7:00
B12b-TF-18943	NA	3663-112	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/8/21	6:25

SAMPLE LOGIN

Project Manager: Ward
Date Received: 11/10/21
Batch: 21
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18944	NA	3663-113	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/9/21	7:20
B12b-TF-18945	NA	3663-114	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/9/21	8:10
B12b-TF-18946	NA	3663-115	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/9/21	8:10

SAMPLE LOGIN

Project Manager: Ward
Date Received: 11/12/21
Batch: 22
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18947	NA	3663-116	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/11/21	6:50
B12b-TF-18948	NA	3663-117	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/11/21	6:50

SAMPLE LOGIN

Pacific Northwest
NATIONAL LABORATORY

Project Manager: Ward
Date Received: 11/16/21
Batch: 23
Login Designee: Anderson
Project: **Alcoa**

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18949	NA	3663-118	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg	11/15/21	9:05

SAMPLE LOGIN

Project Manager: Ward
Date Received: 11/19/21
Batch: 24
Login Designee: Anderson
Project: Alcoa

Marine and Coastal Research Laboratory (MCRL)
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 683-4151

Field Sample ID	Site Description	Laboratory Sample ID	Matrix	Storage Location	Requested Parameters	Collection Date	Collection Time
B12b-TF-18950	NA	3663-119	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, Duplicate	11/18/21	6:30
B12b-TF-18951	NA	3663-120	Tissue	MCRL5-130 Deep Freeze	% Moisture, Total Hg, MS/MSD	11/18/21	7:00

FISH AND SHELLFISH MONITORING

Sample Results - Total Mercury in Tissue

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
B12b-TF-18889	3663-1	9/23/21	D111721A	82.2	0.815	4.59
B12b-TF-18890	3663-2	9/23/21	D111721A	79.9	0.910	4.53
B12b-TF-18891	3663-3	9/23/21	D111721A	79.2	0.985	4.73
B12b-TF-18892	3663-4	9/23/21	D111721A	77.9	0.323	1.46
B12b-TF-18893	3663-5	9/23/21	D111721A	80.1	0.298	1.50
B12b-TF-18894	3663-6	9/23/21	D111721A	78.2	0.273	1.25
B12b-TF-18895	3663-7	9/27/21	D111721A	79.5	0.451	2.20
B12b-TF-18897	3663-8	9/27/21	D111721A	77.6	0.294	1.31
B12b-TF-18898	3663-9	9/27/21	D111721A	79.7	1.01	4.97
B12b-TF-18899	3663-10	9/27/21	D111721A	80.5	0.877	4.51
B12b-TF-18900	3663-11	9/27/21	D111721A	79.1	0.471	2.26
B12b-TS-19369	3663-12	9/23/21	D111721A	69.7	0.0748	0.247
B12b-TS-19370	3663-13	9/22/21	D111721A	69.4	0.0576	0.188
B12b-TS-19371	3663-14	9/22/21	D111721A	72.5	0.0417	0.152
B12b-TS-19372	3663-15	9/22/21	D111721A	69.9	0.0627	0.208
B12b-TS-19373	3663-16	9/23/21	D111721A	67.6	0.0617	0.190
B12b-TS-19374	3663-17	9/23/21	D111721A	66.0	0.0558	0.164
B12b-TS-19375	3663-18	9/22/21	D111721A	69.6	0.153	0.504
B12b-TS-19376	3663-19	9/23/21	D111721A	69.7	0.0486	0.161
B12b-TS-19377	3663-20	9/22/21	D112221C	72.3	0.0538	0.194
B12b-TS-19378	3663-21	9/26/21	D112221C	63.7	0.0656	0.181
B12b-TS-19379	3663-22	9/23/21	D112221C	69.8	0.0288	0.095
B12b-TS-19380	3663-23	9/23/21	D112221C	73.4	0.0581	0.219
B12b-TS-19381	3663-24	9/22/21	D112221C	73.2	0.0467	0.174
B12b-TS-19382	3663-25	9/23/21	D112221C	71.4	0.0595	0.208
B12b-TS-19383	3663-26	9/27/21	D112221C	68.7	0.0547	0.175
B12b-TS-19384	3663-27	9/23/21	D112221C	69.3	0.0654	0.213
B12b-TS-19385	3663-28 R1	9/27/21	D112221C	66.4	0.0664	0.197
B12b-TS-19385	3663-28 R2	9/27/21	D112221C	66.4	0.0756	0.225
B12b-TS-19386	3663-29	9/27/21	D112221C	66.0	0.113	0.332
B12b-TF-18901	3663-30	9/28/21	D112221C	77.4	0.174	0.771
B12b-TF-18902	3663-31	9/28/21	D112221C	78.1	0.543	2.48
B12b-TS-19387	3663-32	9/28/21	D112221C	72.1	0.0436	0.156
B12b-TS-19388	3663-33	9/23/21	D112221C	67.3	0.0531	0.163
B12b-TS-19389	3663-34	9/26/21	D112221C	66.7	0.0391	0.118
B12b-TS-19390	3663-35	9/26/21	D112221C	67.9	0.0785	0.245
B12b-TS-19391	3663-36	9/23/21	D112221C	68.6	0.0555	0.177
B12b-TS-19392	3663-37	9/26/21	D112221C	74.9	0.0282	0.112
B12b-TS-19393	3663-38	9/26/21	D112221C	63.4	0.0481	0.132
B12b-TF-18903	3663-39	9/30/21	D112321A	80.1	1.02	5.12
B12b-TF-18904	3663-40	9/30/21	D112321A	77.1	0.230	1.00
B12b-TF-18905	3663-41	9/30/21	D112321A	79.9	0.347	1.73
B12b-TF-18906	3663-42 R1	9/30/21	D112321A	79.0	0.320	1.52
B12b-TF-18906	3663-42 R2	9/30/21	D112321A	79.0	0.318	1.52

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
B12b-TS-19394	3663-43	9/27/21	D112321A	66.7	0.0523	0.157
B12b-TS-19395	3663-44	9/29/21	D112321A	68.5	0.0662	0.210
B12b-TS-19396	3663-45	9/30/21	D112321A	67.7	0.205	0.633
B12b-TS-19397	3663-46	9/27/21	D112321A	63.1	0.0875	0.237
B12b-TS-19398	3663-47	9/26/21	D112321A	66.7	0.0565	0.170
B12b-TS-19399	3663-48	9/26/21	D112321A	65.7	0.0440	0.128
B12b-TF-18907	3663-49	10/4/21	D112321A	79.0	0.251	1.19
B12b-TF-18908	3663-50	10/4/21	D112321A	78.9	0.183	0.865
B12b-TF-18909	3663-51	10/4/21	D112321A	78.0	0.305	1.38
B12b-TF-18910	3663-52	10/4/21	D112321A	79.5	0.327	1.60
B12b-TS-19400	3663-53 R1	9/28/21	D113021A	64.9	0.239	0.680
B12b-TS-19400	3663-53 R2	9/28/21	D113021A	64.9	0.272	0.773
B12b-TS-19401	3663-54	9/28/21	D113021A	66.2	0.0799	0.236
B12b-TS-19402	3663-55	9/30/21	D113021A	65.0	0.0622	0.178
B12b-TS-19403	3663-56	9/28/21	D113021A	68.6	0.0306	0.097
B12b-TS-19404	3663-57	9/28/21	D113021A	65.2	0.116	0.333
B12b-TS-19405	3663-58	9/30/21	D113021A	69.7	0.0631	0.208
B12b-TS-19406	3663-59	10/4/21	D113021A	67.6	0.122	0.376
B12b-TS-19407	3663-60	9/30/21	D113021A	64.0	0.0469	0.130
B12b-TS-19408	3663-61	9/30/21	D113021A	65.9	0.120	0.352
B12b-TS-19409	3663-62	9/30/21	D113021A	68.8	0.108	0.347
B12b-TS-19410	3663-63	10/4/21	D113021A	64.7	0.0622	0.176
B12b-TS-19412	3663-64	10/3/21	D113021A	65.0	0.0428	0.122
B12b-TS-19413	3663-65	10/3/21	D113021A	67.7	0.0363	0.112
B12b-TS-19415	3663-66	9/29/21	D113021A	69.1	0.0692	0.224
B12b-TS-19414	3663-67	9/30/21	D113021A	67.7	0.293	0.908
B12b-TS-19411	3663-68	10/4/21	D113021A	66.3	0.145	0.431
B12b-TF-18912	3663-69	10/6/21	D113021A	77.2	0.226	0.990
B12b-TF-18913	3663-70	10/6/21	D113021A	77.5	0.261	1.16
B12b-TF-18914	3663-71	10/6/21	D113021A	78.4	0.356	1.65
B12b-TF-18915	3663-72	10/6/21	D113021A	78.4	0.379	1.75
B12b-TF-18916	3663-73	10/6/21	D120121A	79.9	0.981	4.89
B12b-TS-19416	3663-74	9/30/21	D120121A	69.1	0.0457	0.148
B12b-TS-19417	3663-75	10/6/21	D120121A	67.5	0.106	0.327
B12b-TS-19418	3663-76	9/30/21	D120121A	70.9	0.0463	0.159
B12b-TF-18917	3663-77	10/7/21	D120121A	77.1	0.241	1.06
B12b-TF-18918	3663-78	10/7/21	D120121A	79.2	0.739	3.55
B12b-TS-19419	3663-79	10/5/21	D120121A	65.5	0.107	0.311
B12b-TF-18919	3663-80	10/11/21	D120121A	79.0	0.881	4.20
B12b-TF-18920	3663-81	10/11/21	D120121A	79.5	0.287	1.40
B12b-TS-19420	3663-82	10/5/21	D120121A	65.9	0.0554	0.163
B12b-TS-19421	3663-83 R1	10/7/21	D120121A	67.2	0.0576	0.176
B12b-TS-19421	3663-83 R2	10/7/21	D120121A	67.2	0.0493	0.150
B12b-TF-18921	3663-84 R1	10/12/21	D120121A	78.6	0.274	1.28

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
B12b-TF-18921	3663-84 R2	10/12/21	D120121A	78.6	0.272	1.27
B12b-TF-18922	3663-85	10/12/21	D120121A	79.0	0.302	1.44
B12b-TS-19422	3663-86	10/13/21	D120121A	63.3	0.125	0.341
B12b-TS-19423	3663-87	10/11/21	D120121A	67.0	0.0732	0.222
B12b-TF-18923	3663-88	10/18/21	D120121A	78.6	0.452	2.11
B12b-TF-18924	3663-89	10/18/21	D120121A	77.1	0.280	1.22
B12b-TF-18925	3663-90	10/18/21	D120121A	79.0	0.372	1.78
B12b-TF-18926	3663-91	10/18/21	D120221A	78.1	0.185	0.845
B12b-TF-18927	3663-92	10/18/21	D120221A	78.8	0.183	0.864
B12b-TF-18928	3663-93	10/18/21	D120221A	79.3	0.902	4.36
B12b-TS-19424	3663-94	10/12/21	D120221A	64.9	0.067	0.191
B12b-TF-18929	3663-95	10/19/21	D120221A	78.0	0.194	0.879
B12b-TS-19425	3663-96	10/19/21	D120221A	65.3	0.0583	0.168
B12b-TS-19426	3663-97	10/18/21	D120221A	73.7	0.0251	0.095
B12b-TF-18931	3663-98	10/20/21	D120221A	76.4	0.441	1.87
B12b-TF-18932	3663-99	10/20/21	D120221A	78.1	0.237	1.08
B12b-TF-18933	3663-100	10/20/21	D120221A	79.2	0.290	1.39
B12b-TF-18934	3663-101	10/21/21	D120221A	77.4	0.261	1.16
B12b-TS-19427	3663-102	10/21/21	D120221A	70.9	0.0284	0.097
B12b-TS-19428	3663-103	10/21/21	D120221A	73.1	0.0218	0.0812
B12b-TF-18935	3663-104	10/25/21	D120221A	78.2	0.958	4.40
B12b-TF-18936	3663-105	10/26/21	D120221A	79.2	1.22	5.86
B12b-TF-18937	3663-106	11/1/21	D120221A	78.0	0.402	1.83
B12b-TF-18938	3663-107	11/1/21	D120321A	78.9	0.412	1.95
B12b-TF-18939	3663-108	11/1/21	D120321A	79.5	0.336	1.63
B12b-TF-18940	3663-109	11/1/21	D120321A	79.4	0.552	2.68
B12b-TF-18941	3663-110	11/3/21	D120321A	79.1	0.281	1.34
B12b-TF-18942	3663-111	11/8/21	D120321A	77.6	0.455	2.03
B12b-TF-18943	3663-112	11/8/21	D120321A	78.3	0.388	1.79
B12b-TF-18944	3663-113	11/9/21	D120321A	79.6	0.222	1.09
B12b-TF-18945	3663-114	11/9/21	D120321A	80.8	0.324	1.68
B12b-TF-18946	3663-115	11/9/21	D120321A	79.0	0.311	1.48
B12b-TF-18947	3663-116	11/11/21	D120321A	78.7	0.336	1.58
B12b-TF-18948	3663-117	11/11/21	D120321A	78.9	0.426	2.02
B12b-TF-18949	3663-118	11/15/21	D120321A	77.7	0.138	0.621
B12b-TF-18950	3663-119 R1	11/18/21	D120321A	79.9	0.604	3.00
B12b-TF-18950	3663-119 R2	11/18/21	D120321A	79.9	0.595	2.96
B12b-TF-18951	3663-120	11/18/21	D120321A	76.1	0.400	1.67
Achieved Method Detection Limit				73.3	0.001334	0.00500
Achieved Method Reporting Limit				73.3	0.00424	0.01590

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
BLANKS						
Blank 111720 r1			D111721A	73.3	0.000468 U	0.00175 U
Blank 111720 r2			D111721A	73.3	0.000202 U	0.00076 U
Blank 111720 r3			D111721A	73.3	0.000199 U	0.00075 U
Blank 112221 r1			D112221C	73.3	0.000655 U	0.00246 U
Blank 112221 r2			D112221C	73.3	0.000145 U	0.00054 U
Blank 112221 r3			D112221C	73.3	0.000106 U	0.00040 U
Blank 112321 r1			D112321A	73.3	0.000544 U	0.00204 U
Blank 112321 r2			D112321A	73.3	0.000106 U	0.00040 U
Blank 112321 r3			D112321A	73.3	0.0000732 U	0.00027 U
Blank 113021 r1			D113021A	73.3	0.000221 U	0.00083 U
Blank 113021 r2			D113021A	73.3	0.0000193 U	0.00007 U
Blank 113021 r3			D113021A	73.3	0.0000131 U	0.00005 U
Blank 120121 r1			D120121A	73.3	0.000442 U	0.00166 U
Blank 120121 r2			D120121A	73.3	0.0000610 U	0.00023 U
Blank 120121 r3			D120121A	73.3	0.0000319 U	0.00012 U
Blank 120221 r1			D120221A	73.3	0.000483 U	0.00181 U
Blank 120221 r2			D120221A	73.3	0.0000597 U	0.00022 U
Blank 120221 r3			D120221A	73.3	0.0000331 U	0.00012 U
Blank 120321 r1			D120321A	73.3	0.000810 U	0.00304 U
Blank 120321 r2			D120321A	73.3	0.000156 U	0.00058 U
Blank 120321 r3			D120321A	73.3	0.0000984 U	0.00037 U
STANDARD REFERENCE MATERIALS (all certified on a dry weight basis)						
DORM 4 111721			D111721A		0.411	0.411
DORM 4 112221			D112221C		0.393	0.393
DORM 4 112321			D112321A		0.450	0.450
DORM 4 113021			D113021A		0.408	0.408
DORM 4 120121			D120121A		0.408	0.408
DORM 4 120221			D120221A		0.440	0.440
DORM 4 120321			D120321A		0.421	0.421
Certified Value					0.412	0.412
Range					±0.060	±0.060
Percent Recovery			D111721A		100%	100%
Percent Recovery			D112221C		95%	95%
Percent Recovery			D112321A		109%	109%
Percent Recovery			D113021A		99%	99%
Percent Recovery			D120121A		99%	99%
Percent Recovery			D120221A		107%	107%
Percent Recovery			D120321A		102%	102%

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
LABORATORY CONTROL SAMPLES						
Amount Spiked					1.00	1.00
LCS 111721			D111721A		1.01	1.01
Percent Recovery					101%	101%
Amount Spiked					1.00	1.00
LCS 112221			D112221C		1.03	1.03
Percent Recovery					103%	103%
Amount Spiked					1.00	1.00
LCS 112321			D112321A		0.90	0.90
Percent Recovery					90%	90%
Amount Spiked					1.00	1.00
LCS 113021			D113021A		0.997	0.997
Percent Recovery					100%	100%
Amount Spiked					1.00	1.00
LCS 120121			D120121A		1.03	1.03
Percent Recovery					103%	103%
Amount Spiked					1.00	1.00
LCS 120221			D120221A		0.978	0.978
Percent Recovery					98%	98%
Amount Spiked					1.00	1.00
LCS 120321			D120321A		1.02	1.02
Percent Recovery					102%	102%
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS						
Amount Spiked					0.279	0.921
B12b-TS-19369	3663-12	11/17/21	D111721A	69.7	0.0748	0.247
B12b-TS-19369 MS	3663-12 s1		D111721A		0.367	1.212
Amount Recovered					0.293	0.965
Percent Recovery					105%	105%
Amount Spiked					0.276	0.911
B12b-TS-19326	3663-12	11/17/21	D111721A	69.7	0.0748	0.247
B12b-TS-19326 MSD	3663-12 s2		D111721A		0.356	1.176
Amount Recovered					0.282	0.929
Percent Recovery					102%	102%
Relative Percent Difference					**3%**	**3%**

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
Amount Spiked					0.367	1.081
B12b-TS-19386	3663-29	11/22/21	D112221C	66.0	0.113	0.332
B12b-TS-19386 MS	3663-29 s1		D112221C		0.494	1.452
Amount Recovered					0.381	1.120
Percent Recovery					104%	104%
Amount Spiked					0.363	1.069
B12b-TS-19386	3663-29	11/22/21	D112221C	66.0	0.113	0.332
B12b-TS-19386 MSD	3663-29 s2		D112221C		0.484	1.423
Amount Recovered					0.371	1.091
Percent Recovery					102%	102%
Relative Percent Difference					**2%**	**2%**
Amount Spiked					1.120	5.576
B12b-TF-18905	3663-41	11/23/21	D112321A	79.9	0.347	1.7302
B12b-TF-18905 MS	3663-41 s1		D112321A		1.513	7.536
Amount Recovered					1.166	5.806
Percent Recovery					104%	104%
Amount Spiked					1.129	5.624
B12b-TF-18905	3663-41	11/23/21	D112321A	79.9	0.3474	1.7302
B12b-TF-18905 MSD	3663-41 s2		D112321A		1.488	7.411
Amount Recovered					1.1407	5.681
Percent Recovery					101%	101%
Relative Percent Difference					**3%**	**3%**
Amount Spiked					0.292	0.863
B12b-TS-19401	3663-54	11/30/31	D113021A	66.2	0.0799	0.236
B12b-TS-19401 MS	3663-54 s1		D113021A		0.388	1.147
Amount Recovered					0.308	0.911
Percent Recovery					105%	105%
Amount Spiked					0.281	0.832
B12b-TS-19401	3663-54	11/30/31	D113021A	66.2	0.0799	0.236
B12b-TS-19401 MSD	3663-54 s2		D113021A		0.376	1.114
Amount Recovered					0.296	0.877
Percent Recovery					105%	105%
Relative Percent Difference					**0%**	**0%**
Amount Spiked					0.17	0.49
B12b-TS-19420	3663-82	12/1/21	D120121A	65.9	0.055	0.16

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
B12b-TS-19420 MS	3663-82 s1		D120121A		0.23	0.7
Amount Recovered					0.17	0.50
Percent Recovery					101%	101%
Amount Spiked					0.18	0.5
B12b-TS-19420	3663-82	12/1/21	D120121A	65.9	0.055	0.16
B12b-TS-19420 MSD	3663-82 s2		D120121A		0.24	0.7
Amount Recovered					0.19	0.55
Percent Recovery					104%	104%
Relative Percent Difference					**3%**	**3%**
Amount Spiked					0.998	4.75
B12b-TF-18922	3663-85	12/2/21	D120221A	79.0	0.291	1.39
B12b-TF-18922 MS	3663-85 s1		D120221A		1.331	6.34
Amount Recovered					1.040	4.95
Percent Recovery					104%	104%
Amount Spiked					1.022	4.87
B12b-TF-18922	3663-85	12/2/21	D120221A	79.0	0.291	1.39
B12b-TF-18922 MSD	3663-85 s2		D120221A		1.214	5.78
Amount Recovered					0.924	4.40
Percent Recovery					90%	90%
Relative Percent Difference					**14%**	**14%**
Amount Spiked					1.275	5.34
B12b-TF-18951	3663-120	12/3/21	D120321A	76.1	0.400	1.67
B12b-TF-18951 MS	3663-120 s1		D120221A		1.701	7.12
Amount Recovered					1.301	5.44
Percent Recovery					102%	102%
Amount Spiked					1.358	5.68
B12b-TF-18951	3663-120	12/3/21	D120321A	76.1	0.400	1.67
B12b-TF-18951 MSD	3663-120 s2		D120321A		1.719	7.19
Amount Recovered					1.319	5.52
Percent Recovery					97%	97%
Relative Percent Difference					**5%**	**5%**

PNNL MARINE AND COASTAL RESEARCH LABORATORY
1529 West Sequim Bay Road
Sequim, WA 98382-9099
(360)681-3604

ALCOA - BLUE CRAB AND FISH MONITORING
TOTAL MERCURY IN TISSUE
FALL 2021

Field Sample ID	MCRL Code	Collection Date	THg Analytical Run ID	Percent Moisture	THg (µg/g ww)	THg (µg/g dw)
REPLICATE ANALYSIS RESULTS						
B12b-TS-19385	3663-28 R1	11/22/21	D112221C	66.4	0.0664	0.197
B12b-TS-19385	3663-28 R2	11/22/21	D112221C	66.4	0.0756	0.225
Relative Percent Difference					**13%**	**13%**
B12b-TF-18906	3663-42 R1	11/23/21	D112321A	79.0	0.320	1.52
B12b-TF-18906	3663-42 R2	11/23/21	D112321A	79.0	0.318	1.52
Relative Percent Difference					**0%**	**0%**
B12b-TS-19400	3663-53 R1	11/30/31	D113021A	64.9	0.239	0.680
B12b-TS-19400	3663-53 R2	11/30/31	D113021A	64.9	0.272	0.773
Relative Percent Difference					**13%**	**13%**
B12b-TS-19421	3663-83 R1	12/1/21	D120121A	67.2	0.0576	0.176
B12b-TS-19421	3663-83 R2	12/1/21	D120121A	67.2	0.0493	0.150
Relative Percent Difference					**16%**	**16%**
B12b-TF-18921	3663-84 R1	12/1/21	D120121A	78.6	0.274	1.28
B12b-TF-18921	3663-84 R2	12/1/21	D120121A	78.6	0.272	1.27
Relative Percent Difference					**1%**	**1%**
B12b-TF-18950	3663-119 R1	12/3/21	D120321A	79.9	0.604	3.00
B12b-TF-18950	3663-119 R2	12/3/21	D120321A	79.9	0.595	2.96
Relative Percent Difference					**1%**	**1%**

U Not detected at or above detection limit given
J Detected above the MDL but below the Achieved Reporting Limit
No data are blank corrected.

Approvals:

	1/6/2022		1/6/2022
Project Manager	Date	QA Reviewer	Date

FISH AND SHELLFISH MONITORING

QA/QC Narrative

CASE NARRATIVE
Alcoa Fish Monitoring - Fall 2121

TOTAL MERCURY IN TISSUE

Sample Receipt and Custody

121 fish and shellfish samples and 4 DI water samples for total mercury analysis were received in good condition at the PNNL Marine and Coastal Research Laboratory (MCRL) between 9/24/21 and 11/19/21. The samples arrived as follows:

Receipt Date	Number of Samples	Cooler Temperature °C
9/24/21	6 (+1 blank)	1.7
9/28/21	23	2.1
9/29/21	9	5.5
10/1/21	10	1.7
10/5/21	15	2.5
10/6/21	5 (+1 blank)	2.2
10/7/21	8	0.9
10/8/21	3	2.4
10/12/21	4 (+1 blank)	2.0
10/13/21	2	0.7
10/15/21	2	0.6
10/19/21	7	1.6
10/20/21	3	1.9
10/21/21	3	2.4
10/22/21	3	2.3
10/26/21	1	1.1
10/27/21	1	1.2
11/02/21	4	1.1
11/04/21	1	0.7
11/09/21	2 (+1 blank)	1.2
11/10/21	3	1.2
11/12/21	2	1.5
11/16/21	1	0.3
11/19/21	2 (+ 1 blank)	3.4

All samples were received within the optimal temperature range (below 6°C). Samples were assigned an MCRL Central File (3663 for tissues, 3664 for DI water) and Sample ID number when logged in.

Note: The five blank water samples are reported in a separate report.

A copy of all raw data is included with the final data package.

Sample Preparation and Analysis

All tissue samples for total mercury were freeze-dried and ball-milled upon arrival. Samples were analyzed between 11/17/21 and 12/03/21. All samples were freeze-dried within the 28-day project holding time. All samples were analyzed within the EPA hold time of 1 year for freeze-dried samples. Tissue samples were analyzed using EPA Method 7473 (*Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry*).

Sample Results

Field Samples. Concentrations of total mercury in tissue samples ranged from 0.0218 µg/g (wet weight) to 1.22 µg/g (wet weight).

Laboratory QC Samples. 21 blanks, 7 samples of the standard reference materials DORM-4 (dogfish muscle), as well as 7 laboratory control samples (LCS), 7 matrix spike/matrix spike duplicates and 6 pairs of analytical duplicates were analyzed with the samples (41 total QC samples). Mercury was lower than the MDL in all 21 blanks. The total mercury results were not blank corrected. Results of SRM analyses ranged from 95% to 109% of their certified values, meeting the DQO of 80-121%. LCS spike recoveries ranged from 90% to 103%, meeting the DQO of 80-121%. The matrix spike recoveries ranged from 90% to 105%, meeting the DQO of 80-121%. The RPDs for the MS/MSD pairs were 0% to 14%, meeting the DQO of ≤21%. The replicate RPDs were 0% to 16% meeting the DQO of ≤21%. All data quality criteria as specified in the method for accuracy and precision were met.

FISH AND SHELLFISH MONITORING

Total Mercury in Tissue Raw Data

Mercury Analytical Run Checklist
Total Hg (DMA) Procedure MSL-I-034

Analyst: K. Munson
Instrument: DMA Evo
Analysis Date: 11/17/2021
Run ID: D111721A
Matrix/Method: Tissue/7473m
CF/Add: 3663

Client/Batch	Digestion Type	Fault Codes	Status
3663/1-2 (partial)	none/freeze dried		complete
Notes:			

Fault Codes:
10 = method blank out of limits
11 = SRM/CRM or LCS out of limits
12 = Dup out of criteria
13 = Matrix spike recoveries out

Status options:
Complete
Partial (dilutions/reruns needed)

Quality Control Checklist

	Method DQOs	Project DQO	Yes	No	Comments/Deviations
Calibration Curve	>0.995		x		101221 cal: 0.9999 (cell 1), 1.000 (cell 2)
Daily Low/High Calibration Points	±10%		x		97.9-107% recovery of 1, 20, 25, and 600 ng
Calibration STD RE	±25		x		101221 cal: 0.63-4.68% for 1 and 7.5 ng; 0.006-3.17% for 25 and 200 ng
ICV	±10%		x		101-104% recovery for cell 1 and cell 2
MB	< 3x MDL (or samples >10 MB Conc.)		x		
CCV	±20%		x		98.1-103%
LCS/BS/OPR	±20%		x		101% recovery
SRM/CRM	±20%		x		100% recovery of DORM-4
MS/MSD	±20% (±20% RPD)		x		101-105 % recovery, 3663-12, 2.77% RPD
DUP	±20%		x		1.71% RPD, 3663-5

Analyst Signature: Kathleen Munson
Date: 18 Nov 2021

PM Signature:
Date: 13 Dec 2021

Working Standards

Hg Stock:	2013915-100			6/30/2022
Brooks Rand lot 24520	0.412	ug/g	ICV (cell2)/LCS/MS(D)	12/12/2021
DORM-4	0.412	ug/g	SRM/ICV (cell 1)/CCV	12/31/2022
111721-A	10.0	ug/mL	CAL check	prepped from Hg stock
111721-B	1.00	ug/mL	CAL check	prepped from Hg stock
111721-C	0.100	ug/mL	CAL check	prepped from Hg stock
111721-D	0.0100	ug/mL	CAL check	prepped from Hg stock

Total Hg Analysis - DMA-80

Project: ALCOA
CF/ADD#: 3663
Instrument: Milestone DMA-80 Evo
Date: 11/17/2021
Regression Type: Linear thru Zero
Analyst: K. Munson
Method: 7473m
Run ID: D111721A
Blanks: Not subtracted
Matrix: Tissue
Unit: ug/g
MDL (ug/g): 0.0050

Nr	Pos	Sample ID	Mass (g)	Hg (ng)	Conc. (ng/g)	Conc. ug/g (dry)	QC Recovery	% Dry	Conc. (ug/g) (wet)
23	8	MB R1		0.100	2.72	0.00272		100.0	0.003
24	9	MB R2		0.0434	1.18	0.001178		100.0	0.001
25	10	MB R3		0.0427	1.16	0.001159		100.0	0.001
20	7	SRM-DORM-4	0.0318	13.1	411	0.411	**100%**	100	0.411
26	8	3663-1	0.0335	154	4589	4.59		17.8	0.815
27	9	3663-2	0.0471	213	4527	4.53		20.1	0.910
28	10	3663-3	0.0350	165	4727	4.73		20.8	0.985
29	11	3663-4	0.0459	67.1	1462	1.46		22.1	0.323
30	12	3663-5 R1	0.0323	48.4	1498	1.50		19.9	0.298
31	13	3663-5 R2	0.0316	46.5	1473	1.47	**1.71%**	19.9	0.292
35	16	3663-6	0.0228	28.5	1249	1.25		21.9	0.273
36	17	3663-7	0.0271	59.6	2201	2.20		20.5	0.451
37	18	3663-8	0.0361	47.5	1315	1.31		22.4	0.294
38	19	3663-9	0.0298	148	4970	4.97		20.3	1.01
39	20	3663-10	0.0271	122	4508	4.51		19.5	0.877
40	21	3663-11	0.0302	68.2	2257	2.26		20.9	0.471
41	22	3663-12	0.0894	22.1	247	0.247		30.3	0.0748
42	23	LCS	0.100	101	1007	1.01	**101%**		
43	24	3663-12 MS	0.0543	65.8	1212	1.21	**105%**		
44	25	3663-12 MSD	0.0549	64.5	1176	1.18	**102%**		
46	27	3663-13	0.127	24.0	188	0.188		30.6	0.058
47	28	3663-14	0.100	15.2	152	0.152		27.5	0.042
48	29	3663-15	0.0795	16.5	208	0.208		30.1	0.0627
49	30	3663-16	0.0983	18.7	190	0.190		32.4	0.0617
50	31	3663-17	0.0995	16.3	164	0.164		34.0	0.0558
51	32	3663-18	0.0631	31.8	504	0.504		30.4	0.153
52	33	3663-19	0.0877	14.1	161	0.161		30.3	0.0486

SPIKE DATA (DRY)

Sample ID:	**LCS**	**3663-12 MS**	**3663-12 MSD**
Dry Wt (g)	0.100	0.0543	0.0549
Amount Spiked (µg/g):	1.000	0.921	0.911
Sample Only (µg/g):	0.00000	0.247	0.247
Sample + Spike (µg/g):	1.01	1.21	1.18
Amount Recovered (µg/g):	1.01	0.965	0.929
Percent Recovery:	**101%**	**105%**	**102%**
RPD:			**2.77%**

Seq #	A/S Pos	QA	Hg (ng)	Hg Spiked (ng)	Conc. (ug/g)	Known Conc. (ug/g)	Recovery
7	1	1 ng	1.07	1.00	0.0107	0.0100	107%
8	2	20 ng	19.6	20.0	0.0979	0.100	97.9%
9	3	25 ng	25.0	25.0	0.100	0.100	100%
10	4	600 ng	589	595	9.89	10.0	98.9%
16	5	ICV 10 ng	10.8	10.3	1.05	1.00	105%
17	6	ICV 300 ng	303	299	1.01	1.00	101%
34	15	CCV-DORM-4	18.6	18.1	0.423	0.412	103%
45	26	CCV-DORM-4	38.5	39.2	0.404	0.412	98.1%
56	37	CCV-DORM-4	15.2	14.8	0.423	0.412	103%
41	35	MDLV R1			0.0381	0.0300	127%
42	36	MDLV R2			0.0454	0.0300	151%
43	37	MDLV R3			0.0395	0.0300	132%

Sample listing "D111721A.d80"

Created by "User"
18.11.2021 12:40:23

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
1 (1)	1 ng	0.0997 g 17.11.21 11:54	OK (1) 17.11.21 11:56	0.0545	1.1197	11.2310		1.0000
2 (2)	fork	0.0010 g 17.11.21 12:04	OK (1) 17.11.21 12:04	0.0167	0.3291	329.0552		1.0000
1 (3)	boat	0.0010 g 17.11.21 12:19	OK (1) 17.11.21 12:20	0.0019	0.0250	25.0293		1.0000
16 (4)	boat	0.0010 g 17.11.21 12:19	OK (1) 17.11.21 12:26	0.0009	0.0037	3.6933		1.0000
17 (5)	boat	0.0010 g 17.11.21 12:20	OK (1) 17.11.21 12:32	0.0007	0.0000	0.0000		1.0000
19 (6)	boat	0.0010 g 17.11.21 12:20	OK (1) 17.11.21 12:39	0.0004	0.0000	0.0000		1.0000
1 (7)	1 ng	0.1000 g 17.11.21 13:07	OK (1) 17.11.21 13:09	0.0522	1.0712	10.7120		1.0000
2 (8)	20 ng	0.2002 g 17.11.21 13:23	OK (1) 17.11.21 13:24	0.7239	19.6092	97.9481		1.0000
3 (9)	25 ng	0.2502 g 17.11.21 13:35	OK (1) 17.11.21 13:37	0.8421	25.0372	100.0686		1.0000
4 (10)	600 ng	0.0595 g 17.11.21 13:45	OK (2) 17.11.21 13:48	0.4423	588.6218	9892.803		1.0000
5 (11)	fork	0.0010 g 17.11.21 13:46	OK (1) 17.11.21 13:56	0.3767	8.6447	8644.722		1.0000
6 (12)	fork	0.0010 g 17.11.21 13:46	OK (1) 17.11.21 14:08	0.0571	1.1756	1175.627		1.0000
3 (13)	boat	0.0010 g 17.11.21 13:47	OK (1) 17.11.21 14:19	0.0155	0.3058	305.8129		1.0000
2 (14)	boat	0.0010 g 17.11.21 13:47	OK (1) 17.11.21 14:27	0.0222	0.4438	443.7793		1.0000
1 (15)	boat	0.0010 g 17.11.21 13:47	OK (1) 17.11.21 14:34	0.0054	0.0968	96.8044		1.0000
5 (16)	ICV 10 ng	0.0103 g 17.11.21 14:42	OK (1) 17.11.21 14:44	0.4568	10.8111	1049.620		1.0000
6 (17)	ICV 300 ng	0.2988 g 17.11.21 14:52	OK (2) 17.11.21 14:55	0.2472	302.6368	1012.840		1.0000
7 (18)	fork	0.0010 g 17.11.21 15:04	OK (1) 17.11.21 15:04	0.3751	8.6012	8601.151		1.0000
8 (19)	fork	0.0010 g 17.11.21 15:04	OK (1) 17.11.21 15:15	0.0609	1.2549	1254.938		1.0000
7 (20)	DORM-4	0.0318 g 17.11.21 15:29	OK (1) 17.11.21 15:30	0.5340	13.0612	410.7300		1.0000
8 (21)	fork	0.0010 g 17.11.21 15:43	OK (1) 17.11.21 15:43	0.0166	0.3266	326.6373		1.0000
9 (22)	fork	0.0010 g 17.11.21 15:44	OK (1) 17.11.21 15:54	0.0118	0.2279	227.8514		1.0000
8 (23)	MB R1	0.0010 g 17.11.21 16:08	OK (1) 17.11.21 16:08	0.0056	0.1002	100.2312		1.0000
9 (24)	MB R2	0.0010 g 17.11.21 16:08	OK (1) 17.11.21 16:18	0.0028	0.0434	43.4400		1.0000
10 (25)	MB R3	0.0010 g 17.11.21 16:08	OK (1) 17.11.21 16:29	0.0028	0.0427	42.6699		1.0000
8 (26)	3663-1	0.0335 g 17.11.21 16:40	OK (2) 17.11.21 16:42	0.1308	153.7453	4589.413		1.0000
9 (27)	3663-2	0.0471 g 17.11.21 16:42	OK (2) 17.11.21 16:50	0.1785	213.2027	4526.596		1.0000
10 (28)	3663-3	0.0350 g 17.11.21 17:02	OK (2) 17.11.21 17:07	0.1403	165.4277	4726.504		1.0000

Sample listing "D111721A.d80"

Created by "User"
18.11.2021 12:40:23

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
11 (29)	3663-4	0.0459 g 17.11.21 17:04	OK (2) 17.11.21 17:15	0.0584	67.1120	1462.136		1.0000
12 (30)	3663-5	0.0323 g 17.11.21 17:06	OK (2) 17.11.21 17:25	0.0423	48.3874	1498.062		1.0000
13 (31)	3663-5 R2	0.0316 g 17.11.21 17:46	OK (2) 17.11.21 17:48	0.0407	46.5367	1472.681		1.0000
14 (32)	CCV-DORM-4 boat mass not blanked?	0.0472 g 17.11.21 17:56	OK (1) 17.11.21 17:58	0.8486	25.3945	538.0181		1.0000
15 (33)	fork	0.0010 g 17.11.21 18:07	OK (1) 17.11.21 18:08	0.0306	0.6191	619.1019		1.0000
15 (34)	CCV-DORM-4	0.0440 g 17.11.21 18:18	OK (1) 17.11.21 18:20	0.6983	18.6105	422.9657		1.0000
16 (35)	3663-6	0.0228 g 17.11.21 18:32	OK (2) 17.11.21 18:35	0.0250	28.4721	1248.775		1.0000
17 (36)	3663-7	0.0271 g 17.11.21 18:45	OK (2) 17.11.21 18:51	0.0520	59.6463	2200.971		1.0000
18 (37)	3663-8	0.0361 g 17.11.21 18:48	OK (2) 17.11.21 18:59	0.0415	47.4618	1314.732		1.0000
19 (38)	3663-9	0.0298 g 17.11.21 18:49	OK (2) 17.11.21 19:09	0.1262	148.1161	4970.337		1.0000
20 (39)	3663-10	0.0271 g 17.11.21 18:50	OK (2) 17.11.21 19:20	0.1048	122.1576	4507.659		1.0000
21 (40)	3663-11	0.0302 g 17.11.21 18:52	OK (2) 17.11.21 19:31	0.0593	68.1643	2257.096		1.0000
22 (41)	3663-12	0.0894 g 17.11.21 19:17	OK (1) 17.11.21 19:41	0.7817	22.0620	246.7788		1.0000
23 (42)	LCS 1 ppm	0.1000 g 17.11.21 19:57	OK (2) 17.11.21 19:57	0.0869	100.7266	1007.266		1.0000
24 (43)	3663-12 MS	0.0543 g 17.11.21 20:07	OK (2) 17.11.21 20:07	0.0573	65.8268	1212.279		1.0000
25 (44)	3663-12 MSD	0.0549 g 17.11.21 20:19	OK (2) 17.11.21 20:20	0.0562	64.5424	1175.634		1.0000
26 (45)	CCV-DORM-4	0.0952 g 17.11.21 20:30	OK (2) 17.11.21 20:31	0.0337	38.4612	404.0040		1.0000
27 (46)	3663-13	0.1273 g 17.11.21 20:41	OK (1) 17.11.21 20:47	0.8214	23.9545	188.1734		1.0000
28 (47)	3663-14	0.1004 g 17.11.21 20:43	OK (1) 17.11.21 20:55	0.6028	15.2340	151.7333		1.0000
29 (48)	3663-15	0.0795 g 17.11.21 20:44	OK (1) 17.11.21 21:06	0.6414	16.5407	208.0594		1.0000
30 (49)	3663-16	0.0983 g 17.11.21 20:45	OK (1) 17.11.21 21:16	0.7009	18.7082	190.3176		1.0000
31 (50)	3663-17	0.0995 g 17.11.21 20:48	OK (1) 17.11.21 21:27	0.6345	16.3031	163.8504		1.0000
32 (51)	3663-18	0.0631 g 17.11.21 20:49	OK (2) 17.11.21 21:38	0.0279	31.7960	503.8980		1.0000
33 (52)	3663-19	0.0877 g 17.11.21 20:51	OK (1) 17.11.21 21:49	0.5673	14.0903	160.6648		1.0000
34 (53)	MDLV R1	0.1506 g 17.11.21 20:52	OK (1) 17.11.21 21:59	0.2603	5.7355	38.0840		1.0000
35 (54)	MDLV R2	0.0940 g 17.11.21 20:53	OK (1) 17.11.21 22:10	0.1978	4.2718	45.4447		1.0000
36 (55)	MDLV R3	0.1168 g 17.11.21 20:54	OK (1) 17.11.21 22:20	0.2125	4.6100	39.4694		1.0000
37 (56)	CCV-DORM-4	0.0359 g 17.11.21 20:55	OK (1) 17.11.21 22:31	0.6017	15.1984	423.3544		1.0000

Sample listing "D111721A.d80"

Created by "User"
18.11.2021 12:40:23

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
38 (57)	boat	0.0010 g 17.11.21 20:58	OK (1) 17.11.21 22:42	0.0318	0.6426	642.5906		1.0000
39 (58)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 22:48	0.0088	0.1655	165.4850		1.0000
40 (59)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 22:55	0.0049	0.0868	86.8061		1.0000
1 (60)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:02	0.0201	0.3991	399.1152		1.0000
2 (61)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:09	0.0054	0.0970	96.9670		1.0000
3 (62)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:16	0.0017	0.0196	19.6438		1.0000
4 (63)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:23	0.1322	2.7950	2795.044		1.0000
5 (64)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:29	0.0018	0.0215	21.5194		1.0000
6 (65)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:36	0.0135	0.2638	263.8269		1.0000
7 (66)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:43	0.0611	1.2585	1258.478		1.0000
8 (67)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:50	0.0012	0.0097	9.7296		1.0000
9 (68)	boat	0.0010 g 17.11.21 20:59	OK (1) 17.11.21 23:57	0.0009	0.0044	4.3677		1.0000
10 (69)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:03	0.0011	0.0086	8.6331		1.0000
11 (70)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:10	0.0008	0.0018	1.7997		1.0000
12 (71)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:17	0.0008	0.0010	1.0104		1.0000
13 (72)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:24	0.0014	0.0145	14.5253		1.0000
14 (73)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:31	0.0013	0.0119	11.8630		1.0000
15 (74)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:37	0.0011	0.0087	8.6946		1.0000
16 (75)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:44	0.0009	0.0034	3.3675		1.0000
17 (76)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:51	0.0007	0.0002	0.1651		1.0000
18 (77)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 00:58	0.0008	0.0022	2.1863		1.0000
19 (78)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:05	0.0005	0.0000	0.0000		1.0000
20 (79)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:11	0.0007	0.0000	0.0000		1.0000
21 (80)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:18	0.0008	0.0012	1.1606		1.0000
22 (81)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:25	0.0006	0.0000	0.0000		1.0000
23 (82)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:32	0.0034	0.0554	55.4415		1.0000
24 (83)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:39	0.0006	0.0000	0.0000		1.0000
25 (84)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:46	0.0008	0.0010	1.0070		1.0000

Sample listing "D111721A.d80"

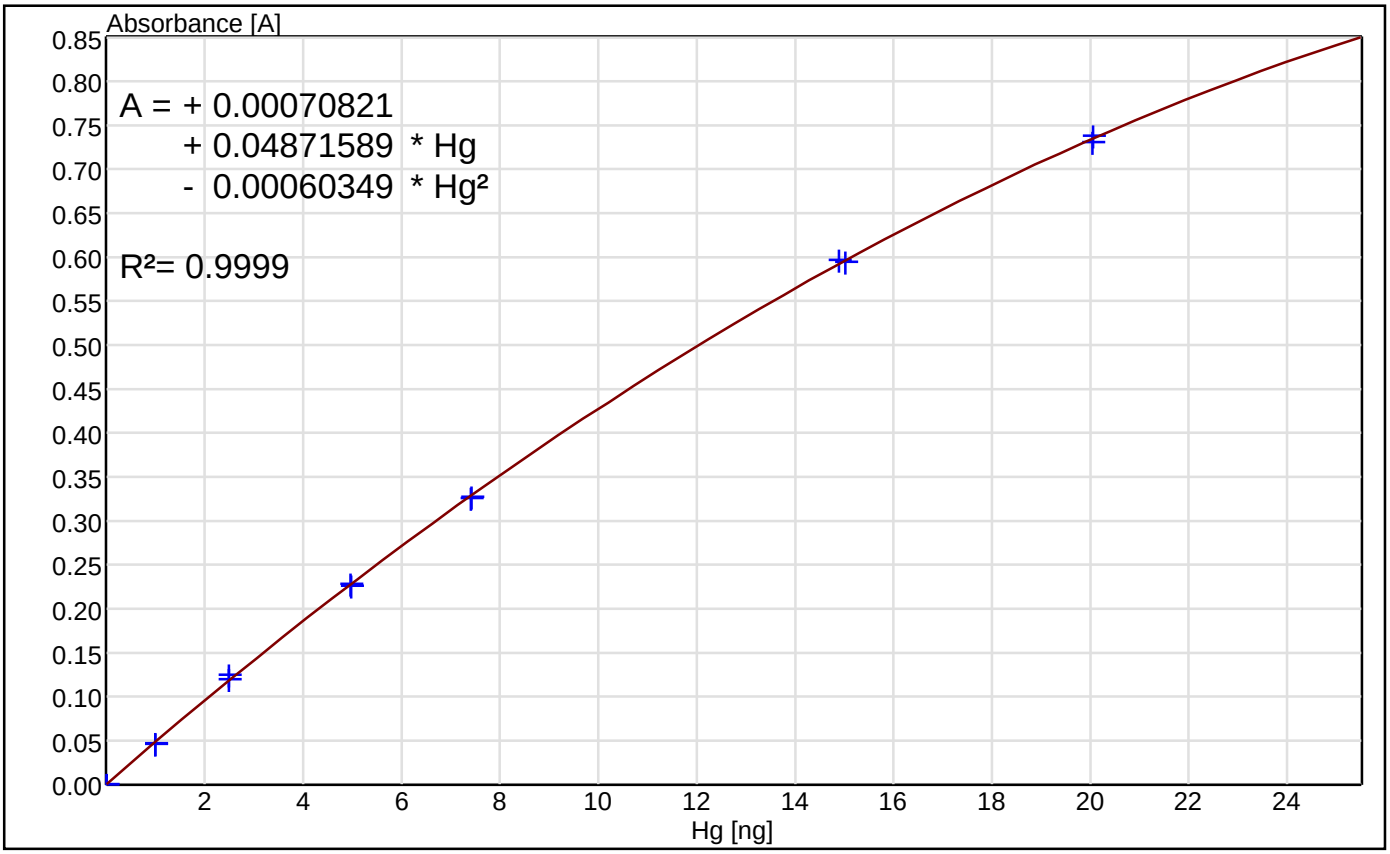
Created by "User"
18.11.2021 12:40:23

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
26 (85)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:52	0.0011	0.0084	8.4214		1.0000
27 (86)	boat	0.0010 g 17.11.21 20:59	OK (1) 18.11.21 01:59	0.0007	0.0000	0.0000		1.0000
27 (87)	boat	0.0010 g 18.11.21 10:58	OK (1) 18.11.21 10:59	0.0050	0.0884	88.4319		1.0000
28 (88)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:04	0.0005	0.0000	0.0000		1.0000
29 (89)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:11	0.0005	0.0000	0.0000		1.0000
30 (90)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:18	0.0004	0.0000	0.0000		1.0000
31 (91)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:25	0.0004	0.0000	0.0000		1.0000
32 (92)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:32	0.0004	0.0000	0.0000		1.0000
33 (93)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:39	0.0004	0.0000	0.0000		1.0000
34 (94)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:45	0.0008	0.0025	2.4707		1.0000
35 (95)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:52	0.0051	0.0906	90.5986		1.0000
36 (96)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 11:59	0.0006	0.0000	0.0000		1.0000
37 (97)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 12:06	0.0004	0.0000	0.0000		1.0000
38 (98)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 12:13	0.0005	0.0000	0.0000		1.0000
39 (99)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 12:19	0.0003	0.0000	0.0000		1.0000
40 (100)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 12:26	0.0005	0.0000	0.0000		1.0000
1 (101)	boat	0.0010 g 18.11.21 10:59	OK (1) 18.11.21 12:33	0.0004	0.0000	0.0000		1.0000

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 1



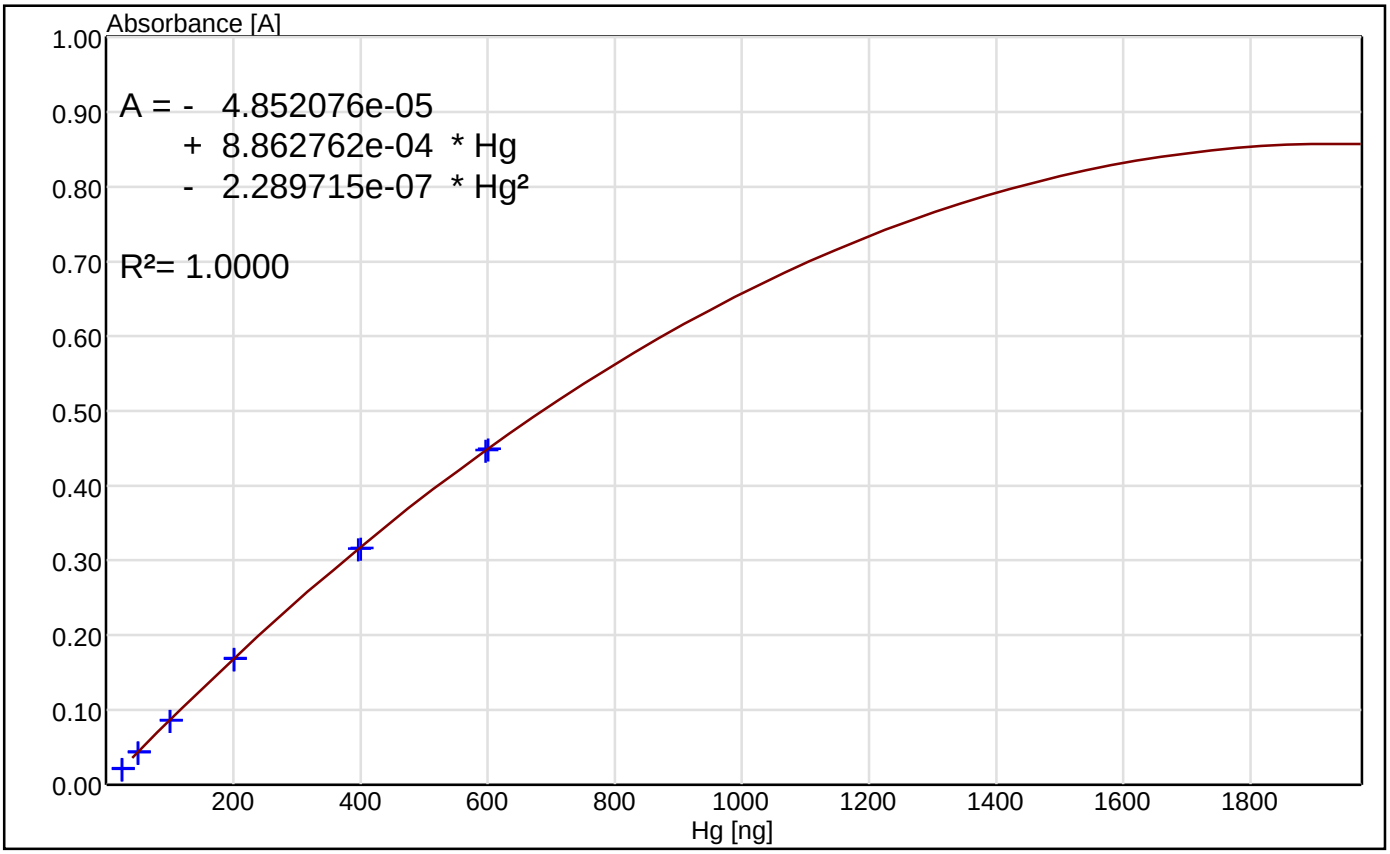
Ultra trace analysis : deactivated
BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	0.0000	0.0005	-0.0052	12.10.2021 10:06:49	
2	OK	0.0000	0.0002	-0.0107	12.10.2021 10:18:08	
3	OK	0.9980	0.0471	-0.0331	12.10.2021 10:43:15	
4	OK	0.9990	0.0465	-0.0468	12.10.2021 10:31:06	
5	OK	2.4884	0.1252	0.1532	12.10.2021 10:55:19	
6	OK	2.4894	0.1195	0.0280	12.10.2021 11:07:17	
7	OK	4.9648	0.2285	0.0194	12.10.2021 11:33:19	
8	OK	4.9749	0.2263	-0.0439	12.10.2021 11:21:15	
9	OK	7.4122	0.3262	-0.0620	12.10.2021 11:57:38	
10	OK	7.4222	0.3272	-0.0466	12.10.2021 11:45:16	
11	OK	14.8946	0.5970	0.1496	12.10.2021 12:09:32	
12	OK	15.0249	0.5943	-0.0678	12.10.2021 12:21:16	
13	OK	20.0399	0.7306	-0.1626	12.10.2021 12:33:04	
14	OK	20.0500	0.7380	0.1298	12.10.2021 12:45:01	

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 2



BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	24.9145	0.0212	-0.7891	12.10.2021 14:23:44	
2	OK	25.0549	0.0219	-0.1296	12.10.2021 14:35:44	
3	OK	49.7488	0.0442	0.8387	12.10.2021 14:59:25	
4	OK	49.8491	0.0437	0.1592	12.10.2021 14:47:39	
5	OK	99.7985	0.0860	-0.1428	12.10.2021 15:30:21	
6	OK	99.9991	0.0859	-0.4623	12.10.2021 15:18:32	
7	OK	200.6000	0.1696	1.3542	12.10.2021 15:42:16	
8	OK	200.6000	0.1685	-0.0310	12.10.2021 16:01:06	
9	OK	396.1850	0.3156	0.6516	12.10.2021 16:31:54	
10	OK	400.1970	0.3166	-1.9405	12.10.2021 16:13:01	
11	OK	596.7850	0.4479	0.9480	12.10.2021 16:43:41	
12	OK	600.7970	0.4495	-0.4495	12.10.2021 17:02:31	

Mercury Analytical Run Checklist
Total Hg (DMA) Procedure MSL-I-034

Analyst: K. Munson
Instrument: DMA Evo
Analysis Date: 11/22/2021
Run ID: D112221C
Matrix/Method: Tissue/7473m
CF/Add: 3663

Client/Batch	Digestion Type	Fault Codes	Status
3663/2 (remaining)-3	none/freeze dried		complete
Notes: No SRM identified in analytical run, SRM DORM-4 run as ICV and CCV; instrument .pdf file erroneously omits sample number 33.			

Fault Codes:
10 = method blank out of limits
11 = SRM/CRM or LCS out of limits
12 = Dup out of criteria
13 = Matrix spike recoveries out

Status options Complete
Partial (dilutions/reruns needed)

Quality Control Checklist

	Method DQOs	Project DQO	Yes	No	Comments/Deviations
Calibration Curve	>0.995		x		101221 cal: 0.9999 (cell 1), 1.000 (cell 2)
Daily Low/High Calibration Points	±10%		x		90.5-102% recovery of 1, 20, 25, and 600 ng.
Calibration STD RE	±25		x		101221 cal: 0.63-4.68% for 1 and 7.5 ng; 0.006-3.17% for 25 and 200 ng
ICV	±10%		x		95.5% recovery (cell 1) and 104% recovery (cell 2)
MB	< 3x MDL (or samples >10 MB Conc.)		x		
CCV	±20%				101-106% recovery
LCS/BS/OPR	±20%				103% recovery
SRM/CRM	±20%		x		DORM-4 recovery 95.5% (ICV cell 1), 101-106% recovery (CCV)
MS/MSD	±20% (±20% RPD)				102-104% recovery, 1.54% RPD 3663-29
DUP	±20%		x		13.1% RPD 3663-28

Analyst Signature: Kathleen Munson
Date: 23 Nov 2021

PM Signature:
Date: 13 Dec 2021

Working Standards

Hg Stock:	2013915-100			6/30/2022
Brooks Rand lot 24520	0.412	ug/g	ICV (cell 2)/LCS/MS(D)	12/12/2021
DORM-4	0.412	ug/g	ICV (cell 1)/CCV	12/31/2022
NIST 1566b	0.0371	ug/g	CAL check 1 ng	6/1/2030
122221-A	10.0	ug/mL	CAL check	prepped from Hg stock
122221-C	0.100	ug/mL	CAL check	prepped from Hg stock

Total Hg Analysis - DMA-80

Project: ALCOA
CF/ADD#: 3663
Instrument: Milestone DMA-80 Evo
Date: 11/22/2021
Regression Type: Linear thru Zero
Analyst: K. Munson
Method: 7473m
Run ID: D112221C
Blanks: Not subtracted
Matrix: Tissue
Unit: ug/g
MDL (ug/g): 0.0050

Nr	Pos	Sample ID	Mass (g)	Hg (ng)	Conc. (ng/g)	Conc. ug/g (dry)	QC Recovery	% Dry	Conc. (ug/g) (wet)
17	10	MB R1		0.239	2.45	0.00245		100.0	0.002
18	11	MB R2		0.0528	0.50	0.000502		100.0	0.001
19	12	MB R3		0.0386	0.37	0.000367		100.0	0.000
20	10	3663-20	0.102	19.8	194	0.194		27.7	0.054
21	11	3663-21	0.110	19.8	181	0.181		36.3	0.066
22	12	3663-22	0.103	9.84	9.51	0.00951		30.3	0.00
23	13	3663-23	0.0859	18.8	219	0.219		26.6	0.058
24	14	3663-24	0.0968	16.9	174	0.174		26.8	0.047
25	15	3663-25	0.0999	20.8	208	0.208		28.6	0.059
26	16	3663-26	0.0996	17.4	175	0.175		31.3	0.055
28	18	3663-27	0.0988	21.1	213	0.213		30.7	0.065
29	19	3663-28 R1	0.0998	19.7	197	0.197		33.6	0.066
30	20	3663-28 R2	0.0739	16.6	225	0.225	**13.1%**	33.6	0.076
31	21	3663-29	0.102	34	332	0.332		34.0	0.113
32	22	LCS	0.101	105	1034	1.03	**103%**		0.000
34	23	3663-29 MS	0.0927	135	1452	1.45	**104%**		0.000
35	24	3663-29 MSD	0.0940	134	1423	1.423	**102%**		0.000
36	25	3663-30	0.0362	27.9	771	0.771		22.6	0.174
37	26	3663-31	0.0370	91.7	2478	2.478		21.9	0.543
38	27	3663-32	0.153	23.9	156	0.156		27.9	0.044
40	29	3663-33	0.142	23.1	163	0.163		32.7	0.053
41	30	3663-34	0.100	11.8	118	0.118		33.3	0.039
42	31	3663-35	0.111	27.2	245	0.245		32.1	0.079
43	32	3663-36	0.0732	12.9	177	0.177		31.4	0.056
44	33	3663-37	0.108	12.1	112	0.112		25.1	0.028
45	34	3663-38	0.111	14.6	132	0.132		36.6	0.048

SPIKE DATA (DRY)

Sample ID:	**LCS**	**3663-29 MS**	**3663-29 MSD**
Dry Wt (g)	0.1011	0.0927	0.0940
Amount Spiked (µg/g):	1.000	1.081	1.069
Sample Only (µg/g):	0.00000	0.3317	0.3317
Sample + Spike (µg/g):	1.03	1.452	1.423
Amount Recovered (µg/g):	1.03	1.120	1.091
Percent Recovery:	**103%**	**104%**	**102%**
RPD:			**1.54%**

Seq #	A/S Pos	QA	Hg (ng)	Hg Spiked (ng)	Conc. (ug/g)	Known Conc. (ug/g)	Recovery
1	1	1 ng	0.95	1.01	0.0317	0.0350	90.5%
2	2	20 ng	19.5	20.0	0.0976	0.1000	97.6%
3	3	25 ng	25.5	25.1	0.1016	0.1000	102%
4	4	600 ng	599	596	10.03	10.00	100%
13	6	ICV 10 ng DORM-4	10.0	10.4	0.393	0.412	95.5%
14	7	ICV 300 ng	314	302	1.040	1.00	104%
27	17	CCV-DORM-4	13.6	13.3	0.421	0.412	102%
39	28	CCV-DORM-4	12.8	12.2	0.435	0.412	106%
47	36	CCV-DORM-4	15.1	15.0	0.417	0.412	101%
46	35	MDLV R1			0.0490	0.0300	163%

Sample listing "D112221C.d80"

Created by "User"
23.11.2021 03:57:01

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
1 (1)	1 ng 1566b	0.0272 g 22.11.21 15:22	OK (1) 22.11.21 15:25	0.0466	0.9526	35.0220		1.0000
2 (2)	20 ng	0.1995 g 22.11.21 15:34	OK (1) 22.11.21 15:35	0.7204	19.4689	97.5883		1.0000
3 (3)	25 ng	0.2510 g 22.11.21 15:51	OK (2) 22.11.21 15:53	0.0224	25.4970	101.5816		1.0000
4 (4)	600 ng	0.0596 g 22.11.21 16:09	OK (2) 22.11.21 16:10	0.4480	597.8961	10031.81		1.0000
5 (5)	fork	0.0010 g 22.11.21 16:18	OK (1) 22.11.21 16:18	0.2395	5.2410	5241.018		1.0000
6 (6)	fork	0.0010 g 22.11.21 16:19	OK (1) 22.11.21 16:29	0.0437	0.8920	891.9658		1.0000
7 (7)	fork	0.0010 g 22.11.21 16:41	OK (1) 22.11.21 16:41	0.0240	0.4813	481.2656		1.0000
5 (8)	ICV 10 ng wrong method	0.1000 g 22.11.21 16:52	X 22.11.21 17:01					1.0000
5 (9)	boat	0.0010 g 22.11.21 17:06	OK (1) 22.11.21 17:06	0.4805	11.4831	11483.07		1.0000
5 (10)	ICV 10 ng	0.0999 g 22.11.21 17:14	OK (1) 22.11.21 17:17	0.4650	11.0419	110.5291		1.0000
5 (11)	boat	0.0010 g 22.11.21 17:25	OK (1) 22.11.21 17:26	0.0051	0.0905	90.4806		1.0000
5 (12)	ICV 10 ng	0.1029 g 22.11.21 17:41	OK (1) 22.11.21 17:41	0.4908	11.7798	114.4779		1.0000
6 (13)	ICV 10 ng dorm-4	0.0253 g 22.11.21 18:04	OK (1) 22.11.21 18:05	0.4258	9.9537	393.4253		1.0000
7 (14)	ICV 100 ng	0.3021 g 22.11.21 18:18	OK (2) 22.11.21 18:19	0.2557	314.0450	1039.540		1.0000
8 (15)	fork	0.0010 g 22.11.21 18:28	OK (1) 22.11.21 18:28	0.1392	2.9512	2951.196		1.0000
9 (16)	fork	0.0010 g 22.11.21 18:28	OK (1) 22.11.21 18:38	0.0384	0.7820	782.0024		1.0000
10 (17)	MB R1	0.0010 g 22.11.21 18:57	OK (1) 22.11.21 18:58	0.0123	0.2386	238.6026		1.0000
11 (18)	MB R2	0.0010 g 22.11.21 18:58	OK (1) 22.11.21 19:06	0.0033	0.0528	52.8033		1.0000
12 (19)	MB R3	0.0010 g 22.11.21 18:58	OK (1) 22.11.21 19:16	0.0026	0.0386	38.6323		1.0000
10 (20)	3663-20	0.1022 g 22.11.21 19:41	OK (1) 22.11.21 19:42	0.7290	19.8112	193.8472		1.0000
11 (21)	3663-21	0.1099 g 22.11.21 19:52	OK (1) 22.11.21 19:56	0.7298	19.8440	180.5638		1.0000
12 (22)	3663-22	1.0343 g 22.11.21 19:53	OK (1) 22.11.21 20:04	0.4216	9.8387	9.5124		1.0000
13 (23)	3663-23	0.0859 g 22.11.21 19:54	OK (1) 22.11.21 20:15	0.7033	18.8014	218.8749		1.0000
14 (24)	3663-24	0.0968 g 22.11.21 19:56	OK (1) 22.11.21 20:25	0.6507	16.8674	174.2500		1.0000
15 (25)	3663-25	0.0999 g 22.11.21 20:04	OK (1) 22.11.21 20:36	0.7525	20.7846	208.0541		1.0000
16 (26)	3663-26	0.0996 g 22.11.21 20:09	OK (1) 22.11.21 20:47	0.6663	17.4249	174.9492		1.0000
17 (27)	CCV DORM-4	0.0322 g 22.11.21 20:15	OK (1) 22.11.21 20:57	0.5502	13.5566	421.0122		1.0000
18 (28)	3663-27	0.0988 g 22.11.21 21:10	OK (1) 22.11.21 21:15	0.7594	21.0789	213.3492		1.0000

Sample listing "D112221C.d80"

Created by "User"
23.11.2021 03:57:01

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
19 (29)	3663-28 R1	0.0998 g 22.11.21 21:10	OK (1) 22.11.21 21:23	0.7263	19.7033	197.4277		1.0000
20 (30)	3663-28 R2	0.0739 g 22.11.21 21:13	OK (1) 22.11.21 21:33	0.6440	16.6310	225.0479		1.0000
21 (31)	3663-29	0.1021 g 22.11.21 21:15	OK (2) 22.11.21 21:44	0.0297	33.8620	331.6550		1.0000
22 (32)	LCS	0.1011 g 22.11.21 21:56	OK (2) 22.11.21 21:59	0.0901	104.5395	1034.020		1.0000
23 (34)	3663-29 MS	0.0927 g 22.11.21 22:08	OK (2) 22.11.21 22:10	0.1151	134.6049	1452.048		1.0000
24 (35)	3663-29 MSD	0.0940 g 22.11.21 22:18	OK (2) 22.11.21 22:20	0.1144	133.7562	1422.938		1.0000
25 (36)	3663-30	0.0362 g 22.11.21 22:30	OK (2) 22.11.21 22:34	0.0245	27.8996	770.7071		1.0000
26 (37)	3663-31	0.0370 g 22.11.21 22:32	OK (2) 22.11.21 22:42	0.0793	91.7028	2478.454		1.0000
27 (38)	3663-32	0.1528 g 22.11.21 22:33	OK (1) 22.11.21 22:52	0.8199	23.8818	156.2948		1.0000
28 (39)	CCV DORM-4	0.0295 g 22.11.21 22:35	OK (1) 22.11.21 23:03	0.5269	12.8450	435.4234		1.0000
29 (40)	3663-33	0.1418 g 22.11.21 22:37	OK (1) 22.11.21 23:13	0.8030	23.0517	162.5652		1.0000
30 (41)	3663-34	0.1004 g 22.11.21 22:39	OK (1) 22.11.21 23:24	0.4918	11.8067	117.5967		1.0000
31 (42)	3663-35	0.1112 g 22.11.21 22:40	OK (2) 22.11.21 23:35	0.0239	27.2128	244.7197		1.0000
32 (43)	3663-36	0.0732 g 22.11.21 22:43	OK (1) 22.11.21 23:45	0.5297	12.9303	176.6434		1.0000
33 (44)	3663-37	0.1077 g 22.11.21 22:43	OK (1) 22.11.21 23:56	0.5023	12.1140	112.4793		1.0000
34 (45)	3663-38	0.1108 g 22.11.21 22:45	OK (1) 23.11.21 00:07	0.5825	14.5741	131.5351		1.0000
35 (46)	MDLV	0.5084 g 22.11.21 22:47	OK (1) 23.11.21 00:18	0.8399	24.9170	49.0107		1.0000
36 (47)	CCV DORM-4	0.0363 g 22.11.21 22:48	OK (1) 23.11.21 00:28	0.6002	15.1498	417.3512		1.0000
37 (48)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 00:39	0.0605	1.2459	1245.854		1.0000
38 (49)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 00:46	0.0120	0.2327	232.7269		1.0000
39 (50)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 00:53	0.0044	0.0761	76.1350		1.0000
40 (51)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 00:59	0.0026	0.0389	38.9223		1.0000
1 (52)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:06	0.0018	0.0232	23.1917		1.0000
2 (53)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:13	0.0072	0.1336	133.5842		1.0000
3 (54)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:20	0.0012	0.0098	9.7500		1.0000
4 (55)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:27	0.0098	0.1872	187.1824		1.0000
5 (56)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:33	0.0012	0.0109	10.8785		1.0000
6 (57)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:40	0.0045	0.0778	77.7545		1.0000

Sample listing "D112221C.d80"

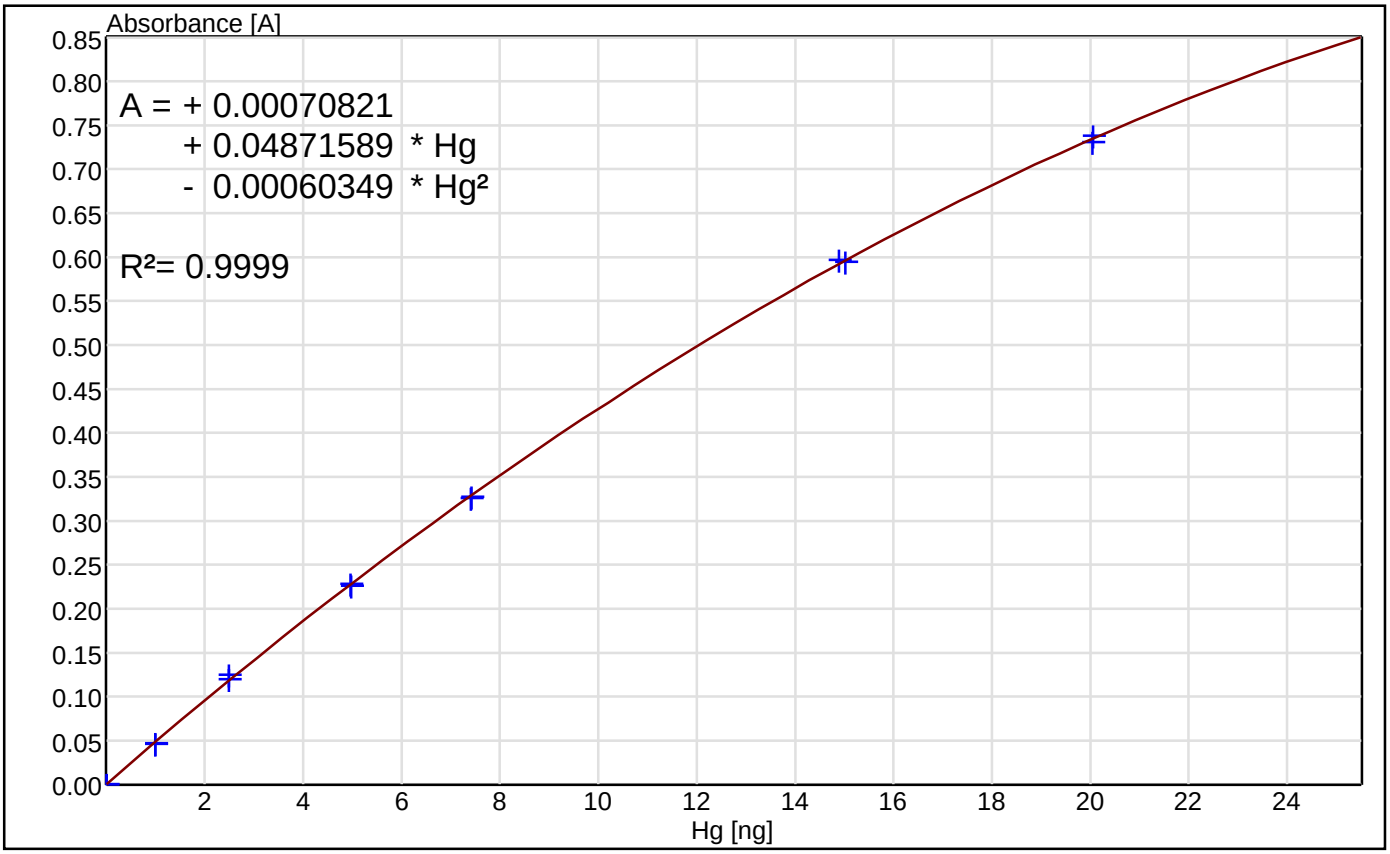
Created by "User"
23.11.2021 03:57:01

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
7 (58)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:47	0.0010	0.0052	5.1632		1.0000
8 (59)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 01:54	0.0016	0.0190	19.0310		1.0000
9 (60)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:01	0.0033	0.0533	53.3200		1.0000
10 (61)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:08	0.0006	0.0000	0.0000		1.0000
11 (62)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:14	0.0005	0.0000	0.0000		1.0000
12 (63)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:21	0.0008	0.0018	1.7641		1.0000
13 (64)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:28	0.0035	0.0569	56.9026		1.0000
14 (65)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:35	0.0006	0.0000	0.0000		1.0000
15 (66)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:42	0.0005	0.0000	0.0000		1.0000
16 (67)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:48	0.0008	0.0028	2.8441		1.0000
17 (68)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 02:55	0.0005	0.0000	0.0000		1.0000
18 (69)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:02	0.0005	0.0000	0.0000		1.0000
19 (70)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:09	0.0005	0.0000	0.0000		1.0000
20 (71)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:16	0.0007	0.0000	0.0000		1.0000
21 (72)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:22	0.0007	0.0000	0.0000		1.0000
22 (73)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:29	0.0012	0.0094	9.3555		1.0000
23 (74)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:36	0.0006	0.0000	0.0000		1.0000
24 (75)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:43	0.0007	0.0000	0.0000		1.0000
25 (76)	boat	0.0010 g 22.11.21 22:49	OK (1) 23.11.21 03:50	0.0003	0.0000	0.0000		1.0000

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 1



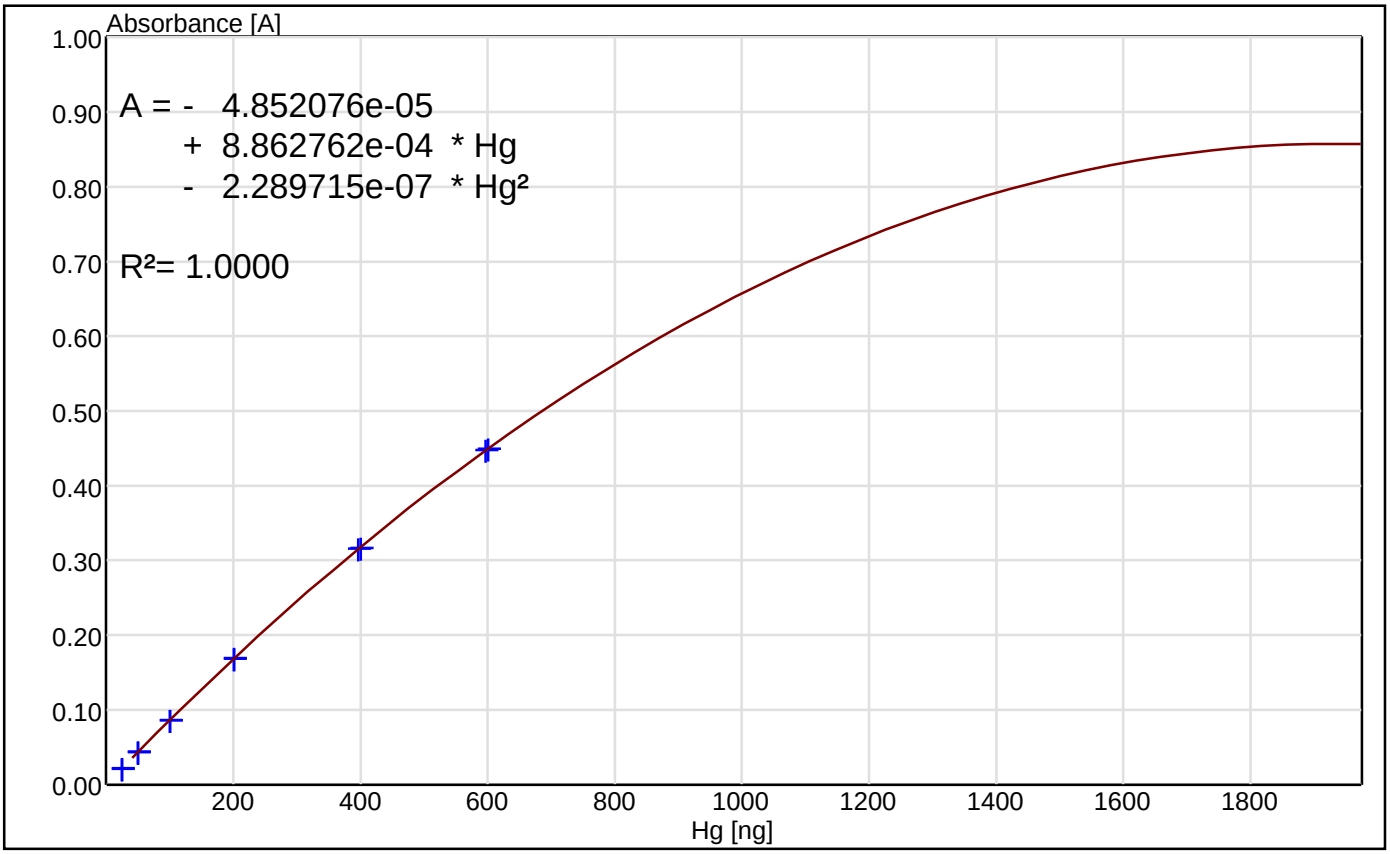
Ultra trace analysis : deactivated
BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	0.0000	0.0005	-0.0052	12.10.2021 10:06:49	
2	OK	0.0000	0.0002	-0.0107	12.10.2021 10:18:08	
3	OK	0.9980	0.0471	-0.0331	12.10.2021 10:43:15	
4	OK	0.9990	0.0465	-0.0468	12.10.2021 10:31:06	
5	OK	2.4884	0.1252	0.1532	12.10.2021 10:55:19	
6	OK	2.4894	0.1195	0.0280	12.10.2021 11:07:17	
7	OK	4.9648	0.2285	0.0194	12.10.2021 11:33:19	
8	OK	4.9749	0.2263	-0.0439	12.10.2021 11:21:15	
9	OK	7.4122	0.3262	-0.0620	12.10.2021 11:57:38	
10	OK	7.4222	0.3272	-0.0466	12.10.2021 11:45:16	
11	OK	14.8946	0.5970	0.1496	12.10.2021 12:09:32	
12	OK	15.0249	0.5943	-0.0678	12.10.2021 12:21:16	
13	OK	20.0399	0.7306	-0.1626	12.10.2021 12:33:04	
14	OK	20.0500	0.7380	0.1298	12.10.2021 12:45:01	

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 2



BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	24.9145	0.0212	-0.7891	12.10.2021 14:23:44	
2	OK	25.0549	0.0219	-0.1296	12.10.2021 14:35:44	
3	OK	49.7488	0.0442	0.8387	12.10.2021 14:59:25	
4	OK	49.8491	0.0437	0.1592	12.10.2021 14:47:39	
5	OK	99.7985	0.0860	-0.1428	12.10.2021 15:30:21	
6	OK	99.9991	0.0859	-0.4623	12.10.2021 15:18:32	
7	OK	200.6000	0.1696	1.3542	12.10.2021 15:42:16	
8	OK	200.6000	0.1685	-0.0310	12.10.2021 16:01:06	
9	OK	396.1850	0.3156	0.6516	12.10.2021 16:31:54	
10	OK	400.1970	0.3166	-1.9405	12.10.2021 16:13:01	
11	OK	596.7850	0.4479	0.9480	12.10.2021 16:43:41	
12	OK	600.7970	0.4495	-0.4495	12.10.2021 17:02:31	

Mercury Analytical Run Checklist
Total Hg (DMA) Procedure MSL-I-034

Analyst: K. Munson
Instrument: DMA Evo
Analysis Date: 11/23/2021
Run ID: D112321A
Matrix/Method: Tissue/7473m
CF/Add: 3663

Client/Batch	Digestion Type	Fault Codes	Status
3663/3-5 (partial)	none/freeze dried		complete
Notes: 3663-30 rerun to to confirm initial analysis from D112221A following MS/MSD			

Fault Codes:
10 = method blank out of limits
11 = SRM/CRM or LCS out of limits
12 = Dup out of criteria
13 = Matrix spike recoveries out

Status options Complete
Partial (dilutions/reruns needed)

Quality Control Checklist

	Method DQOs	Project DQO	Yes	No	Comments/Deviations
Calibration Curve	>0.995		x		101221 cal: 0.9999 (cell 1), 1.000 (cell 2)
Daily Low/High Calibration Points	±10%		x		94.5-101% recovery 1, 20, 25, and 600 ng
Calibration STD RE	±25		x		101221 cal: 0.63-4.68% for 1 and 7.5 ng; 0.006-3.17% for 25 and 200 ng
ICV	±10%		x		105% recovery (cell 1); 92.8% recovery (cell 2)
MB	< 3x MDL (or samples >10 MB Conc.)		x		
CCV	±20%		x		99.2-110% recovery
LCS/BS/OPR	±20%		x		90.2% recovery
SRM/CRM	±20%		x		109% recovery
MS/MSD	±20% (±20% RPD)		x		101-104% recovery, 3.03% RPD 3663-41
DUP	±20%		x		0.493% RPD 3663-42

Analyst Signature: Kathleen Munson
Date: 24 Nov 2021

PM Signature:
Date: 13 Dec 2021

Working Standards

Hg Stock:	2013915-100			6/30/2022
Brooks Rand lot 24520	0.412	ug/g	ICV (cell 2)/LCS/MS(D)	12/12/2021
DORM-4	0.412	ug/g	SRM/ICV (cell 1)/CCV	12/31/2022
NIST 1566b	0.0371	ug/g	CAL check	6/1/2030
122321-A	10.0	ug/mL	CAL check	prepped from Hg stock
122321-C	0.100	ug/mL	CAL check	prepped from Hg stock

Total Hg Analysis - DMA-80

Project: ALCOA
CF/ADD#: 3663
Instrument: Milestone DMA-80 Evo
Date: 11/23/2021
Regression Type: Linear thru Zero
Analyst: K. Munson
Method: 7473m
Run ID: D112321A
Blanks: Not subtracted
Matrix: Tissue
Unit: ug/g
MDL (ug/g): 0.0050

Nr	Pos	Sample ID	Mass (g)	Hg (ng)	Conc. (ng/g)	Conc. ug/g (dry)	QC Recovery	% Dry	Conc. (ug/g) (wet)
13	10	MB R1		0.143	2.15	0.00215		100.0	0.002
14	11	MB R2		0.0277	0.59	0.000591		100.0	0.001
15	12	MB R3		0.0192	0.41	0.000410		100.0	0.000
17	11	SRM DORM-4	0.0349	15.7	450	0.450	**109%**	100.0	0.450
16	10	3663-30 rerun	0.0518	40.2	776	0.776		22.6	0.175
18	12	3663-39	0.0334	171	5116	5.12		19.9	1.02
19	13	3663-40	0.0553	55.6	1005	1.00		22.9	0.230
20	14	3663-41	0.0281	48.6	1730	1.73		20.1	0.347
21	15	LCS	0.150	136	902	0.902	**90.2%**		
22	16	3663-41 MS	0.0271	204	7536	7.54	**104%**		
24	18	3663-41 MSD	0.0263	195	7411	7.41	**101%**		
26	19	3663-42 R1	0.0341	52.0	1524	1.52		21.0	0.320
27	20	3663-42 R2	0.0303	46.0	1517	1.52	**0.493%**	21.0	0.318
28	21	3663-43	0.189	29.7	157	0.157		33.3	0.0523
29	22	3663-44	0.105	22.1	210	0.210		31.5	0.0662
30	23	3663-45	0.121	76.8	633	0.633		32.3	0.205
31	24	3663-46	0.101	23.9	237	0.237		36.9	0.0875
32	25	3663-47	0.106	18.0	170	0.170		33.3	0.0565
33	26	3663-48	0.0978	12.5	128	0.128		34.3	0.0440
34	27	3663-49	0.0366	43.6	1193	1.19		21.0	0.251
36	29	3663-50	0.0585	50.6	865	0.865		21.1	0.183
37	30	3663-51	0.0287	39.7	1384	1.38		22.1	0.305
38	31	3663-52	0.0424	67.7	1597	1.60		20.5	0.327

SPIKE DATA (DRY)

Sample ID:	**LCS**	**3663-41 MS**	**3663-41 MSD**
Dry Wt (g)	0.150	0.0271	0.0263
Amount Spiked (µg/g):	1.00	5.58	5.62
Sample Only (µg/g):	0.00000	1.73	1.73
Sample + Spike (µg/g):	0.902	7.54	7.41
Amount Recovered (µg/g):	0.902	5.81	5.68
Percent Recovery:	**90.2%**	**104%**	**101%**
RPD:			**3.03%**

Seq #	A/S Pos	QA	Hg (ng)	Hg Spiked (ng)	Conc. (ug/g)	Known Conc. (ug/g)	Recovery
1	1	1 ng	0.87	0.92	0.0350	0.0371	94.5%
2	2	20 ng	20.0	20.0	0.1002	0.1000	100%
3	3	25 ng	24.6	25.0	0.0985	0.1000	98.5%
4	4	600 ng	607	600	10.11	10.00	101%
8	5	ICV 10 ng DORM-4	11.5	10.9	0.434	0.412	105%
9	6	ICV 300 ng	282	304	0.928	1.00	92.8%
23	17	CCV-DORM-4	39.5	35.8	0.454	0.412	110%
35	28	CCV-DORM-4	12.5	12.0	0.429	0.412	104%
44	37	CCV-DORM-4	18.1	18.3	0.409	0.412	99.2%
41	35	MDLV R1			0.0364	0.0300	121%
42	36	MDLV R2			0.0342	0.0300	114%
43	37	MDLV R3			0.0360	0.0300	120%

Sample listing "D112321A.d80"

Created by "User"
24.11.2021 00:47:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
1 (1)	1 ng 1566b	0.0249 g 23.11.21 13:56	OK (1) 23.11.21 13:59	0.0428	0.8727	35.0467		1.0000
2 (2)	20 ng	0.2001 g 23.11.21 14:05	OK (1) 23.11.21 14:08	0.7346	20.0411	100.1557		1.0000
3 (3)	25 ng	0.2501 g 23.11.21 14:16	OK (1) 23.11.21 14:19	0.8347	24.6427	98.5313		1.0000
4 (4)	600 ng	0.0600 g 23.11.21 14:28	OK (2) 23.11.21 14:31	0.4534	606.7422	10112.37		1.0000
5 (5)	fork	0.0010 g 23.11.21 14:28	OK (1) 23.11.21 14:39	0.4350	10.2044	10204.36		1.0000
6 (6)	fork	0.0010 g 23.11.21 14:28	OK (1) 23.11.21 14:50	0.0391	0.7964	796.3560		1.0000
7 (7)	boat	0.0010 g 23.11.21 14:31	OK (1) 23.11.21 15:01	0.0117	0.2271	227.1051		1.0000
5 (8)	ICV DORM-4	0.0265 g 23.11.21 15:29	OK (1) 23.11.21 15:32	0.4814	11.5064	434.2047		1.0000
6 (9)	ICV	0.3040 g 23.11.21 15:42	OK (2) 23.11.21 15:44	0.2318	282.1682	928.1848		1.0000
7 (10)	fork	0.0010 g 23.11.21 15:53	OK (2) 23.11.21 15:53	0.0296	33.7471	33747.14		1.0000
8 (11)	fork	0.0010 g 23.11.21 15:53	OK (1) 23.11.21 16:03	0.0657	1.3576	1357.568		1.0000
9 (12)	fork	0.0010 g 23.11.21 16:15	OK (1) 23.11.21 16:16	0.0268	0.5398	539.7952		1.0000
10 (13)	MB R1	0.0010 g 23.11.21 16:26	OK (1) 23.11.21 16:27	0.0076	0.1426	142.6296		1.0000
11 (14)	MB R2	0.0010 g 23.11.21 16:27	OK (1) 23.11.21 16:39	0.0021	0.0277	27.7498		1.0000
12 (15)	MB R3	0.0010 g 23.11.21 16:27	OK (1) 23.11.21 16:50	0.0016	0.0192	19.2282		1.0000
10 (16)	3663-30 rerun	0.0518 g 23.11.21 17:02	OK (2) 23.11.21 17:04	0.0352	40.1888	775.8448		1.0000
11 (17)	SRM DORM-4	0.0349 g 23.11.21 17:13	OK (1) 23.11.21 17:14	0.6165	15.6896	449.5581		1.0000
12 (18)	3663-39	0.0334 g 23.11.21 17:24	OK (2) 23.11.21 17:27	0.1447	170.8646	5115.707		1.0000
13 (19)	3663-40	0.0553 g 23.11.21 17:25	OK (2) 23.11.21 17:34	0.0485	55.5761	1004.992		1.0000
14 (20)	3663-41	0.0281 g 23.11.21 17:25	OK (2) 23.11.21 17:45	0.0425	48.6189	1730.209		1.0000
15 (21)	LCS 1 ppm	0.1512 g 23.11.21 17:59	OK (2) 23.11.21 18:01	0.1166	136.4248	902.2806		1.0000
16 (22)	3663-41 MS	0.0271 g 23.11.21 18:12	OK (2) 23.11.21 18:13	0.1714	204.2233	7535.915		1.0000
17 (23)	CCV DORM-4	0.0870 g 23.11.21 18:21	OK (2) 23.11.21 18:22	0.0346	39.4975	453.9948		1.0000
18 (24)	3663-41 MSD	0.0263 g 23.11.21 18:33	OK (2) 23.11.21 18:35	0.1640	194.9138	7411.169		1.0000
19 (25)	fork	0.0010 g 23.11.21 18:35	OK (1) 23.11.21 18:43	0.5689	14.1410	14140.96		1.0000
19 (26)	3663-42 R1	0.0341 g 23.11.21 18:57	OK (2) 23.11.21 19:02	0.0454	51.9783	1524.290		1.0000
20 (27)	3663-42 R2	0.0303 g 23.11.21 18:59	OK (2) 23.11.21 19:09	0.0402	45.9588	1516.790		1.0000
21 (28)	3663-43	0.1892 g 23.11.21 19:00	OK (2) 23.11.21 19:20	0.0261	29.7322	157.1469		1.0000

Sample listing "D112321A.d80"

Created by "User"
24.11.2021 00:47:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
22 (29)	3663-44	0.1052 g 23.11.21 19:01	OK (1) 23.11.21 19:31	0.7822	22.0848	209.9312		1.0000
23 (30)	3663-45	0.1214 g 23.11.21 19:02	OK (2) 23.11.21 19:41	0.0667	76.8388	632.9391		1.0000
24 (31)	3663-46	0.1007 g 23.11.21 19:04	OK (1) 23.11.21 19:52	0.8201	23.8924	237.2633		1.0000
25 (32)	3663-47	0.1063 g 23.11.21 19:06	OK (1) 23.11.21 20:02	0.6830	18.0355	169.6661		1.0000
26 (33)	3663-48	0.0978 g 23.11.21 19:07	OK (1) 23.11.21 20:13	0.5170	12.5485	128.3078		1.0000
27 (34)	3663-49	0.0366 g 23.11.21 19:15	OK (2) 23.11.21 20:23	0.0382	43.6486	1192.586		1.0000
28 (35)	CCV DORM-4	0.0292 g 23.11.21 19:17	OK (1) 23.11.21 20:34	0.5165	12.5335	429.2310		1.0000
29 (36)	3663-50	0.0585 g 23.11.21 19:17	OK (2) 23.11.21 20:44	0.0442	50.5875	864.7432		1.0000
30 (37)	3663-51	0.0287 g 23.11.21 19:20	OK (2) 23.11.21 20:55	0.0348	39.7279	1384.247		1.0000
31 (38)	3663-52	0.0424 g 23.11.21 19:22	OK (2) 23.11.21 21:06	0.0589	67.6966	1596.617		1.0000
32 (39)	fork	0.0010 g 23.11.21 19:22	OK (1) 23.11.21 21:16	0.0261	0.5252	525.1635		1.0000
33 (40)	fork	0.0010 g 23.11.21 19:23	OK (1) 23.11.21 21:28	0.0132	0.2567	256.7145		1.0000
34 (41)	MDLV R1	0.1544 g 23.11.21 19:23	OK (1) 23.11.21 21:39	0.2555	5.6223	36.4136		1.0000
35 (42)	MDLV R2	0.1225 g 23.11.21 19:24	OK (1) 23.11.21 21:52	0.1941	4.1875	34.1836		1.0000
36 (43)	MDLV R3	0.1310 g 23.11.21 19:26	OK (1) 23.11.21 22:03	0.2169	4.7121	35.9704		1.0000
37 (44)	CCV DORM-4	0.0443 g 23.11.21 19:26	OK (1) 23.11.21 22:14	0.6849	18.1060	408.7134		1.0000
38 (45)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 22:24	0.0189	0.3751	375.0817		1.0000
39 (46)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 22:31	0.0025	0.0359	35.9371		1.0000
40 (47)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 22:38	0.0015	0.0163	16.2762		1.0000
1 (48)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 22:45	0.0011	0.0077	7.6582		1.0000
2 (49)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 22:51	0.0010	0.0064	6.3682		1.0000
3 (50)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 22:58	0.0010	0.0066	6.5503		1.0000
4 (51)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:05	0.0122	0.2356	235.6063		1.0000
5 (52)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:12	0.0033	0.0531	53.0543		1.0000
6 (53)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:19	0.0006	0.0000	0.0000		1.0000
7 (54)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:26	0.0017	0.0208	20.7797		1.0000
8 (55)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:32	0.0061	0.1117	111.7091		1.0000
9 (56)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:39	0.0010	0.0055	5.4502		1.0000

Sample listing "D112321A.d80"

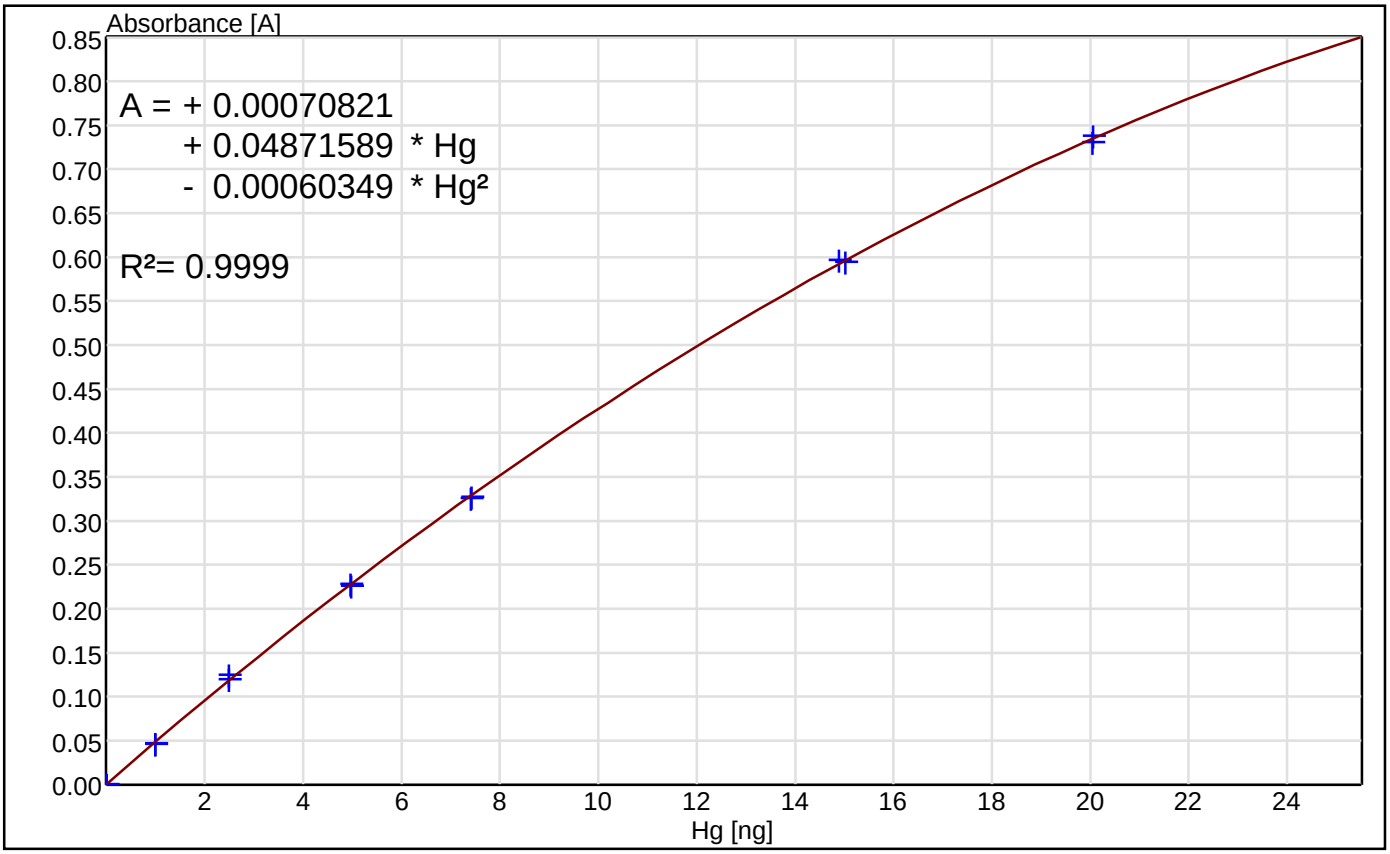
Created by "User"
24.11.2021 00:47:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
10 (57)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:46	0.0007	0.0006	0.6216		1.0000
11 (58)	boat	0.0010 g 23.11.21 19:30	OK (1) 23.11.21 23:53	0.0005	0.0000	0.0000		1.0000
12 (59)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:00	0.0005	0.0000	0.0000		1.0000
13 (60)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:06	0.0005	0.0000	0.0000		1.0000
14 (61)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:13	0.0007	0.0001	0.1365		1.0000
15 (62)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:20	0.0110	0.2114	211.4380		1.0000
16 (63)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:27	0.0005	0.0000	0.0000		1.0000
17 (64)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:34	0.0004	0.0000	0.0000		1.0000
18 (65)	boat	0.0010 g 23.11.21 19:30	OK (1) 24.11.21 00:40	0.0010	0.0067	6.7271		1.0000

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 1



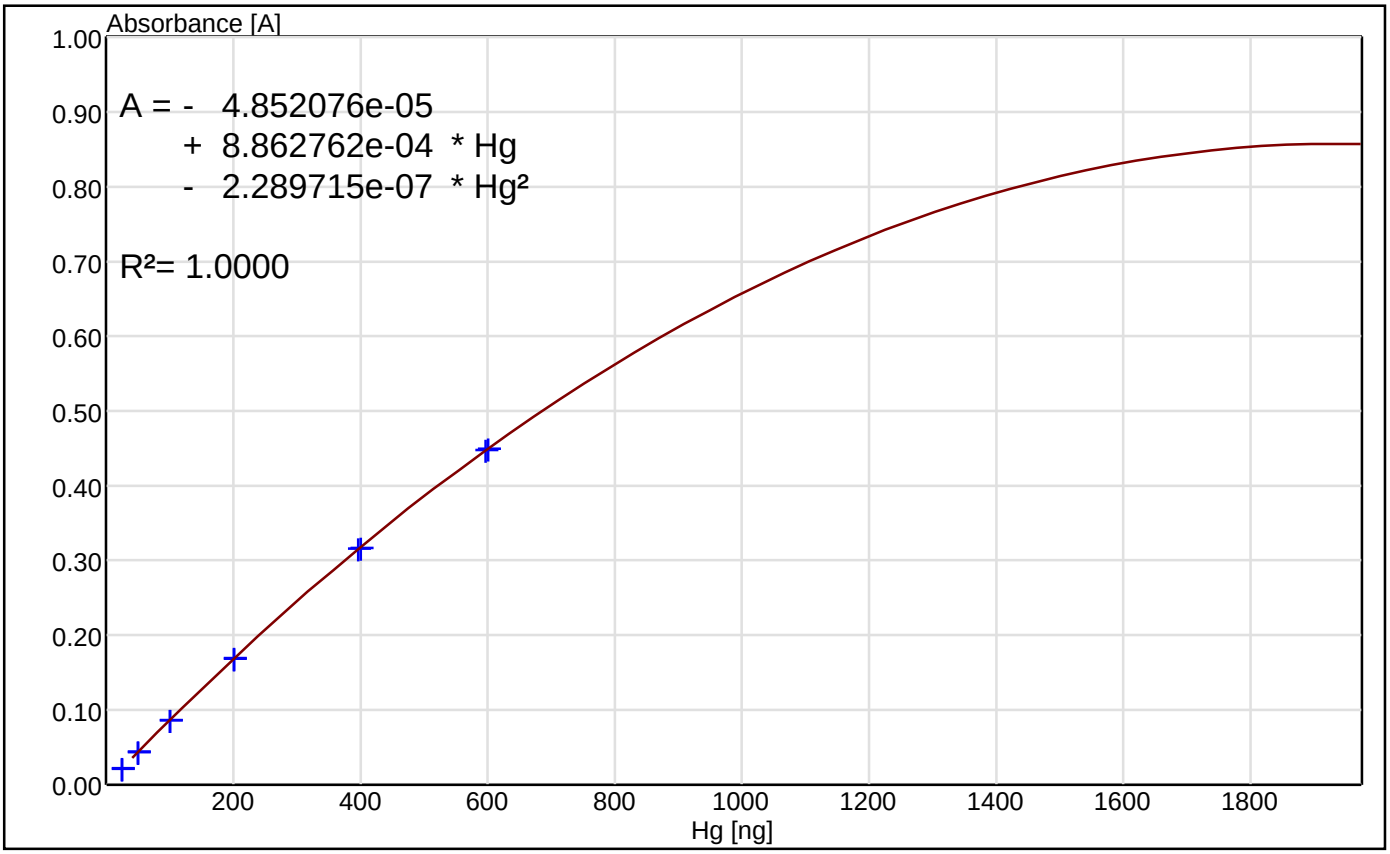
Ultra trace analysis : deactivated
BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	0.0000	0.0005	-0.0052	12.10.2021 10:06:49	
2	OK	0.0000	0.0002	-0.0107	12.10.2021 10:18:08	
3	OK	0.9980	0.0471	-0.0331	12.10.2021 10:43:15	
4	OK	0.9990	0.0465	-0.0468	12.10.2021 10:31:06	
5	OK	2.4884	0.1252	0.1532	12.10.2021 10:55:19	
6	OK	2.4894	0.1195	0.0280	12.10.2021 11:07:17	
7	OK	4.9648	0.2285	0.0194	12.10.2021 11:33:19	
8	OK	4.9749	0.2263	-0.0439	12.10.2021 11:21:15	
9	OK	7.4122	0.3262	-0.0620	12.10.2021 11:57:38	
10	OK	7.4222	0.3272	-0.0466	12.10.2021 11:45:16	
11	OK	14.8946	0.5970	0.1496	12.10.2021 12:09:32	
12	OK	15.0249	0.5943	-0.0678	12.10.2021 12:21:16	
13	OK	20.0399	0.7306	-0.1626	12.10.2021 12:33:04	
14	OK	20.0500	0.7380	0.1298	12.10.2021 12:45:01	

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 2



BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	24.9145	0.0212	-0.7891	12.10.2021 14:23:44	
2	OK	25.0549	0.0219	-0.1296	12.10.2021 14:35:44	
3	OK	49.7488	0.0442	0.8387	12.10.2021 14:59:25	
4	OK	49.8491	0.0437	0.1592	12.10.2021 14:47:39	
5	OK	99.7985	0.0860	-0.1428	12.10.2021 15:30:21	
6	OK	99.9991	0.0859	-0.4623	12.10.2021 15:18:32	
7	OK	200.6000	0.1696	1.3542	12.10.2021 15:42:16	
8	OK	200.6000	0.1685	-0.0310	12.10.2021 16:01:06	
9	OK	396.1850	0.3156	0.6516	12.10.2021 16:31:54	
10	OK	400.1970	0.3166	-1.9405	12.10.2021 16:13:01	
11	OK	596.7850	0.4479	0.9480	12.10.2021 16:43:41	
12	OK	600.7970	0.4495	-0.4495	12.10.2021 17:02:31	

Mercury Analytical Run Checklist
Total Hg (DMA) Procedure MSL-I-034

Analyst: K. Munson
Instrument: DMA Evo
Analysis Date: 12/1/2021
Run ID: D120121A
Matrix/Method: Tissue/7473m
CF/Add: 3663

Client/Batch	Digestion Type	Fault Codes	Status
3663/7 (remaining)-12 (partial)	none/freeze dried		partial
Notes: 3883-85 requires MS/MSD			

Fault Codes:
10 = method blank out of limits
11 = SRM/CRM or LCS out of limits
12 = Dup out of criteria
13 = Matrix spike recoveries out

Status options: Complete
Partial (dilutions/reruns needed)

Quality Control Checklist

	Method DQOs	Project DQO	Yes	No	Comments/Deviations
Calibration Curve	>0.995		x		101221 cal: 0.9999 (cell 1), 1.000 (cell 2)
Daily Low/High Calibration Points	±10%		x		92.8-98.1% recovery 1, 20, 25, and 600 ng
Calibration STD RE	±25		x		101221 cal: 0.63-4.68% for 1 and 7.5 ng; 0.006-3.17% for 25 and 200 ng
ICV	±10%		x		90.7% recovery (cell 1); 104% recovery (cell 2)
MB	< 3x MDL (or samples >10 MB Conc.)		x		
CCV	±20%		x		92-102% recovery of DORM-4
LCS/BS/OPR	±20%		x		103% recovery of 1 ppm
SRM/CRM	±20%		x		99.0% recovery DORM-4
MS/MSD	±20% (±20% RPD)		x		101-104% recovery, 2.92% RPD 3883-83
DUP	±20%		x		15.6% RPD 3663-82; 0.654% RPD 3663-84

Analyst Signature: Kathleen Munson
Date: 2 Dec 2021

PM Signature:
Date: 13 Dec 2021

Working Standards

Hg Stock:	2013915-100			6/30/2022
Brooks Rand lot 24520	0.412	ug/g	ICV (cell 2)/LCS/MS(D)	12/12/2021
DORM-4	0.412	ug/g	SRM/ICV (cell 1)/CCV	12/31/2022
NIST 1566b	0.0371	ug/g	CAL check	6/1/2030
120121-A	10.0	ug/mL	CAL check	prepped from Hg stock
120121-C	0.100	ug/mL	CAL check	prepped from Hg stock

Total Hg Analysis - DMA-80

Project: ALCOA
CF/ADD#: 3663
Instrument: Milestone DMA-80 Evo
Date: 12/1/2021
Regression Type: Linear thru Zero
Analyst: K. Munson
Method: 7473m
Run ID: D120121A
Blanks: Not subtracted
Matrix: Tissue
Unit: ug/g
MDL (ug/g): 0.0050

Nr	Pos	Sample ID	Mass (g)	Hg (ng)	Conc. (ng/g)	Conc. ug/g (dry)	QC Recovery	% Dry	Conc. (ug/g) (wet)
13	7	MB R1		0.1371	1.605	0.001605		100.0	0.002
14	8	MB R2		0.01890	0.1815	0.0001815		100.0	0.000
15	9	MB R3		0.00990	0.0951	0.0000951		100.0	0.000
16	7	SRM DORM-4	0.0777	31.7	408	0.408	**99.0%**	100.0	0.408
17	8	3663-73	0.0316	154.5	4889	4.889		20.1	0.981
18	9	3663-74	0.143	21.2	148	0.148		20.8	0.031
19	10	3663-75	0.138	44.9	327	0.327		32.5	0.106
20	11	3663-76	0.0924	14.7	159	0.159		29.1	0.046
21	12	3663-77	0.0486	51	1055	1.06		22.9	0.241
22	13	3663-78	0.0411	146.0	3553	3.55		20.8	0.739
24	15	3663-79	0.129	40.1	311	0.311		34.5	0.107
25	16	3663-80	0.0448	188.3	4202.6	4.203		21.0	0.881
26	17	3663-81	0.0479	66.9	1396	1.396		20.6	0.287
27	18	3663-82	0.173	28.1	163	0.163		34.1	0.055
28	19	LCS	0.0505	51.9	1027	1.03	**103%**		
29	20	3663-82 MS	0.101	67.0	664	0.664	**101%**		
30	21	3663-82 MSD	0.096	68.2	708	0.708	**104%**		
31	22	3663-83 R1	0.103	18.0	176	0.176		32.8	0.058
32	23	3663-83 R2	0.1032	15.5	150	0.150	**15.6%**	32.8	0.049
33	24	3663-84 R1	0.0678	86.73	1279	1.279		21.4	0.274
35	26	3663-84 R2	0.0451	57.3	1271	1.271	**0.654%**	21.4	0.272
36	27	3663-85	0.0487	70.2	1441	1.441		21.0	0.303
37	28	3663-86	0.1485	51	341	0.341		36.7	0.125
38	29	3663-87	0.0823	18.3	222	0.222		33.0	0.073
39	30	3663-88	0.0471	99.3	2108	2.108		21.5	0.452
40	31	3663-89	0.0728	88.7	1219	1.22		22.9	0.280
41	32	3663-90	0.0469	83.3	1776	1.78		21.0	0.372

SPIKE DATA (DRY)

Sample ID:	**LCS**	**3663-82 MS**	**3663-82 MSD**
Dry Wt (g)	0.0505	0.1009	0.0963
Amount Spiked (µg/g):	1.000	0.495	0.522
Sample Only (µg/g):	0.00000	0.163	0.163
Sample + Spike (µg/g):	1.027	0.66	0.71
Amount Recovered (µg/g):	1.027	0.501	0.545
Percent Recovery:	**103%**	**101%**	**104%**
RPD:			**2.92%**

Seq #	A/S Pos	QA	Hg (ng)	Hg Spiked (ng)	Conc. (ug/g)	Known Conc. (ug/g)	Recovery
1	1	1 ng	0.985	1.06	0.0344	0.0371	92.8%
2	2	20 ng	19.6	20.1	0.098	0.100	97.6%
3	3	25 ng	23.7	25.1	0.0947	0.100	94.7%
4	4	600 ng	586	597	9.81	10.0	98.1%
8	5	ICV 10 ng DORM-4	11.2	10.8	0.430	0.412	104%
9	6	ICV 300 ng	275	304	0.907	1.00	90.7%
23	14	CCV-DORM-4	20.9	20.9	0.413	0.412	100%
34	25	CCV-DORM-4	21.0	20.5	0.422	0.412	102%
46	37	CCV-DORM-4	28.8	31.3	0.379	0.412	92.0%
45	35	MDLV R1			0.0377	0.0300	126%

Sample listing "D120121A.d80"

Created by "User"
02.12.2021 12:10:09

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
1 (1)	1 ng 1566b	0.0286 g 01.12.21 16:19	OK (1) 01.12.21 16:20	0.0481	0.9845	34.4236		1.0000
2 (2)	20 ng	0.2008 g 01.12.21 16:28	OK (1) 01.12.21 16:30	0.7237	19.6015	97.6171		1.0000
3 (3)	25 ng	0.2508 g 01.12.21 16:40	OK (1) 01.12.21 16:47	0.8173	23.7496	94.6954		1.0000
4 (4)	600 ng	0.0597 g 01.12.21 16:55	OK (2) 01.12.21 17:05	0.4405	585.7064	9810.827		1.0000
5 (5)	fork	0.0010 g 01.12.21 17:13	OK (2) 01.12.21 17:14	0.0337	38.4612	38461.17		1.0000
6 (6)	fork	0.0010 g 01.12.21 17:14	OK (1) 01.12.21 17:24	0.0534	1.0958	1095.805		1.0000
7 (7)	fork	0.0010 g 01.12.21 17:36	OK (1) 01.12.21 17:36	0.0233	0.4654	465.4077		1.0000
5 (8)	ICV cell 1	0.0261 g 01.12.21 17:50	OK (1) 01.12.21 17:51	0.4716	11.2264	430.1320		1.0000
6 (9)	ICV cell 2	0.3036 g 01.12.21 18:04	OK (2) 01.12.21 18:05	0.2266	275.3137	906.8305		1.0000
7 (10)	fork	0.0010 g 01.12.21 18:14	OK (2) 01.12.21 18:14	0.0360	41.1108	41110.77		1.0000
8 (11)	fork	0.0010 g 01.12.21 18:14	OK (1) 01.12.21 18:25	0.0911	1.9001	1900.134		1.0000
9 (12)	fork	0.0010 g 01.12.21 18:36	OK (1) 01.12.21 18:36	0.0336	0.6815	681.5209		1.0000
7 (13)	MB R1	0.0010 g 01.12.21 18:48	OK (1) 01.12.21 18:48	0.0074	0.1371	137.0734		1.0000
8 (14)	MB R2	0.0010 g 01.12.21 18:48	OK (1) 01.12.21 19:00	0.0016	0.0189	18.9260		1.0000
9 (15)	MB R3	0.0010 g 01.12.21 18:48	OK (1) 01.12.21 19:11	0.0012	0.0099	9.8866		1.0000
7 (16)	SRM DORM-4	0.0777 g 01.12.21 19:22	OK (2) 01.12.21 19:24	0.0278	31.6812	407.7381		1.0000
8 (17)	3663-73	0.0316 g 01.12.21 19:38	OK (2) 01.12.21 19:41	0.1314	154.4809	4888.637		1.0000
9 (18)	3663-74	0.1433 g 01.12.21 19:40	OK (1) 01.12.21 19:48	0.7621	21.1915	147.8819		1.0000
10 (19)	3663-75	0.1375 g 01.12.21 19:42	OK (2) 01.12.21 19:59	0.0393	44.9189	326.6826		1.0000
11 (20)	3663-76	0.0924 g 01.12.21 19:44	OK (1) 01.12.21 20:09	0.5858	14.6792	158.8655		1.0000
12 (21)	3663-77	0.0486 g 01.12.21 19:44	OK (2) 01.12.21 20:20	0.0448	51.2828	1055.201		1.0000
13 (22)	3663-78	0.0411 g 01.12.21 19:46	OK (2) 01.12.21 20:30	0.1245	146.0402	3553.289		1.0000
14 (23)	CCV DORM-4	0.0507 g 01.12.21 19:47	OK (1) 01.12.21 20:41	0.7559	20.9290	412.8016		1.0000
15 (24)	3663-79	0.1289 g 01.12.21 19:49	OK (2) 01.12.21 20:51	0.0351	40.0735	310.8885		1.0000
16 (25)	3663-80	0.0448 g 01.12.21 19:50	OK (2) 01.12.21 21:02	0.1587	188.2766	4202.604		1.0000
17 (26)	3663-81	0.0479 g 01.12.21 19:52	OK (2) 01.12.21 21:12	0.0582	66.8783	1396.206		1.0000
18 (27)	3663-82	0.1730 g 01.12.21 19:54	OK (2) 01.12.21 21:23	0.0247	28.1286	162.5929		1.0000
19 (28)	LCS	0.0505 g 01.12.21 21:34	OK (2) 01.12.21 21:40	0.0453	51.8624	1026.977		1.0000

Sample listing "D120121A.d80"

Created by "User"
02.12.2021 12:10:09

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
20 (29)	3663-82 MS	0.1009 g 01.12.21 21:48	OK (2) 01.12.21 21:50	0.0583	66.9952	663.9760		1.0000
21 (30)	3663-82 MSD	0.0963 g 01.12.21 21:59	OK (2) 01.12.21 22:01	0.0593	68.1643	707.8329		1.0000
22 (31)	3663-83 R1	0.1025 g 01.12.21 22:10	OK (1) 01.12.21 22:16	0.6824	18.0119	175.7254		1.0000
23 (32)	3663-83 R2	0.1032 g 01.12.21 22:11	OK (1) 01.12.21 22:24	0.6111	15.5080	150.2712		1.0000
24 (33)	3663-84 R1	0.0678 g 01.12.21 22:14	OK (2) 01.12.21 22:34	0.0751	86.7349	1279.275		1.0000
25 (34)	CCV DORM-4	0.0497 g 01.12.21 22:14	OK (1) 01.12.21 22:45	0.7571	20.9781	422.0951		1.0000
26 (35)	3663-84 R2	0.0451 g 01.12.21 22:17	OK (2) 01.12.21 22:55	0.0500	57.3194	1270.939		1.0000
27 (36)	3663-85	0.0487 g 01.12.21 22:18	OK (2) 01.12.21 23:06	0.0610	70.1535	1440.524		1.0000
28 (37)	3663-86	0.1485 g 01.12.21 22:19	OK (2) 01.12.21 23:17	0.0443	50.7033	341.4366		1.0000
29 (38)	3663-87	0.0823 g 01.12.21 22:19	OK (1) 01.12.21 23:27	0.6893	18.2699	221.9915		1.0000
30 (39)	3663-88	0.0471 g 01.12.21 22:20	OK (2) 01.12.21 23:38	0.0857	99.2989	2108.256		1.0000
31 (40)	3663-89	0.0728 g 01.12.21 22:22	OK (2) 01.12.21 23:48	0.0768	88.7441	1219.012		1.0000
32 (41)	3663-90	0.0469 g 01.12.21 22:22	OK (2) 01.12.21 23:59	0.0722	83.3124	1776.383		1.0000
33 (42)	fork	0.0010 g 01.12.21 22:23	OK (1) 02.12.21 00:10	0.1042	2.1840	2184.021		1.0000
34 (43)	fork	0.0010 g 01.12.21 22:23	OK (1) 02.12.21 00:21	0.0150	0.2950	295.0308		1.0000
35 (44)	mdlv r1	0.2711 g 01.12.21 22:24	OK (1) 02.12.21 00:32	0.4354	10.2166	37.6858		1.0000
36 (45)	mdlv r2	0.1870 g 01.12.21 22:25	OK (1) 02.12.21 00:45	0.3015	6.7373	36.0281		1.0000
37 (46)	CCV DORM-4	0.0760 g 01.12.21 22:26	OK (2) 02.12.21 00:56	0.0253	28.8157	379.1536		1.0000
38 (47)	boat	0.0010 g 01.12.21 22:34	OK (1) 02.12.21 01:07	0.0310	0.6275	627.5490		1.0000
39 (48)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:14	0.0281	0.5661	566.0653		1.0000
40 (49)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:21	0.0147	0.2882	288.1862		1.0000
1 (50)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:27	0.0019	0.0253	25.2858		1.0000
2 (51)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:34	0.0175	0.3454	345.3703		1.0000
3 (52)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:41	0.1379	2.9217	2921.721		1.0000
4 (53)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:48	0.0019	0.0248	24.8103		1.0000
5 (54)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 01:55	0.0026	0.0389	38.8652		1.0000
6 (55)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:01	0.0009	0.0035	3.5032		1.0000
7 (56)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:08	0.0023	0.0329	32.9092		1.0000

Sample listing "D120121A.d80"

Created by "User"
02.12.2021 12:10:09

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
8 (57)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:15	0.0008	0.0011	1.0646		1.0000
9 (58)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:22	0.0008	0.0027	2.7205		1.0000
10 (59)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:29	0.0008	0.0012	1.2172		1.0000
11 (60)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:35	0.0006	0.0000	0.0000		1.0000
12 (61)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:42	0.0006	0.0000	0.0000		1.0000
13 (62)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:49	0.0006	0.0000	0.0000		1.0000
14 (63)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 02:56	0.0006	0.0000	0.0000		1.0000
15 (64)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:03	0.0005	0.0000	0.0000		1.0000
16 (65)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:10	0.0007	0.0002	0.2437		1.0000
17 (66)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:16	0.0051	0.0899	89.9410		1.0000
18 (67)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:23	0.0250	0.5011	501.1035		1.0000
19 (68)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:30	0.0064	0.1162	116.2496		1.0000
20 (69)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:37	0.0006	0.0000	0.0000		1.0000
21 (70)	boat	0.0010 g 01.12.21 22:35	OK (1) 02.12.21 03:44	0.0005	0.0000	0.0000		1.0000
22 (71)	boat	0.0010 g 02.12.21 10:21	OK (1) 02.12.21 10:21	0.0033	0.0529	52.9367		1.0000
23 (72)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 10:27	0.0010	0.0064	6.4304		1.0000
24 (73)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 10:34	0.0007	0.0000	0.0000		1.0000
25 (74)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 10:41	0.0005	0.0000	0.0000		1.0000
26 (75)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 10:48	0.0004	0.0000	0.0000		1.0000
27 (76)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 10:55	0.0005	0.0000	0.0000		1.0000
28 (77)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:02	0.0003	0.0000	0.0000		1.0000
29 (78)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:08	0.0015	0.0161	16.0753		1.0000
30 (79)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:15	0.0003	0.0000	0.0000		1.0000
31 (80)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:22	0.0004	0.0000	0.0000		1.0000
32 (81)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:29	0.0005	0.0000	0.0000		1.0000
33 (82)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:36	0.0004	0.0000	0.0000		1.0000
34 (83)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:42	0.0004	0.0000	0.0000		1.0000
35 (84)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:49	0.0003	0.0000	0.0000		1.0000

Sample listing "D120121A.d80"

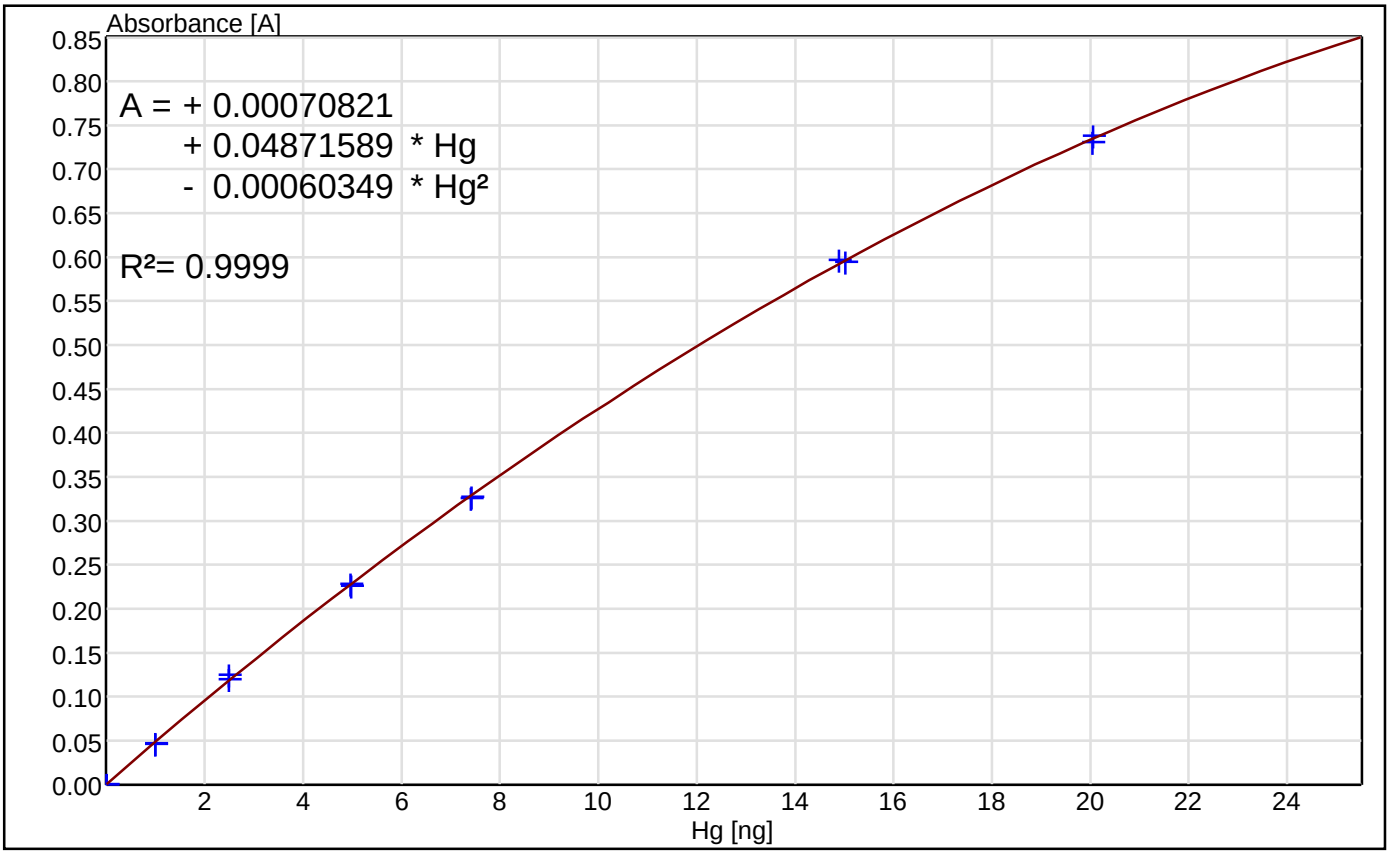
Created by "User"
02.12.2021 12:10:09

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
36 (85)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 11:56	0.0003	0.0000	0.0000		1.0000
37 (86)	boat	0.0010 g 02.12.21 10:22	OK (1) 02.12.21 12:03	0.0003	0.0000	0.0000		1.0000

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 1



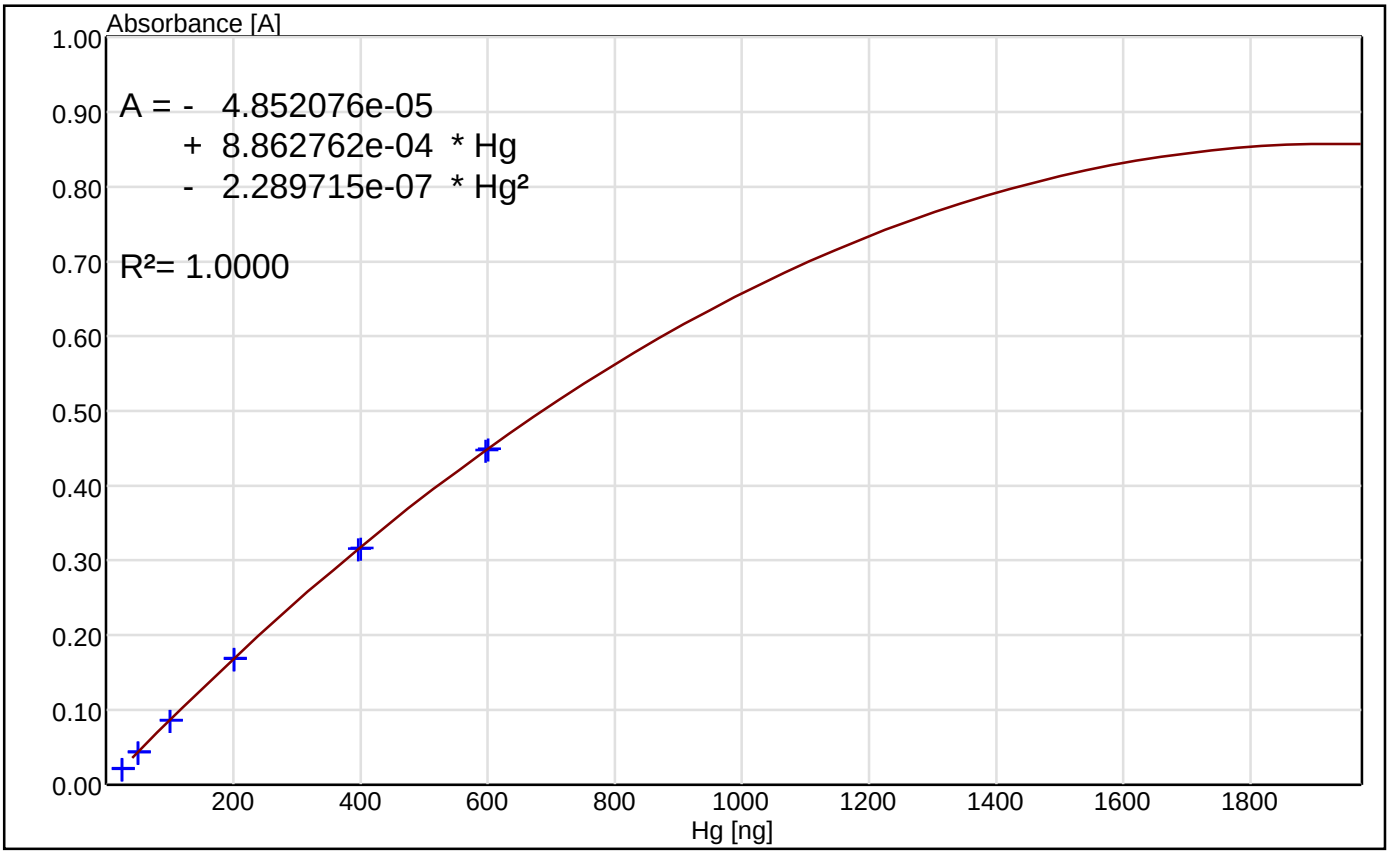
Ultra trace analysis : deactivated
BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	0.0000	0.0005	-0.0052	12.10.2021 10:06:49	
2	OK	0.0000	0.0002	-0.0107	12.10.2021 10:18:08	
3	OK	0.9980	0.0471	-0.0331	12.10.2021 10:43:15	
4	OK	0.9990	0.0465	-0.0468	12.10.2021 10:31:06	
5	OK	2.4884	0.1252	0.1532	12.10.2021 10:55:19	
6	OK	2.4894	0.1195	0.0280	12.10.2021 11:07:17	
7	OK	4.9648	0.2285	0.0194	12.10.2021 11:33:19	
8	OK	4.9749	0.2263	-0.0439	12.10.2021 11:21:15	
9	OK	7.4122	0.3262	-0.0620	12.10.2021 11:57:38	
10	OK	7.4222	0.3272	-0.0466	12.10.2021 11:45:16	
11	OK	14.8946	0.5970	0.1496	12.10.2021 12:09:32	
12	OK	15.0249	0.5943	-0.0678	12.10.2021 12:21:16	
13	OK	20.0399	0.7306	-0.1626	12.10.2021 12:33:04	
14	OK	20.0500	0.7380	0.1298	12.10.2021 12:45:01	

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 2



BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	24.9145	0.0212	-0.7891	12.10.2021 14:23:44	
2	OK	25.0549	0.0219	-0.1296	12.10.2021 14:35:44	
3	OK	49.7488	0.0442	0.8387	12.10.2021 14:59:25	
4	OK	49.8491	0.0437	0.1592	12.10.2021 14:47:39	
5	OK	99.7985	0.0860	-0.1428	12.10.2021 15:30:21	
6	OK	99.9991	0.0859	-0.4623	12.10.2021 15:18:32	
7	OK	200.6000	0.1696	1.3542	12.10.2021 15:42:16	
8	OK	200.6000	0.1685	-0.0310	12.10.2021 16:01:06	
9	OK	396.1850	0.3156	0.6516	12.10.2021 16:31:54	
10	OK	400.1970	0.3166	-1.9405	12.10.2021 16:13:01	
11	OK	596.7850	0.4479	0.9480	12.10.2021 16:43:41	
12	OK	600.7970	0.4495	-0.4495	12.10.2021 17:02:31	

Mercury Analytical Run Checklist
Total Hg (DMA) Procedure MSL-I-034

Analyst: K. Munson Instrument: DMA Evo
Analysis Date: 12/2/2021 Run ID: D120221A
Matrix/Method: Tissue/7473m CF/Add: 3663

Client/Batch	Digestion Type	Fault Codes	Status
3663/12 (remaining)-18 (partial)	none/freeze dried		complete
Notes: 3663-83 rerun to confirm initial run D120121A following MS/MSD; 3663-85 reanalyzed as MS/MSD, run D120121A			

Fault Codes:
10 = method blank out of limits
11 = SRM/CRM or LCS out of limits
12 = Dup out of criteria
13 = Matrix spike recoveries out

Status options: Complete
Partial (dilutions/reruns needed)

Quality Control Checklist

	Method DQOs	Project DQO	Yes	No	Comments/Deviations
Calibration Curve	>0.995		x		101221 cal: 0.9999 (cell 1), 1.000 (cell 2)
Daily Low/High Calibration Points	±10%		x		91.7-107% recovery 1, 20, 25, 600 ng
Calibration STD RE	±25		x		101221 cal: 0.63-4.68% for 1 and 7.5 ng; 0.006-3.17% for 25 and 200 ng
ICV	±10%		x		102% recovery (cell 1); 91.2% recovery (cell 2)
MB	< 3x MDL (or samples >10 MB Conc.)		x		
CCV	±20%		x		96.5-98.6% recovery DORM-4
LCS/BS/OPR	±20%		x		98.7% recovery 1 ppm
SRM/CRM	±20%		x		107% recovery DORM-4
MS/MSD	±20% (±20% RPD)		x		90.4-104% recovery; 14.2% RPD
DUP	±20%		x		8.03% RPD 3663-83

Analyst Signature: Kathleen Munson Date: 3 Dec 2021

PM Signature: [illegible] Date: 13 Dec 2021

Working Standards

Hg Stock:	2013915-100			6/30/2022
Brooks Rand lot 24520	0.412	ug/g	ICV (cell 2)/LCS/MS(D)	12/12/2021
DORM-4	0.412	ug/g	SRM/ICV (cell 1)/CCV	12/31/2022
NIST 1566b	0.0371	ug/g	CAL check	6/1/2030
120221-A	10.0	ug/mL	CAL check	prepped from Hg stock
120221-C	0.100	ug/mL	CAL check	prepped from Hg stock

Total Hg Analysis - DMA-80

Project: ALCOA
CF/ADD#: 3663
Instrument: Milestone DMA-80 Evo
Date: 12/2/2021
Regression Type: Linear thru Zero
Analyst: K. Munson
Method: 7473m
Run ID: D120221A
Blanks: Not subtracted
Matrix: Tissue
Unit: ug/g
MDL (ug/g): 0.0050

Nr	Pos	Sample ID	Mass (g)	Hg (ng)	Conc. (ng/g)	Conc. ug/g (dry)	QC Recovery	% Dry	Conc. (ug/g) (wet)
18	13	MB R1		0.156	1.83	0.00183		100.0	0.002
19	14	MB R2		0.0193	0.263	0.000263		100.0	0.000
20	15	MB R3		0.0107	0.146	0.000146		100.0	0.000
24	11	SRM DORM-4	0.0353	15.5	440	0.440	**107%**	100.0	0.440
17	8	3663-83 R1 rerun	0.0989	17.2	174	0.174		32.8	0.057
18	9	3663-83 R2 rerun	0.0727	13.7	188	0.188	**8.03%**	32.8	0.062
19	10	3663-85	0.0487	67.5	1385	1.39		21.0	0.2909
20	11	LCS	0.252	247	978	0.978	**97.8%**		
30	17	3663-85 MS	0.0428	271	6337	6.34	**104%**		
31	18	3663-85 MSD	0.0411	274	5783	5.78	**90.4%**		
35	22	3663-91	0.042	35.5	845	0.845		21.9	0.185
36	23	3663-92	0.0484	41.8	863.7	0.864		21.2	0.183
37	24	3663-93	0.0440	192	4364	4.36		20.7	0.902
38	25	3663-94	0.204	38.9	191	0.191		35.1	0.067
39	26	3663-95	0.0422	37.1	879	0.879		22.0	0.194
40	27	3663-96	0.156	26.3	168	0.168		34.7	0.058
41	28	3663-97	0.232	22.1	95	0.095		26.3	0.025
43	30	3663-98	0.0305	57.1	1872	1.87		23.6	0.441
44	31	3663-99	0.0420	45.4	1080	1.08		21.9	0.237
45	32	3663-100	0.0265	37.0	1395	1.39		20.8	0.290
46	33	3663-101	0.0318	36.7	1155	1.16		22.6	0.261
47	34	3663-102	0.167	16.3	97	0.097		29.1	0.028
48	35	3663-103	0.222	18.1	81	0.081		26.9	0.022
49	36	3663-104	0.0428	189	4405	4.40		21.8	0.958
50	37	3663-105	0.0454	266	5859	5.86		20.8	1.218
51	38	3663-106	0.0414	75.8	1830	1.83		22.0	0.403

SPIKE DATA (DRY)

Sample ID:	**LCS**	**3663-85 MS**	**3663-85 MSD**
Dry Wt (g)	0.252	0.0428	0.0411
Amount Spiked (µg/g):	1.000	4.75	4.87
Sample Only (µg/g):	0.00000	1.39	1.39
Sample + Spike (µg/g):	0.978	6.34	5.78
Amount Recovered (µg/g):	0.978	4.95	4.40
Percent Recovery:	**97.8%**	**104%**	**90.4%**
RPD:			**14.2%**

Seq #	A/S Pos	QA	Hg (ng)	Hg Spiked (ng)	Conc. (ug/g)	Known Conc. (ug/g)	Recovery
2	1	1 ng	0.878	0.968	0.0336	0.0371	90.7%
3	2	20 ng	21.4	20.0	0.107	0.100	107%
4	3	25 ng	23.7	24.0	0.0917	0.100	91.7%
5	4	600 ng	583	598	9.75	10.0	97.5%
9	5	ICV 10 ng DORM-4	11.0	10.8	0.419	0.412	102%
10	6	ICV 300 ng	277	303	0.912	1.00	91.2%
28	15	CCV-DORM-4	28.2	29.3	0.398	0.412	96.6%
42	29	CCV-DORM-4	21.3	21.6	0.406	0.412	98.6%
52	39	CCV-DORM-4	38.3	39.7	0.398	0.412	96.5%
21	8	MDLV R1			0.0353	0.0300	118%

Sample listing "D120221A.d80"

Created by "User"
03.12.2021 14:12:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
1 (1)	boat	0.0010 g 02.12.21 13:21	OK (1) 02.12.21 13:21	0.0006	0.0000	0.0000		1.0000
1 (2)	1 ng 1566b	0.0261 g 02.12.21 13:37	OK (1) 02.12.21 13:38	0.0430	0.8781	33.6429		1.0000
2 (3)	20 ng	0.1997 g 02.12.21 13:47	OK (1) 02.12.21 13:50	0.7664	21.3813	107.0670		1.0000
3 (4)	25 ng	0.2488 g 02.12.21 13:58	OK (1) 02.12.21 14:02	0.7982	22.8238	91.7357		1.0000
4 (5)	600 ng	0.0598 g 02.12.21 14:10	OK (2) 02.12.21 14:13	0.4387	582.7971	9745.771		1.0000
5 (6)	fork	0.0010 g 02.12.21 14:13	OK (2) 02.12.21 14:21	0.0386	44.1104	44110.43		1.0000
6 (7)	fork	0.0010 g 02.12.21 14:13	OK (1) 02.12.21 14:32	0.0594	1.2232	1223.210		1.0000
7 (8)	fork	0.0010 g 02.12.21 14:14	OK (1) 02.12.21 14:44	0.0246	0.4937	493.7115		1.0000
5 (9)	ICV cell 1	0.0262 g 02.12.21 14:55	OK (1) 02.12.21 14:56	0.4629	10.9816	419.1433		1.0000
6 (10)	ICV cell 2	0.2007 g 02.12.21 15:47	OK (2) 02.12.21 15:47	0.1517	179.5490	894.6141		1.0000
7 (11)	fork	0.0010 g 02.12.21 15:51	OK (2) 02.12.21 15:58	0.0231	26.2975	26297.51		1.0000
8 (12)	fork	0.0010 g 02.12.21 15:51	OK (1) 02.12.21 16:08	0.0906	1.8885	1888.498		1.0000
9 (13)	fork	0.0010 g 02.12.21 15:51	OK (1) 02.12.21 16:19	0.0341	0.6910	690.9545		1.0000
7 (14)	ICV cell 2	0.3034 g 02.12.21 16:32	OK (2) 02.12.21 16:44	0.2276	276.6297	911.7656		1.0000
8 (15)	fork	0.0010 g 02.12.21 16:52	OK (2) 02.12.21 16:53	0.0335	38.2310	38230.95		1.0000
9 (16)	fork	0.0010 g 02.12.21 16:53	OK (1) 02.12.21 17:03	0.1467	3.1174	3117.373		1.0000
10 (17)	fork	0.0010 g 02.12.21 16:53	OK (1) 02.12.21 17:15	0.0578	1.1892	1189.184		1.0000
13 (18)	MB R1	0.0010 g 02.12.21 17:20	OK (1) 02.12.21 17:26	0.0083	0.1562	156.1906		1.0000
14 (19)	MB R2	0.0010 g 02.12.21 17:21	OK (1) 02.12.21 17:39	0.0016	0.0193	19.3067		1.0000
15 (20)	MB R3	0.0010 g 02.12.21 17:21	OK (1) 02.12.21 17:50	0.0012	0.0107	10.6721		1.0000
8 (21)	MDLV R1	0.2873 g 02.12.21 18:01	OK (1) 02.12.21 18:03	0.4325	10.1370	35.2837		1.0000
9 (22)	MDLV R2	0.1424 g 02.12.21 18:02	OK (1) 02.12.21 18:11	0.2301	5.0203	35.2546		1.0000
10 (23)	MDLV R3	0.1970 g 02.12.21 18:02	OK (1) 02.12.21 18:22	0.3225	7.2578	36.8414		1.0000
11 (24)	SRM DORM-4	0.0353 g 02.12.21 18:04	OK (1) 02.12.21 18:33	0.6122	15.5468	440.4190		1.0000
12 (25)	3663-83 R1 rerun	0.0989 g 02.12.21 18:45	OK (1) 02.12.21 18:46	0.6600	17.1977	173.8893		1.0000
13 (26)	3663-83 R2 rerun	0.0727 g 02.12.21 18:54	OK (1) 02.12.21 18:55	0.5548	13.6992	188.4344		1.0000
14 (27)	3663-85 rerun	0.0487 g 02.12.21 19:05	OK (2) 02.12.21 19:06	0.0587	67.4627	1385.271		1.0000
15 (28)	CCV DORM-4	0.0710 g 02.12.21 19:16	OK (2) 02.12.21 19:16	0.0248	28.2431	397.7898		1.0000

Sample listing "D120221A.d80"

Created by "User"
03.12.2021 14:12:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
16 (29)	LCS	0.2521 g 02.12.21 19:28	OK (2) 02.12.21 19:30	0.2046	246.6219	978.2700		1.0000
17 (30)	3663-85 MS	0.0428 g 02.12.21 19:39	OK (2) 02.12.21 19:41	0.2235	271.2408	6337.403		1.0000
18 (31)	3663-85 MSD	0.0474 g 02.12.21 19:52	OK (2) 02.12.21 19:55	0.2257	274.1302	5783.338		1.0000
19 (32)	fork	0.0010 g 02.12.21 19:55	OK (1) 02.12.21 20:02	0.6095	15.4565	15456.48		1.0000
20 (33)	fork	0.0010 g 02.12.21 19:56	OK (1) 02.12.21 20:14	0.0478	0.9775	977.5032		1.0000
21 (34)	fork	0.0010 g 02.12.21 19:56	OK (1) 02.12.21 20:25	0.0271	0.5459	545.8829		1.0000
22 (35)	3663-91	0.0420 g 02.12.21 19:56	OK (2) 02.12.21 20:36	0.0311	35.4704	844.5342		1.0000
23 (36)	3663-92	0.0484 g 02.12.21 19:58	OK (2) 02.12.21 20:49	0.0366	41.8026	863.6897		1.0000
24 (37)	3663-93	0.0440 g 02.12.21 19:59	OK (2) 02.12.21 21:00	0.1617	192.0304	4364.327		1.0000
25 (38)	3663-94	0.2042 g 02.12.21 20:00	OK (2) 02.12.21 21:10	0.0341	38.9217	190.6059		1.0000
26 (39)	3663-95	0.0422 g 02.12.21 20:02	OK (2) 02.12.21 21:21	0.0325	37.0802	878.6788		1.0000
27 (40)	3663-96	0.1563 g 02.12.21 20:06	OK (2) 02.12.21 21:32	0.0231	26.2975	168.2503		1.0000
28 (41)	3663-97	0.2318 g 02.12.21 20:08	OK (1) 02.12.21 21:42	0.7834	22.1361	95.4967		1.0000
29 (42)	CCV DORM-4	0.0524 g 02.12.21 20:10	OK (1) 02.12.21 21:53	0.7644	21.2951	406.3941		1.0000
30 (43)	3663-98	0.0305 g 02.12.21 20:11	OK (2) 02.12.21 22:03	0.0498	57.0868	1871.700		1.0000
31 (44)	3663-99	0.0420 g 02.12.21 20:12	OK (2) 02.12.21 22:14	0.0397	45.3810	1080.499		1.0000
32 (45)	3663-100	0.0265 g 02.12.21 20:15	OK (2) 02.12.21 22:25	0.0324	36.9652	1394.914		1.0000
33 (46)	3663-101	0.0318 g 02.12.21 20:15	OK (2) 02.12.21 22:35	0.0322	36.7352	1155.194		1.0000
34 (47)	3663-102	0.1668 g 02.12.21 20:17	OK (1) 02.12.21 22:46	0.6331	16.2541	97.4467		1.0000
35 (48)	3663-103	0.2224 g 02.12.21 20:19	OK (1) 02.12.21 22:56	0.6837	18.0589	81.2002		1.0000
36 (49)	3663-104	0.0428 g 02.12.21 20:20	OK (2) 02.12.21 23:07	0.1589	188.5266	4404.828		1.0000
37 (50)	3663-105	0.0454 g 02.12.21 20:21	OK (2) 02.12.21 23:17	0.2195	266.0002	5859.035		1.0000
38 (51)	3663-106	0.0414 g 02.12.21 20:23	OK (2) 02.12.21 23:28	0.0658	75.7816	1830.474		1.0000
39 (52)	CCV DORM-4	0.0964 g 02.12.21 20:24	OK (2) 02.12.21 23:39	0.0336	38.3461	397.7807		1.0000
40 (53)	boat	0.0010 g 02.12.21 20:28	OK (1) 02.12.21 23:49	0.0150	0.2938	293.8489		1.0000
1 (54)	boat	0.0010 g 02.12.21 20:28	OK (2) 02.12.21 23:56	0.0606	69.6853	69685.28		1.0000
2 (55)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:03	0.0210	0.4177	417.7418		1.0000
3 (56)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:09	0.0093	0.1775	177.5052		1.0000

Sample listing "D120221A.d80"

Created by "User"
03.12.2021 14:12:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
4 (57)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:16	0.0163	0.3209	320.8892		1.0000
5 (58)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:23	0.0040	0.0672	67.2335		1.0000
6 (59)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:30	0.0034	0.0556	55.5722		1.0000
7 (60)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:37	0.0024	0.0353	35.3305		1.0000
8 (61)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:43	0.0026	0.0396	39.6472		1.0000
9 (62)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:50	0.0019	0.0235	23.5074		1.0000
10 (63)	boat	0.0010 g 02.12.21 20:28	OK (1) 03.12.21 00:57	0.0017	0.0210	21.0056		1.0000
8 (64)	boat	0.0010 g 03.12.21 09:40	OK (1) 03.12.21 09:41	0.0180	0.3563	356.3055		1.0000
9 (65)	boat	0.0010 g 03.12.21 09:40	OK (1) 03.12.21 09:47	0.0018	0.0233	23.3162		1.0000
10 (66)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 09:53	0.0012	0.0099	9.9233		1.0000
11 (67)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:00	0.0012	0.0093	9.2766		1.0000
12 (68)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:07	0.0026	0.0395	39.5376		1.0000
13 (69)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:14	0.0009	0.0033	3.3082		1.0000
14 (70)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:21	0.0011	0.0073	7.2566		1.0000
15 (71)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:27	0.0009	0.0032	3.2332		1.0000
16 (72)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:34	0.0008	0.0021	2.0851		1.0000
17 (73)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:41	0.0009	0.0029	2.9172		1.0000
18 (74)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:48	0.0007	0.0000	0.0000		1.0000
19 (75)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 10:55	0.0009	0.0038	3.7592		1.0000
20 (76)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:01	0.0009	0.0046	4.6220		1.0000
21 (77)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:08	0.0039	0.0650	64.9742		1.0000
22 (78)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:15	0.0034	0.0557	55.6860		1.0000
23 (79)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:22	0.0008	0.0025	2.4723		1.0000
24 (80)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:29	0.0009	0.0042	4.2270		1.0000
25 (81)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:36	0.0007	0.0004	0.4480		1.0000
26 (82)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:42	0.0006	0.0000	0.0000		1.0000
27 (83)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:49	0.0006	0.0000	0.0000		1.0000
28 (84)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 11:56	0.0009	0.0042	4.1647		1.0000

Sample listing "D120221A.d80"

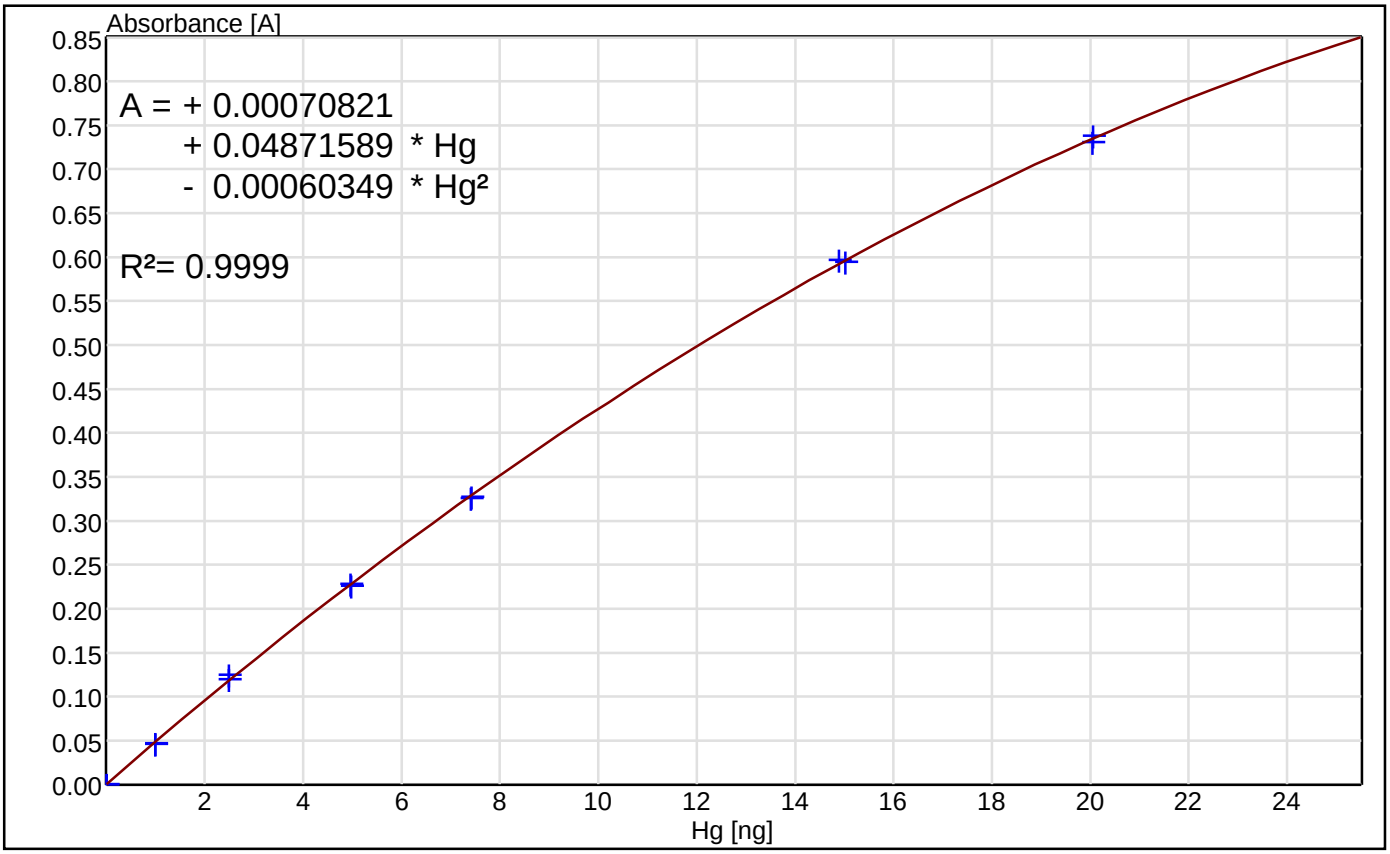
Created by "User"
03.12.2021 14:12:45

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
29 (85)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:03	0.0007	0.0000	0.0000		1.0000
30 (86)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:10	0.0008	0.0024	2.4232		1.0000
31 (87)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:16	0.0006	0.0000	0.0000		1.0000
32 (88)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:23	0.0008	0.0010	1.0096		1.0000
33 (89)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:30	0.0006	0.0000	0.0000		1.0000
34 (90)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:37	0.0006	0.0000	0.0000		1.0000
35 (91)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:44	0.0006	0.0000	0.0000		1.0000
36 (92)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:51	0.0006	0.0000	0.0000		1.0000
37 (93)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 12:57	0.0007	0.0000	0.0000		1.0000
38 (94)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:04	0.0006	0.0000	0.0000		1.0000
39 (95)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:11	0.0006	0.0000	0.0000		1.0000
40 (96)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:18	0.0009	0.0041	4.0525		1.0000
1 (97)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:25	0.0727	1.5059	1505.880		1.0000
2 (98)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:31	0.0015	0.0171	17.1004		1.0000
3 (99)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:38	0.0009	0.0045	4.4503		1.0000
4 (100)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:45	0.0022	0.0313	31.3061		1.0000
5 (101)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:52	0.0007	0.0000	0.0000		1.0000
6 (102)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 13:59	0.0005	0.0000	0.0000		1.0000
7 (103)	boat	0.0010 g 03.12.21 09:41	OK (1) 03.12.21 14:05	0.0005	0.0000	0.0000		1.0000

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 1



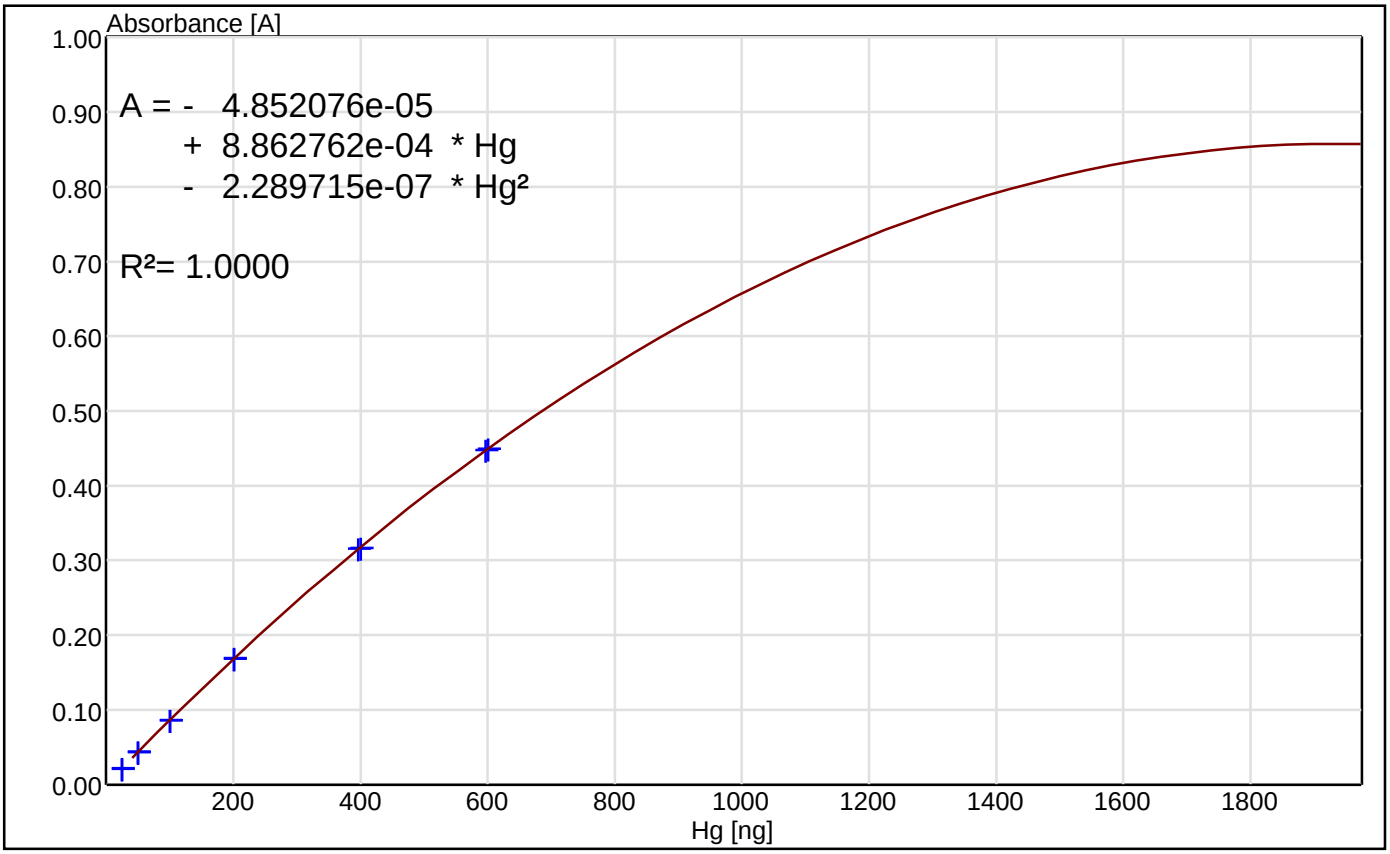
Ultra trace analysis : deactivated
BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	0.0000	0.0005	-0.0052	12.10.2021 10:06:49	
2	OK	0.0000	0.0002	-0.0107	12.10.2021 10:18:08	
3	OK	0.9980	0.0471	-0.0331	12.10.2021 10:43:15	
4	OK	0.9990	0.0465	-0.0468	12.10.2021 10:31:06	
5	OK	2.4884	0.1252	0.1532	12.10.2021 10:55:19	
6	OK	2.4894	0.1195	0.0280	12.10.2021 11:07:17	
7	OK	4.9648	0.2285	0.0194	12.10.2021 11:33:19	
8	OK	4.9749	0.2263	-0.0439	12.10.2021 11:21:15	
9	OK	7.4122	0.3262	-0.0620	12.10.2021 11:57:38	
10	OK	7.4222	0.3272	-0.0466	12.10.2021 11:45:16	
11	OK	14.8946	0.5970	0.1496	12.10.2021 12:09:32	
12	OK	15.0249	0.5943	-0.0678	12.10.2021 12:21:16	
13	OK	20.0399	0.7306	-0.1626	12.10.2021 12:33:04	
14	OK	20.0500	0.7380	0.1298	12.10.2021 12:45:01	

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 2



BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	24.9145	0.0212	-0.7891	12.10.2021 14:23:44	
2	OK	25.0549	0.0219	-0.1296	12.10.2021 14:35:44	
3	OK	49.7488	0.0442	0.8387	12.10.2021 14:59:25	
4	OK	49.8491	0.0437	0.1592	12.10.2021 14:47:39	
5	OK	99.7985	0.0860	-0.1428	12.10.2021 15:30:21	
6	OK	99.9991	0.0859	-0.4623	12.10.2021 15:18:32	
7	OK	200.6000	0.1696	1.3542	12.10.2021 15:42:16	
8	OK	200.6000	0.1685	-0.0310	12.10.2021 16:01:06	
9	OK	396.1850	0.3156	0.6516	12.10.2021 16:31:54	
10	OK	400.1970	0.3166	-1.9405	12.10.2021 16:13:01	
11	OK	596.7850	0.4479	0.9480	12.10.2021 16:43:41	
12	OK	600.7970	0.4495	-0.4495	12.10.2021 17:02:31	

Mercury Analytical Run Checklist
Total Hg (DMA) Procedure MSL-I-034

Analyst: K. Munson
Instrument: DMA Evo
Analysis Date: 12/3/2021
Run ID: D120321A
Matrix/Method: Tissue/7473m
CF/Add: 3663

Client/Batch	Digestion Type	Fault Codes	Status
3663/18-24	none/freeze dried		complete
Notes:			

Fault Codes:
10 = method blank out of limits
11 = SRM/CRM or LCS out of limits
12 = Dup out of criteria
13 = Matrix spike recoveries out

Status options:
Complete
Partial (dilutions/reruns needed)

Quality Control Checklist

	Method DQOs	Project DQO	Yes	No	Comments/Deviations
Calibration Curve	>0.995		x		101221 cal: 0.9999 (cell 1), 1.000 (cell 2)
Daily Low/High Calibration Points	±10%		x		95.0-99.5% recovery of 1, 20, 25, and 600 ng
Calibration STD RE	±25		x		101221 cal: 0.63-4.68% for 1 and 7.5 ng; 0.006-3.17% for 25 and 200 ng
ICV	±10%		x		108% recovery (cell 1), 93.9% recovery (cell 2)
MB	< 3x MDL (or samples >10 MB Conc.)		x		
CCV	±20%		x		
LCS/BS/OPR	±20%		x		102% recovery 1 ppm
SRM/CRM	±20%		x		102% recovery DORM-4
MS/MSD	±20% (±20% RPD)		x		97.2-102% recovery, 4.89% RPD 3663-120
DUP	±20%		x		1.39% RPD 3663-119

Analyst Signature: Kathleen Munson
Date: 4 Dec 2021

PM Signature:
Date: 13 Dec 2021

Working Standards				Expiry
Hg Stock:	2013915-100			6/30/2022
Brooks Rand lot 2452	0.412	ug/g	ICV (cell 2)/LCS/MS(D)	12/12/2021
DORM-4	0.412	ug/g	SRM/ICV (cell 1)/CCV	12/31/2022
NIST 1566b	0.0371	ug/g	CAL check	6/1/2030
120321-A	10.0	ug/mL	CAL check	prepped from Hg stock
120321-C	0.100	ug/mL	CAL check	prepped from Hg stock

Total Hg Analysis - DMA-80

Project: ALCOA
CF/ADD#: 3663
Instrument: Milestone DMA-80 Evo
Date: 12/3/2021
Regression Type: Linear thru Zero
Analyst: K. Munson
Method: 7473m
Run ID: D120321A
Blanks: Not subtracted
Matrix: Tissue
Unit: ug/g
MDL (ug/g): 0.0050

Nr	Pos	Sample ID	Mass (g)	Hg (ng)	Conc. (ng/g)	Conc. ug/g (dry)	QC Recovery	% Dry	Conc. (ug/g) (wet)
13	7	MB R1		0.147	3.15	0.00315		100.0	0.003
14	8	MB R2		0.0282	0.662	0.000662		100.0	0.001
15	9	MB R3		0.0178	0.418	0.000418		100.0	0.000
19	10	SRM DORM-4	0.0547	23.0	421	0.421	**102%**	100.0	0.421
20	11	3663-107	0.0430	83.7	1955	1.95		21.1	0.412
21	12	3663-108	0.0422	69.0	1635	1.63		20.5	0.336
22	13	3663-109	0.0426	114	2676	2.68		20.6	0.552
24	15	3663-110	0.0418	56.2	1343	1.34		20.9	0.281
25	16	3663-111	0.0391	79.5	2034	2.03		22.4	0.455
26	17	3663-112	0.0540	96.6	1788	1.79		21.7	0.389
27	18	3663-113	0.0409	44.8	1090	1.09		20.4	0.222
28	19	3663-114	0.0549	92.4	1683	1.68		19.2	0.324
29	20	3663-115	0.0482	71.3	1480	1.48		21.0	0.311
30	21	3663-116	0.0521	82.1	1576	1.58		21.3	0.336
31	22	3663-117	0.0534	108	2018	2.02		21.1	0.426
32	23	3663-118	0.0616	38.2	621	0.621		22.3	0.138
33	24	3663-119 R1	0.0504	151	3002	3.00		20.1	0.604
35	26	3663-119 R2	0.0451	134	2960	2.96	**1.39%**	20.1	0.595
36	27	3663-120	0.0548	91.7	1673	1.67		23.9	0.400
37	28	LCS	0.2017	207	1024	1.02	**102%**		
38	29	3663-120 MS	0.0375	267	7118	7.12	**102%**		
39	30	3663-120 MSD	0.0352	253	7194	7.19	**97.2%**		

SPIKE DATA (DRY)

Sample ID:	**LCS**	**3663-120 MS**	**3663-120 MSD**
Dry Wt (g)	0.200	0.0375	0.0352
Amount Spiked (µg/g):	1.000	5.34	5.68
Sample Only (µg/g):	0.00000	1.67	1.67
Sample + Spike (µg/g):	1.024	7.12	7.19
Amount Recovered (µg/g):	1.024	5.44	5.52
Percent Recovery:	**102%**	**102%**	**97.2%**
RPD:			**4.89%**

Seq #	A/S Pos	QA	Hg (ng)	Hg Spiked (ng)	Conc. (ug/g)	Known Conc. (ug/g)	Recovery
1	1	1 ng	0.991	1.017	0.0362	0.0371	97.5%
2	2	20 ng	19.9	20.0	0.099	0.100	99.4%
3	3	25 ng	23.7	25.0	0.0950	0.100	95.0%
4	4	600 ng	597	600	9.95	10.0	99.5%
8	5	ICV 10 ng DORM-4	13.1	12.1	0.446	0.412	108%
9	6	ICV 300 ng	285	304	0.939	1.00	93.9%
23	14	CCV-DORM-4	20.5	19.4	0.435	0.412	105%
34	25	CCV-DORM-4	28.8	30.0	0.395	0.412	95.9%
41	31	CCV-DORM-4	67.9	70.1	0.399	0.412	96.9%
16	7	MDLV R1			0.0365	0.0300	122%

Sample listing "D120321A.d80"

Created by "User"
04.12.2021 01:19:27

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
1 (1)	1 ng 1566b	0.0274 g 03.12.21 14:15	OK (1) 03.12.21 14:17	0.0484	0.9909	36.1632		1.0000
2 (2)	20 ng	0.2004 g 03.12.21 14:25	OK (1) 03.12.21 14:27	0.7317	19.9208	99.4052		1.0000
3 (3)	25 ng	0.2499 g 03.12.21 14:37	OK (1) 03.12.21 14:40	0.8173	23.7478	95.0294		1.0000
4 (4)	600 ng	0.0600 g 03.12.21 14:54	OK (2) 03.12.21 14:57	0.4473	596.7538	9945.896		1.0000
5 (5)	fork	0.0010 g 03.12.21 15:00	OK (1) 03.12.21 15:05	0.7807	22.0133	22013.34		1.0000
6 (6)	fork	0.0010 g 03.12.21 15:00	OK (1) 03.12.21 15:16	0.0546	1.1224	1122.425		1.0000
7 (7)	fork	0.0010 g 03.12.21 15:00	OK (1) 03.12.21 15:27	0.0287	0.5787	578.7335		1.0000
5 (8)	ICV cell 1	0.0293 g 03.12.21 15:39	OK (1) 03.12.21 15:41	0.5339	13.0581	445.6679		1.0000
6 (9)	ICV cell 2	0.3038 g 03.12.21 15:53	OK (2) 03.12.21 15:56	0.2342	285.3414	939.2411		1.0000
7 (10)	fork	0.0010 g 03.12.21 16:06	OK (2) 03.12.21 16:06	0.0286	32.5991	32599.14		1.0000
8 (11)	fork	0.0010 g 03.12.21 16:06	OK (1) 03.12.21 16:16	0.0706	1.4610	1460.996		1.0000
9 (12)	fork	0.0010 g 03.12.21 16:06	OK (1) 03.12.21 16:28	0.0311	0.6289	628.8967		1.0000
7 (13)	MB R1	0.0010 g 03.12.21 16:39	OK (1) 03.12.21 16:39	0.0078	0.1466	146.5831		1.0000
8 (14)	MB R2	0.0010 g 03.12.21 16:39	OK (1) 03.12.21 16:52	0.0021	0.0282	28.2035		1.0000
9 (15)	MB R3	0.0010 g 03.12.21 16:40	OK (1) 03.12.21 17:03	0.0016	0.0178	17.8029		1.0000
7 (16)	MDLV R1	0.1347 g 03.12.21 17:16	OK (1) 03.12.21 17:19	0.2254	4.9117	36.4639		1.0000
8 (17)	MDLV R2	0.1461 g 03.12.21 17:18	OK (1) 03.12.21 17:27	0.3263	7.3540	50.3353		1.0000
9 (18)	MDLV R3	0.1779 g 03.12.21 17:19	OK (1) 03.12.21 17:38	0.2711	5.9964	33.7064		1.0000
10 (19)	SRM DORM-4	0.0547 g 03.12.21 17:23	OK (1) 03.12.21 17:49	0.8021	23.0069	420.6023		1.0000
11 (20)	3663-107	0.0430 g 03.12.21 18:00	OK (2) 03.12.21 18:03	0.0725	83.6662	1945.724		1.0000
12 (21)	3663-108	0.0422 g 03.12.21 18:02	OK (2) 03.12.21 18:11	0.0600	68.9831	1634.671		1.0000
13 (22)	3663-109	0.0426 g 03.12.21 18:03	OK (2) 03.12.21 18:22	0.0980	113.9865	2675.739		1.0000
14 (23)	CCV DORM-4	0.0471 g 03.12.21 18:04	OK (1) 03.12.21 18:32	0.7450	20.4688	434.5817		1.0000
15 (24)	3663-110	0.0418 g 03.12.21 18:06	OK (2) 03.12.21 18:43	0.0490	56.1570	1343.468		1.0000
16 (25)	3663-111	0.0391 g 03.12.21 18:06	OK (2) 03.12.21 18:53	0.0690	79.5432	2034.352		1.0000
17 (26)	3663-112	0.0540 g 03.12.21 18:08	OK (2) 03.12.21 19:04	0.0834	96.5654	1788.248		1.0000
18 (27)	3663-113	0.0409 g 03.12.21 18:10	OK (2) 03.12.21 19:14	0.0390	44.5724	1089.788		1.0000
19 (28)	3663-114	0.0549 g 03.12.21 18:10	OK (2) 03.12.21 19:25	0.0799	92.4136	1683.308		1.0000

Sample listing "D120321A.d80"

Created by "User"
04.12.2021 01:19:27

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
20 (29)	3663-115	0.0482 g 03.12.21 18:12	OK (2) 03.12.21 19:35	0.0620	71.3246	1479.764		1.0000
21 (30)	3663-116	0.0521 g 03.12.21 18:13	OK (2) 03.12.21 19:46	0.0712	82.1337	1576.462		1.0000
22 (31)	3663-117	0.0534 g 03.12.21 18:14	OK (2) 03.12.21 19:56	0.0928	107.7627	2018.028		1.0000
23 (32)	3663-118	0.0616 g 03.12.21 18:15	OK (2) 03.12.21 20:07	0.0335	38.2310	620.6324		1.0000
24 (33)	3663-119 R1	0.0504 g 03.12.21 18:18	OK (2) 03.12.21 20:17	0.1288	151.2957	3001.898		1.0000
25 (34)	CCV DORM-4	0.0729 g 03.12.21 18:18	OK (2) 03.12.21 20:28	0.0253	28.8157	395.2767		1.0000
26 (35)	3663-119 R2	0.0451 g 03.12.21 18:20	OK (2) 03.12.21 20:38	0.1142	133.5138	2960.395		1.0000
27 (36)	3663-120	0.0548 g 03.12.21 18:21	OK (2) 03.12.21 20:49	0.0793	91.7028	1673.409		1.0000
28 (37)	LCS	0.2017 g 03.12.21 21:01	OK (2) 03.12.21 21:03	0.1733	206.6217	1024.401		1.0000
29 (39)	3663-120 MS	0.0375 g 03.12.21 21:15	OK (2) 03.12.21 21:16	0.2202	266.9161	7117.763		1.0000
30 (40)	3663-120 MSD	0.0352 g 03.12.21 21:27	OK (2) 03.12.21 21:29	0.2097	253.2296	7194.022		1.0000
31 (41)	CCV DORM-4	0.1701 g 03.12.21 21:37	OK (2) 03.12.21 21:37	0.0591	67.9304	399.3558		1.0000
1 (42)	boat	0.0010 g 03.12.21 21:48	OK (1) 03.12.21 21:49	0.2453	5.3782	5378.195		1.0000
2 (43)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 21:55	0.0579	1.1921	1192.095		1.0000
3 (44)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:01	0.0260	0.5217	521.6766		1.0000
4 (45)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:08	0.1784	3.8297	3829.730		1.0000
5 (46)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:15	0.0097	0.1851	185.1472		1.0000
6 (47)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:22	0.0072	0.1326	132.6446		1.0000
7 (48)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:29	0.0049	0.0862	86.1675		1.0000
8 (49)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:35	0.0036	0.0586	58.5604		1.0000
9 (50)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:42	0.0035	0.0575	57.4612		1.0000
10 (51)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:49	0.0031	0.0492	49.1802		1.0000
11 (52)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 22:56	0.0023	0.0324	32.4419		1.0000
12 (53)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:03	0.0024	0.0349	34.9060		1.0000
13 (54)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:10	0.0023	0.0335	33.5167		1.0000
14 (55)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:16	0.0016	0.0192	19.1825		1.0000
15 (56)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:23	0.0019	0.0240	23.9504		1.0000
16 (57)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:30	0.0017	0.0208	20.8122		1.0000

Sample listing "D120321A.d80"

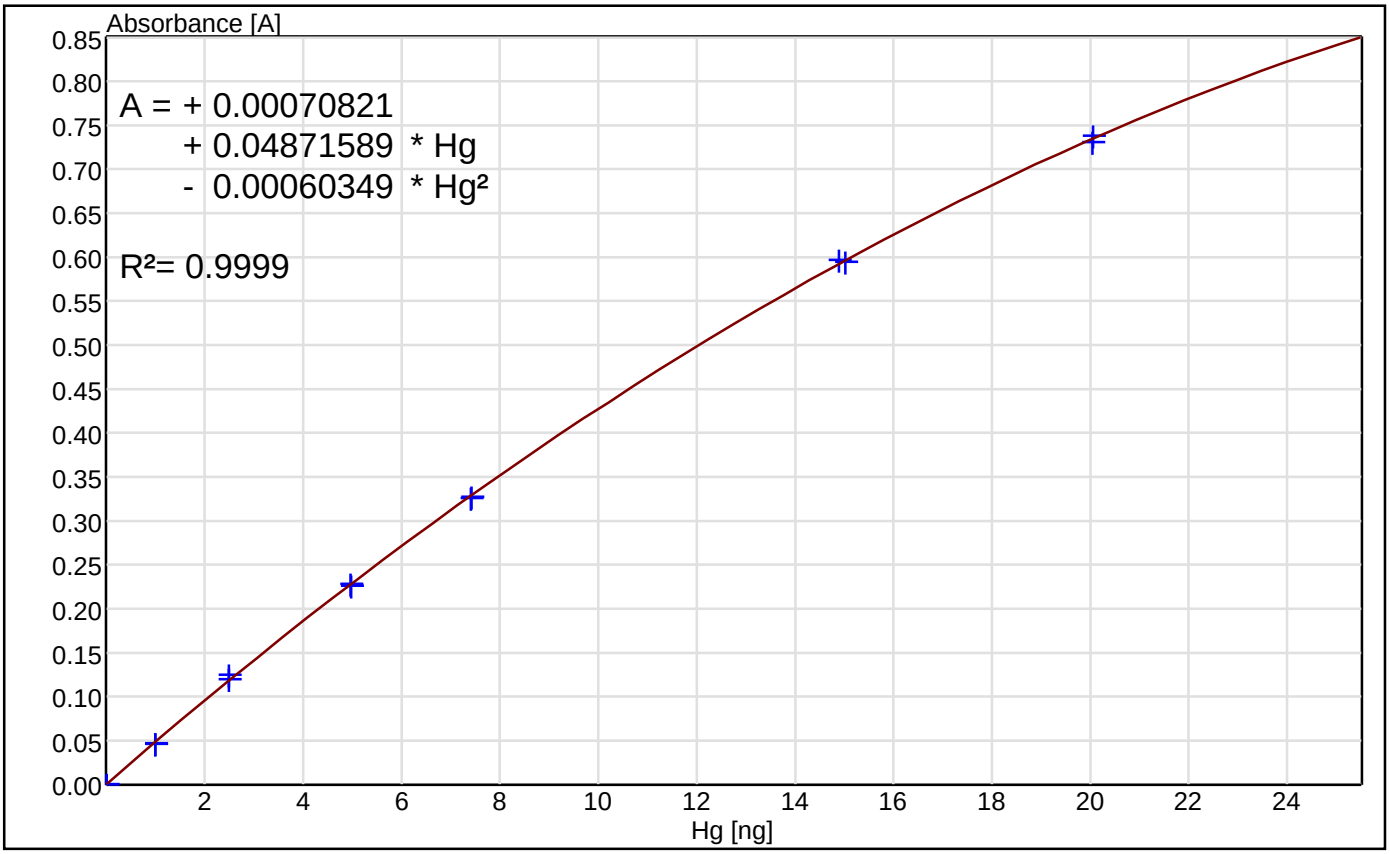
Created by "User"
04.12.2021 01:19:27

Pos Nr.	Samplename Remark	Amount Date	State Date	Height	Hg [ng]	Concentr. [µg/kg]	Gr.	Cal- Factor
17 (58)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:37	0.0016	0.0173	17.3411		1.0000
18 (59)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:44	0.0015	0.0164	16.4223		1.0000
19 (60)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:50	0.0016	0.0177	17.6821		1.0000
20 (61)	boat	0.0010 g 03.12.21 21:49	OK (1) 03.12.21 23:57	0.0014	0.0144	14.3552		1.0000
21 (62)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:04	0.0013	0.0121	12.1190		1.0000
22 (63)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:11	0.0015	0.0167	16.7139		1.0000
23 (64)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:18	0.0016	0.0185	18.4539		1.0000
24 (65)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:24	0.0013	0.0111	11.1236		1.0000
25 (66)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:31	0.0014	0.0146	14.6196		1.0000
26 (67)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:38	0.0015	0.0157	15.6808		1.0000
27 (68)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:45	0.0015	0.0159	15.9069		1.0000
28 (69)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:52	0.0029	0.0458	45.7883		1.0000
29 (70)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 00:59	0.0013	0.0115	11.4968		1.0000
30 (71)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 01:05	0.0013	0.0124	12.3953		1.0000
31 (72)	boat	0.0010 g 03.12.21 21:49	OK (1) 04.12.21 01:12	0.0012	0.0091	9.1043		1.0000

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 1



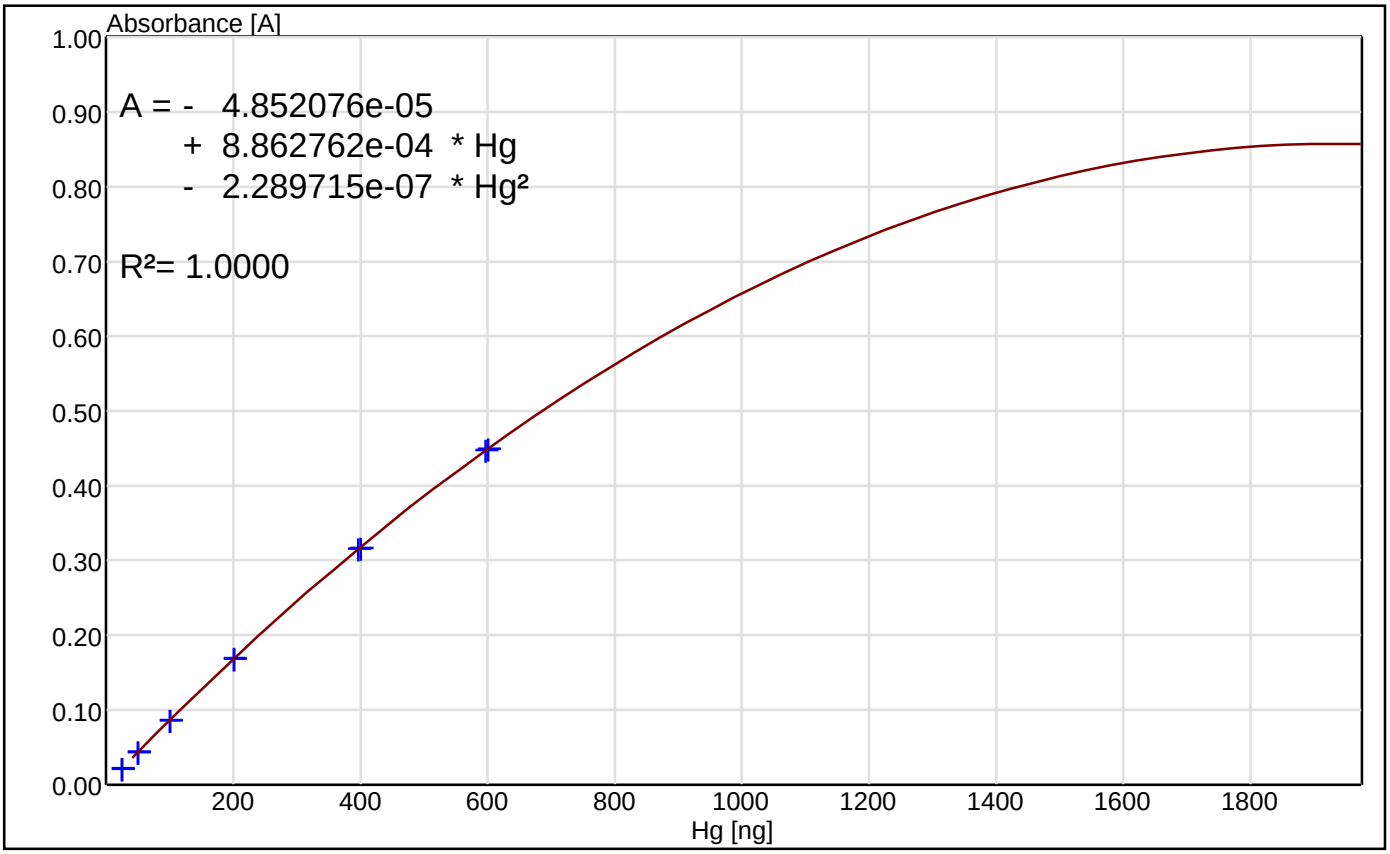
Ultra trace analysis : deactivated
BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	0.0000	0.0005	-0.0052	12.10.2021 10:06:49	
2	OK	0.0000	0.0002	-0.0107	12.10.2021 10:18:08	
3	OK	0.9980	0.0471	-0.0331	12.10.2021 10:43:15	
4	OK	0.9990	0.0465	-0.0468	12.10.2021 10:31:06	
5	OK	2.4884	0.1252	0.1532	12.10.2021 10:55:19	
6	OK	2.4894	0.1195	0.0280	12.10.2021 11:07:17	
7	OK	4.9648	0.2285	0.0194	12.10.2021 11:33:19	
8	OK	4.9749	0.2263	-0.0439	12.10.2021 11:21:15	
9	OK	7.4122	0.3262	-0.0620	12.10.2021 11:57:38	
10	OK	7.4222	0.3272	-0.0466	12.10.2021 11:45:16	
11	OK	14.8946	0.5970	0.1496	12.10.2021 12:09:32	
12	OK	15.0249	0.5943	-0.0678	12.10.2021 12:21:16	
13	OK	20.0399	0.7306	-0.1626	12.10.2021 12:33:04	
14	OK	20.0500	0.7380	0.1298	12.10.2021 12:45:01	

Calibration data "101221 cal.c80"

Created by "" at
12.10.2021 19:13:36

Cell 2



BV correction : deactivated

Nr.		Hg [ng]	Height ^	Error d-Hg[ng]	Date	Remarks
1	OK	24.9145	0.0212	-0.7891	12.10.2021 14:23:44	
2	OK	25.0549	0.0219	-0.1296	12.10.2021 14:35:44	
3	OK	49.7488	0.0442	0.8387	12.10.2021 14:59:25	
4	OK	49.8491	0.0437	0.1592	12.10.2021 14:47:39	
5	OK	99.7985	0.0860	-0.1428	12.10.2021 15:30:21	
6	OK	99.9991	0.0859	-0.4623	12.10.2021 15:18:32	
7	OK	200.6000	0.1696	1.3542	12.10.2021 15:42:16	
8	OK	200.6000	0.1685	-0.0310	12.10.2021 16:01:06	
9	OK	396.1850	0.3156	0.6516	12.10.2021 16:31:54	
10	OK	400.1970	0.3166	-1.9405	12.10.2021 16:13:01	
11	OK	596.7850	0.4479	0.9480	12.10.2021 16:43:41	
12	OK	600.7970	0.4495	-0.4495	12.10.2021 17:02:31	

FISH AND SHELLFISH MONITORING

Percent Moisture Raw Data

Percent Dry Weight Calculations

Project: ALCOA
Central File #: ~~3660~~ cm 10/11/21 3663
Analyst: C. Myers

Date: 10/11/21
Balance ID: 8726302188
Matrix: Tissue

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663 – 24	27.8271	50.690	33.9558	0.000	0.000	#DIV/0!	#DIV/0!
25	28.3834	47.899	33.9616	0.000	0.000	#DIV/0!	#DIV/0!
29	27.8442	59.428	38.5809	0.000	0.000	#DIV/0!	#DIV/0!
37	27.9984	50.699	33.6937	0.000	0.000	#DIV/0!	#DIV/0!
32	27.9792	37.960	30.7631	0.000	0.000	#DIV/0!	#DIV/0!
33	27.8831	37.231	30.9376	0.000	0.000	#DIV/0!	#DIV/0!
22	28.3331	49.997	34.8861	0.000	0.000	#DIV/0!	#DIV/0!
38	28.3409	46.753	35.0717	0.000	0.000	#DIV/0!	#DIV/0!
12	27.8541	48.794	34.2002	0.000	0.000	#DIV/0!	#DIV/0!
15	28.4240	47.687	34.2282	0.000	0.000	#DIV/0!	#DIV/0!
20	27.8281	41.819	31.7079	0.000	0.000	#DIV/0!	#DIV/0!
47	28.3900	39.481	32.0863	0.000	0.000	#DIV/0!	#DIV/0!
14	27.8213	49.270	33.7193	0.000	0.000	#DIV/0!	#DIV/0!
19	28.0421	64.013	38.9288	0.000	0.000	#DIV/0!	#DIV/0!
40	27.8221	75.309	38.7064	0.000	0.000	#DIV/0!	#DIV/0!
46	27.8392	64.518	41.3601	0.000	0.000	#DIV/0!	#DIV/0!
28	27.8397	45.550	33.7923	0.000	0.000	#DIV/0!	#DIV/0!
34	27.8362	44.464	33.3698	0.000	0.000	#DIV/0!	#DIV/0!
45	27.7890	41.410	32.1934	0.000	0.000	#DIV/0!	#DIV/0!
18	28.0189	49.898	34.6693	0.000	0.000	#DIV/0!	#DIV/0!
1	28.0195	70.791	35.6170	0.000	0.000	#DIV/0!	#DIV/0!
48	27.8433	49.609	35.3040	0.000	0.000	#DIV/0!	#DIV/0!
27	27.8056	55.574	36.3178	0.000	0.000	#DIV/0!	#DIV/0!
				0.000	0.000	#DIV/0!	#DIV/0!
				0.000	0.000	#DIV/0!	#DIV/0!
				0.000	0.000	#DIV/0!	#DIV/0!
				0.000	0.000	#DIV/0!	#DIV/0!
				0.000	0.000	#DIV/0!	#DIV/0!

Percent Dry Weight Calculations

Project: Alcoa
Central File #: 3663
Analyst: K. MUNSON

Date: 10/12/21
Balance ID: 09630
Matrix: Tissue

KMM 10/13/21

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-43	28.0190	92.671	49.554	0.000	0.000	#DIV/0!	#DIV/0!
3663-~~8~~ 6	27.8773	78.766	38.995	0.000	0.000	#DIV/0!	#DIV/0!
3663-36	27.8501	65.964	39.828	0.000	0.000	#DIV/0!	#DIV/0!
3663-61	27.8711	47.751	34.647	0.000	0.000	#DIV/0!	#DIV/0!
3663-53	27.9189	63.655	40.465	0.000	0.000	#DIV/0!	#DIV/0!
3663-55	27.8755	58.571	38.613	0.000	0.000	#DIV/0!	#DIV/0!
3663-78	27.8036	75.455	37.718	0.000	0.000	#DIV/0!	#DIV/0!
3663-51	27.9172	77.974	38.953	0.000	0.000	#DIV/0!	#DIV/0!
3663-56	27.8421	50.692	35.027	0.000	0.000	#DIV/0!	#DIV/0!
3663-26	27.8506	64.581	39.339	0.000	0.000	#DIV/0!	#DIV/0!
3663-50	27.8477	83.102	39.521	0.000	0.000	#DIV/0!	#DIV/0!
3663-65	27.8933	42.594	32.642	0.000	0.000	#DIV/0!	#DIV/0!
3663-64	27.8611	62.074	39.826	0.000	0.000	#DIV/0!	#DIV/0!
3663-73	28.3657	74.227	37.569	0.000	0.000	#DIV/0!	#DIV/0!
3663-71	28.4143	81.188	39.818	0.000	0.000	#DIV/0!	#DIV/0!
3663-30	28.4266	79.056	39.880	0.000	0.000	#DIV/0!	#DIV/0!
3663-70	28.3517	78.454	39.638	0.000	0.000	#DIV/0!	#DIV/0!
3663-11	27.8892	69.280	36.531	0.000	0.000	#DIV/0!	#DIV/0!
3663-3	27.8713	77.418	38.193	0.000	0.000	#DIV/0!	#DIV/0!
3663-41	27.9061	79.355	38.237	0.000	0.000	#DIV/0!	#DIV/0!
3663-21	27.9972	52.895	37.042	0.000	0.000	#DIV/0!	#DIV/0!
3663-44	27.8193	69.908	41.085	0.000	0.000	#DIV/0!	#DIV/0!
3663-60	28.3713	50.835	36.461	0.000	0.000	#DIV/0!	#DIV/0!
3663-2	27.7964	79.030	38.099	0.000	0.000	#DIV/0!	#DIV/0!
3663-39	27.9205	71.004	36.477	0.000	0.000	#DIV/0!	#DIV/0!
3663-7	27.8991	80.809	38.735	0.000	0.000	#DIV/0!	#DIV/0!
				0.000	0.000	#DIV/0!	#DIV/0!
	KMM	10/12/21		0.000	0.000	#DIV/0!	#DIV/0!

Percent Dry Weight Calculations

Project: Alcoa
Central File #: 3663
Analyst: K. MUNSON

Date: 10/12/21
Balance ID: 09630
Matrix: Tissue

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-59	28.3810	61.029	38.953	0.000	0.000	#DIV/0!	#DIV/0!
3663-31	28.3200	76.249	38.814	0.000	0.000	#DIV/0!	#DIV/0!
3663-62	27.8746	53.471	35.870	0.000	0.000	#DIV/0!	#DIV/0!
KMM 10/12/21 3663-16	27.7966	~~55.497~~ 55.497	36.771	0.000	0.000	#DIV/0!	#DIV/0!
3663-76	27.8631	36.523	30.386	0.000	0.000	#DIV/0!	#DIV/0!
3663-77	28.0131	79.625	39.809	0.000	0.000	#DIV/0!	#DIV/0!
3663-23	27.8731	54.049	34.827	0.000	0.000	#DIV/0!	#DIV/0!
KMM 10/12/21 3663-~~2~~79	28.0283	58.700	38.614	0.000	0.000	#DIV/0!	#DIV/0!
3663-58	28.3396	59.909	37.902	0.000	0.000	#DIV/0!	#DIV/0!
3663-54	27.8115	70.358	42.183	0.000	0.000	#DIV/0!	#DIV/0!
3663-52	27.8590	78.225	38.171	0.000	0.000	#DIV/0!	#DIV/0!
3663-69	27.8553	76.748	39.010	0.000	0.000	#DIV/0!	#DIV/0!
3663-74	27.8275	44.988	33.126	0.000	0.000	#DIV/0!	#DIV/0!
3663-49	28.0151	77.930	38.510	0.000	0.000	#DIV/0!	#DIV/0!
3663-57	28.3556	75.319	44.677	0.000	0.000	#DIV/0!	#DIV/0!
3663-68	27.8742	44.921	33.626	0.000	0.000	#DIV/0!	#DIV/0!
3663-72	27.8851	78.342	38.801	0.000	0.000	#DIV/0!	#DIV/0!
3663-5	27.8082	79.973	38.170	0.000	0.000	#DIV/0!	#DIV/0!
3663-67	27.8709	62.286	38.988	0.000	0.000	#DIV/0!	#DIV/0!
3663-75	27.8309	50.433	35.182	0.000	0.000	#DIV/0!	#DIV/0!
3663-42	27.8203	82.350	39.260	0.000	0.000	#DIV/0!	#DIV/0!
3663-8	27.8529	80.730	39.685	0.000	0.000	#DIV/0!	#DIV/0!
3663-4	27.9122	77.024	38.754	0.000	0.000	#DIV/0!	#DIV/0!
3663-9	27.8827	74.113	37.279		KMM 10/12/21		
3663-10	27.8014	77.238	37.420				
3663-13	27.7730	80.800	43.991	0.000	0.000	#DIV/0!	#DIV/0!
3663-63	28.2869	44.315	33.952	0.000	0.000	#DIV/0!	#DIV/0!
3663-17	28.0354	67.925	41.610	0.000	0.000	#DIV/0!	#DIV/0!
3663-66	28.3086	40.684	32.134	0.000	0.000	#DIV/0!	#DIV/0!
3663-35	27.8806	82.909	45.540	0.000	0.000	#DIV/0!	#DIV/0!

Percent Dry Weight Calculations

Project: ALCOA
Central File #: 3663
Analyst: K. MUNISON

Date: 11/24/2021
Balance ID: 09630
Matrix: Tissue

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-84	27.874	83.876	39.858	CALC	CALC	CALC	CALC
3663-107	27.890	80.537	38.978				
3663-81	28.006	82.372	39.178				
3663-94	28.031	36.775	31.098				
3663-105	27.837	80.289	38.738				
3663-82	27.980	54.980	37.181				
3663-97	28.328	81.654	42.346				
3663-87	27.828	35.712	30.427				
3663-106	27.887	81.714	39.723				
3663-80	27.969	78.651	38.595				
3663-89	28.361	76.982	39.514				
3663-110	27.876	77.914	38.337				
3663-90	28.012	76.980	38.276				
3663-96	28.009	36.162	30.836				
3663-109	27.820	79.851	38.557				
3663-88	27.866	75.799	38.146				
3663-85	27.871	58.325	34.266				
3663-93	27.910	77.450	38.149				
3663-86	28.317	39.538	32.440				
3663-92	27.837	76.277	38.114				
3663-91	28.376	78.286	39.298				
3663-95	27.875	79.175	39.179				
3663-99	27.884	79.504	39.212				
3663-104	27.985	78.558	38.988				
3663-98	28.344	79.869	40.491				
3663-83	27.843	37.480	31.002				
3663-108	27.851	80.250	38.613				
3663-101	27.830	80.032	39.628				
3663-103	28.345	73.051	40.360				

Percent Dry Weight Calculations

Project: ALCOA
Central File #: 3663
Analyst: K. MUNSON

Date: 11/29/21
Balance ID: 09630
Matrix: Tissue

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-112	27.9201	69.047	36.855	CALC	CALC	CALC	CALC
3663-100	28.0167	81.645	39.178				
3663-111	28.3138	79.076	39.673				
3663-102	27.8397	77.766	42.371				
3663-120	27.8003	77.854	39.762				
3663-113	28.0049	79.859	38.582				
3663-119	28.0339	76.150	37.708				
3663-115	27.8521	80.584	38.948				
3663-116	27.8399	71.262	37.085				
3663-117	27.8510	77.546	38.340				
3663-114	28.2922	80.037	38.239				
3663-118	27.8560	78.333	39.092				

KMM 11/29/21

Percent Dry Weight Calculations

Project: Alcoa
Central File #: 3663
Analyst: K. Munson

Date: 10/11/2021-11/29/2021
Balance ID: 09630
Matrix: Tissue

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-1	28.020	70.791	35.617	42.772	7.598	17.76	82.2
3663-2	27.796	79.030	38.099	51.234	10.303	20.11	79.9
3663-3	27.871	77.418	38.193	49.547	10.322	20.83	79.2
3663-4	27.912	77.024	38.754	49.112	10.842	22.08	77.9
3663-5	27.808	79.973	38.17	52.165	10.362	19.86	80.1
3663-6	27.877	78.766	38.995	50.889	11.118	21.85	78.2
3663-7	27.899	80.809	38.735	52.910	10.836	20.48	79.5
3663-8	27.853	80.730	39.685	52.877	11.832	22.38	77.6
3663-9	27.883	74.113	37.279	46.230	9.396	20.32	79.7
3663-10	27.801	77.238	37.42	49.437	9.619	19.46	80.5
3663-11	27.889	69.280	36.531	41.391	8.642	20.88	79.1
3663-12	27.854	48.794	34.2002	20.940	6.346	30.31	69.7
3663-13	27.773	80.800	43.991	53.027	16.218	30.58	69.4
3663-14	27.821	49.270	33.7193	21.449	5.898	27.50	72.5
3663-15	28.424	47.687	34.2282	19.263	5.804	30.13	69.9
3663-16	27.797	55.497	36.771	27.700	8.974	32.40	67.6
3663-17	28.035	67.925	41.61	39.890	13.575	34.03	66.0
3663-18	28.019	49.898	34.6693	21.879	6.650	30.40	69.6
3663-19	28.042	64.013	38.9288	35.971	10.887	30.27	69.7
3663-20	27.828	41.819	31.7079	13.991	3.880	27.73	72.3
3663-21	27.997	52.895	37.042	24.898	9.045	36.33	63.7
3663-22	28.333	49.997	34.8861	21.664	6.553	30.25	69.8
3663-23	27.873	54.049	34.827	26.176	6.954	26.57	73.4
3663-24	27.827	50.690	33.9558	22.863	6.129	26.81	73.2
3663-25	28.383	47.899	33.9616	19.516	5.578	28.58	71.4
3663-26	27.851	64.581	39.339	36.730	11.488	31.28	68.7
3663-27	27.806	55.574	36.3178	27.768	8.512	30.65	69.3
3663-28	27.840	45.550	33.7923	17.710	5.953	33.61	66.4
3663-29	27.844	59.428	38.5809	31.584	10.737	33.99	66.0
3663-30	28.427	79.056	39.88	50.629	11.453	22.62	77.4
3663-31	28.320	76.249	38.814	47.929	10.494	21.89	78.1
3663-32	27.979	37.960	30.7631	9.981	2.784	27.89	72.1
3663-33	27.883	37.231	30.9376	9.348	3.055	32.68	67.3
3663-34	27.836	44.464	33.3698	16.628	5.534	33.28	66.7
3663-35	27.881	82.909	45.54	55.028	17.659	32.09	67.9

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-36	27.850	65.964	39.828	38.114	11.978	31.43	68.6
3663-37	27.998	50.699	33.6937	22.701	5.695	25.09	74.9
3663-38	28.341	46.753	35.0717	18.412	6.731	36.56	63.4
3663-39	27.921	71.004	36.477	43.084	8.557	19.86	80.1
3663-40	27.822	75.309	38.7064	47.487	10.884	22.92	77.1
3663-41	27.906	79.355	38.237	51.449	10.331	20.08	79.9
3663-42	27.820	82.350	39.26	54.530	11.440	20.98	79.0
3663-43	28.019	92.671	49.554	64.652	21.535	33.31	66.7
3663-44	27.819	69.908	41.085	42.089	13.266	31.52	68.5
3663-45	27.789	41.410	32.1934	13.621	4.404	32.34	67.7
3663-46	27.839	64.518	41.3601	36.679	13.521	36.86	63.1
3663-47	28.390	39.481	32.0863	11.091	3.696	33.33	66.7
3663-48	27.843	49.609	35.304	21.766	7.461	34.28	65.7
3663-49	28.015	77.930	38.51	49.915	10.495	21.03	79.0
3663-50	27.848	83.102	39.521	55.254	11.673	21.13	78.9
3663-51	27.917	77.974	38.953	50.057	11.036	22.05	78.0
3663-52	27.859	78.225	38.171	50.366	10.312	20.47	79.5
3663-53	27.919	63.655	40.465	35.736	12.546	35.11	64.9
3663-54	27.812	70.358	42.183	42.547	14.372	33.78	66.2
3663-55	27.876	58.571	38.613	30.696	10.738	34.98	65.0
3663-56	27.842	50.692	35.027	22.850	7.185	31.44	68.6
3663-57	28.356	75.319	44.677	46.963	16.321	34.75	65.2
3663-58	28.340	59.909	37.902	31.569	9.562	30.29	69.7
3663-59	28.381	61.029	38.953	32.648	10.572	32.38	67.6
3663-60	28.371	50.835	36.461	22.464	8.090	36.01	64.0
3663-61	27.871	47.751	34.647	19.880	6.776	34.08	65.9
3663-62	27.875	53.471	35.87	25.596	7.995	31.24	68.8
3663-63	28.287	44.315	33.952	16.028	5.665	35.34	64.7
3663-64	27.861	62.074	39.826	34.213	11.965	34.97	65.0
3663-65	27.893	42.594	32.642	14.701	4.749	32.30	67.7
3663-66	28.309	40.684	32.134	12.375	3.825	30.91	69.1
3663-67	27.871	62.286	38.988	34.415	11.117	32.30	67.7
3663-68	27.874	44.921	33.626	17.047	5.752	33.74	66.3
3663-69	27.855	76.748	39.01	48.893	11.155	22.81	77.2
3663-70	28.352	78.454	39.638	50.102	11.286	22.53	77.5
3663-71	28.414	81.138	39.818	52.724	11.404	21.63	78.4
3663-72	27.885	78.342	38.801	50.457	10.916	21.63	78.4
3663-73	28.366	74.227	37.569	45.861	9.203	20.07	79.9
3663-74	27.828	44.988	33.126	17.161	5.299	30.88	69.1
3663-75	27.831	50.433	35.182	22.602	7.351	32.52	67.5
3663-76	27.863	36.523	30.386	8.660	2.523	29.13	70.9
3663-77	28.013	79.625	39.809	51.612	11.796	22.86	77.1
3663-78	27.804	75.455	37.718	47.651	9.914	20.81	79.2

Sample ID	Tare Weight (g)	Tare+Wet Weight (g)	Tare+Dry Weight (g)	Wet Weight (g)	Dry Weight (g)	% Dry Weight	% Wet Weight
3663-79	28.028	58.700	38.614	30.672	10.586	34.51	65.5
3663-80	27.969	78.651	38.595	50.682	10.626	20.97	79.0
3663-81	28.006	82.372	39.178	54.366	11.172	20.55	79.5
3663-82	27.980	54.980	37.181	27.000	9.201	34.08	65.9
3663-83	27.843	37.480	31.002	9.637	3.159	32.78	67.2
3663-84	27.874	83.876	39.858	56.003	11.985	21.40	78.6
3663-85	27.871	58.325	34.266	30.454	6.395	21.00	79.0
3663-86	28.317	39.538	32.44	11.221	4.123	36.74	63.3
3663-87	27.828	35.712	30.427	7.885	2.600	32.97	67.0
3663-88	27.866	75.799	38.146	47.933	10.280	21.45	78.6
3663-89	28.361	76.982	39.514	48.621	11.153	22.94	77.1
3663-90	28.012	76.980	38.276	48.968	10.264	20.96	79.0
3663-91	28.376	78.286	39.298	49.910	10.922	21.88	78.1
3663-92	27.837	76.277	38.114	48.440	10.277	21.22	78.8
3663-93	27.910	77.450	38.149	49.540	10.239	20.67	79.3
3663-94	28.031	36.775	31.098	8.744	3.067	35.07	64.9
3663-95	27.875	79.175	39.179	51.300	11.304	22.04	78.0
3663-96	28.009	36.162	30.836	8.153	2.827	34.67	65.3
3663-97	28.328	81.654	42.346	53.326	14.018	26.29	73.7
3663-98	28.344	79.869	40.491	51.525	12.147	23.58	76.4
3663-99	27.884	79.504	39.212	51.620	11.328	21.94	78.1
3663-100	28.017	81.645	39.178	53.628	11.161	20.81	79.2
3663-101	27.830	80.032	39.628	52.202	11.798	22.60	77.4
3663-102	27.840	77.766	42.371	49.926	14.531	29.11	70.9
3663-103	28.345	73.051	40.36	44.706	12.015	26.88	73.1
3663-104	27.985	78.558	38.988	50.573	11.003	21.76	78.2
3663-105	27.837	80.289	38.738	52.452	10.901	20.78	79.2
3663-106	27.887	81.714	39.723	53.827	11.836	21.99	78.0
3663-107	27.890	80.537	38.978	52.647	11.088	21.06	78.9
3663-108	27.851	80.250	38.613	52.399	10.762	20.54	79.5
3663-109	27.820	79.851	38.557	52.031	10.737	20.64	79.4
3663-110	27.876	77.914	38.337	50.038	10.461	20.91	79.1
3663-111	28.314	79.076	39.673	50.762	11.359	22.38	77.6
3663-112	27.920	69.047	36.855	41.127	8.935	21.73	78.3
3663-113	28.005	79.859	38.582	51.854	10.577	20.40	79.6
3663-114	28.292	80.037	38.239	51.745	9.947	19.22	80.8
3663-115	27.852	80.584	38.948	52.732	11.096	21.04	79.0
3663-116	27.840	71.262	37.085	43.422	9.245	21.29	78.7
3663-117	27.851	77.546	38.34	49.695	10.489	21.11	78.9
3663-118	27.856	78.333	39.092	50.477	11.236	22.26	77.7
3663-119	28.034	76.150	37.708	48.116	9.674	20.11	79.9
3663-120	27.800	77.854	39.762	50.054	11.962	23.90	76.1

APPENDIX D2
LAVACA BAY RED DRUM GUT CONTENT SURVEY REPORT

LAVACA BAY RED DRUM GUT CONTENT REPORT
2021

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

January 2022

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 PURPOSE AND SCOPE 1
1.2 SITE DESCRIPTION 1
2.0 METHODS 2
2.1 SAMPLE STATIONS 2
2.2 SAMPLE COLLECTION 3
2.3 SAMPLE PROCESSING 3
3.0 OBSERVATIONS 6
4.0 REFERENCES 12

LIST OF TABLES

Table 1. Red Drum Collected by Zone…….…….……...….2

Table 2. 2021 Closed Area Red Drum Gut Contents……...….4

Table 3. 2021 Adjacent Area Red Drum Gut Contents……..…..……..…….5

LIST OF FIGURES

Figure 1. Red Drum Prey Items from Closed Area Reefs 2021……..……7

Figure 2. Red Drum Prey Items from Closed Area Other Habitats 2021…….8

Figure 3. Red Drum Prey Items from Adjacent Reefs 2021…….9

Figure 4. Red Drum Prey Items from Adjacent Marshes 2021…….…….…….10

Figure 5. Red Drum Prey Items from Adjacent Other Habitats 2021...…….....11

Attachments

Attachment 1: Representative Photos: Lavaca Bay Gut Content Report 2021

LIST OF ACRONYMS AND ABBREVIATIONS

Benchmark	Benchmark Ecological Services, Inc.
DI	Deionized (water)
GPS	Global Positioning System
ID	Identification
mm	millimeter
RAAER	Remedial Action Annual Effectiveness Report

1.0 INTRODUCTION

A key factor in the success of the Lavaca Bay Remedy is the reduction in tissue mercury concentrations through targeted source control efforts, sediment removal efforts, capping, enhanced natural recovery, and/or natural recovery. In accordance with Section 4.4 (Recommendations) of the 2014 Remedial Action Annual Effectiveness Report (RAAER) (Alcoa 2015), supplemental studies concerning red drum diet were conducted to improve our understanding of the processes by which methylmercury bioaccumulates in red drum.

1.1 PURPOSE AND SCOPE

The objective of the Gut Content Survey was to evaluate the stomach contents of red drum (*Sciaenops ocellatus*) collected for the 2021 monitoring event and to determine if prey items with elevated levels of mercury, other than the species routinely monitored, are being consumed by red drum. The prey item data collected during this survey will be used to determine if the focus of the existing monitoring programs should be expanded to include other species that are common components of the red drum diet.

The stomach contents of each red drum collected, processed, and analyzed for the 2021 Annual Monitoring Study were removed, sorted, and identified. Thirty fish were collected from Closed Area stations and thirty fish were collected from Adjacent Area stations; this survey consisted of examining the stomach contents of each fish analyzed for tissue mercury.

1.2 SITE DESCRIPTION

The Alcoa Point Comfort Operations Facility is located in Calhoun County, Texas, adjacent to Lavaca Bay. The area in the bay adjacent to the Alcoa Plant, referred to as the "Closed Area", is associated with elevated mercury concentrations in fish tissue and is closed to the taking of finfish and blue crabs for consumption by order of the Texas Department of Health (now Department of State Health Services). Portions of Lavaca Bay adjacent and contiguous to the Closed Area are termed the "Adjacent Area" or the "Open Area". Locations within the Closed and Adjacent Areas are specified in the Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan (Alcoa 2005) for annual sample collection studies.

2.0 METHODS

Legal-sized red drum (508-711 mm total length) were collected and processed for the annual monitoring effort by Benchmark Ecological Services, Inc. (Benchmark). Processing was conducted at the Alcoa Clean Lab at the Alcoa Facility, in Point Comfort, Texas (Point Comfort Operations). Red drum were collected between 23 September 2021 and 18 November 2021. Stomach contents collected for this survey were not chemically analyzed.

2.1 SAMPLE STATIONS

Legal-sized red drum were collected from 10 established stations in the Closed Area and 10 established stations in the Adjacent Area. Sample station locations are shown on Figures 1 and 2 in the Lavaca Bay Finfish and Shellfish Monitoring Report 2021 (Appendix C1 of this RAAER). A Global Positioning System (GPS) was used to determine the positions of all sample stations.

Table 1 shows the number of red drum collected by zone. The distribution of red drum samples ranged from 6 samples in Zones 3 and 4 (6 samples per zone) to 9 samples in Zones 1 and 2 (9 samples per zone). The uneven distribution of samples among the zones was due to the uneven distribution of suitable habitat within the Zones.

Table 1 – Red Drum Collected by Zone

Zone	Red Drum
Zone 1	9
Zone 2	9
Zone 3	6
Zone 4	6

Sample stations are also grouped by habitat type: oyster reef, emergent marsh, or other benthic flats. The "other" habitat category is an addendum to historic reports and is a necessary classification given site conditions remaining after 2016-2017 remedial actions which resulted in locations with neither reef nor marsh habitat. Typical "other flats" are defined as shallow inundated areas of low slope with sand or clay bottom where no emergent marsh exists along the shoreline and consolidated oyster reef is not present.

2.2 SAMPLE COLLECTION

In the Closed Area, 30 red drum tissue samples were collected from the 10 sample stations. In the Adjacent Area, 30 red drum tissue samples were collected from the 10 sample stations.

A description of the methods for collecting red drum for this survey is provided in the Lavaca Bay Finfish and Shellfish Monitoring Report 2021 (Appendix C1 of this RAAER). This survey was conducted according to procedures developed by Alcoa for gut content surveys conducted in 2011 and 2012, which are described in Benchmark Standard Operating Procedure SOP-BESI-515. Only legal-sized red drum (total lengths between 508 and 711 mm [20 to 28 inches]) were retained for this survey. Undersized and oversized red drum and specimens of other species were returned to the water.

2.3 SAMPLE PROCESSING

Red drum samples were processed on the date of collection in the Alcoa Clean Lab and remained on ice until processing was complete. Fish were weighed, measured, rinsed, scaled, and re-rinsed with deionized (DI) water. Data were recorded on tissue processing data sheets and are provided in the Lavaca Bay Finfish and Shellfish Monitoring Report 2021 (Appendix C1 of this RAAER). After scaling, fish were placed in clean plastic bags and returned to cold storage until all fish were scaled.

After the right fillet (with skin) was removed from each fish and placed in a sample container, the abdominal cavity was opened, and the stomach was removed by cutting the esophagus just above the stomach and cutting the intestine just below the stomach. Each stomach was cut open, and its contents were removed and placed on a cutting board.

Gut contents were separated by species, counted, and photographed, and the associated red drum sample IDs were recorded digitally on the gut content data sheet along with species counts (Tables 2 and 3). Representative photos are presented as Attachment 1.

Table 2 - 2021 Closed Area Red Drum Gut Contents

Habitat	Station ID	Sample ID	Gut Content			
			Content	Number	Internal Parasites Present	Gut Content Weight (g)
Other	CLO5818	B12b-TF-18889	Empty Gut	NA[1]	N	NA
	CLO5818	B12b-TF-18890	Blue Crab	1	N	1.2
			Grass Shrimp	1		
	CLO6802	B12b-TF-18892	Empty Gut	NA[1]	N	NA
	CLO5802	B12b-TF-18898	Blue Crab	1	N	6.0
			Hardhead Catfish	1		
			Unidentified Fish	2		
	CLO5803	B12b-TF-18903	Empty Gut	NA[1]	N	NA
	CLO6802	B12b-TF-18914	Empty Gut	NA[1]	N	NA
	CLO6802	B12b-TF-18915	Empty Gut	NA[1]	Y	NA
	CLO5803	B12b-TF-18918	Empty Gut	NA[1]	N	NA
	CLO5803	B12b-TF-18919	Empty Gut	NA[1]	N	NA
	CLO5802	B12b-TF-18929	Empty Gut	NA[1]	N	NA
	CLO5818	B12b-TF-18937	Empty Gut	NA[1]	N	NA
	CLO1414	B12b-TF-18938	Empty Gut	NA[1]	N	NA
	CLO1414	B12b-TF-18939	Hardhead Catfish	1	Y	22.7
			Unidentified Fish	1		
	CLO5802	B12b-TF-18941	Empty Gut	NA[1]	Y	NA
	CLO1414	B12b-TF-18942	Empty Gut	NA[1]	N	NA
Reef	CLO5804	B12b-TF-18891	Empty Gut	NA[1]	N	NA
	CLO5815	B12b-TF-18893	Blue Crab	1	N	18.2
			Hardhead Catfish	5		
	CLO5815	B12b-TF-18894	Empty Gut	NA[1]	N	NA
	CLO5804	B12b-TF-18895	Empty Gut	NA[1]	N	NA
	LVB5508	B12b-TF-18899	Empty Gut	NA[1]	N	NA
	LVB5508	B12b-TF-18900	Empty Gut	NA[1]	N	NA
	LVB5508	B12b-TF-18916	Empty Gut	NA[1]	N	NA
	CLO5815	B12b-TF-18925	Empty Gut	NA[1]	N	NA
	LVB5504	B12b-TF-18928	Empty Gut	NA[1]	N	NA
	LVB5504	B12b-TF-18935	Empty Gut	NA[1]	N	NA
	LVB5504	B12b-TF-18936	Empty Gut	NA[1]	N	NA
	CLO5816	B12b-TF-18947	Empty Gut	NA[1]	Y	NA
	CLO5816	B12b-TF-18948	Hardhead Catfish	1	N	15.0
	CLO5804	B12b-TF-18950	Empty Gut	NA[1]	Y	NA
	CLO5816	B12b-TF-18951	Empty Gut	NA[1]	N	NA

[1]NA - Gut cavity was empty

Table 3 - 2021 Adjacent Area Red Drum Gut Contents

Habitat	Station ID	Sample ID	Gut Content			
			Content	Number	Internal Parasites Present	Gut Content Weight (g)
Other	CLO5830	B12b-TF-18901	Mullet	1	Y	24.5
	CLO5830	B12b-TF-18904	Mullet	2	Y	24.3
			Round Worm (Genus unknown)	1		
	CLO5830	B12b-TF-18917	Empty Gut	NA[1]	N	NA
Reef	LVB5841	B12b-TF-18907	Blue Crab	2	N	12.4
	LVB5841	B12b-TF-18908	Empty Gut	NA[1]	N	NA
	LVB5841	B12b-TF-18934	Empty Gut	NA[1]	Y	NA
Marsh	LVB6950	B12b-TF-18897	Empty Gut	NA[1]	Y	NA
	LVB6870	B12b-TF-18902	Blue Crab	1	N	56.1
			Mud Crab	1		
			Spartina Vegetation	1		
			Sand Eel	1		
	LVB5839	B12b-TF-18905	Empty Gut	NA[1]	N	NA
	LVB5839	B12b-TF-18906	Empty Gut	NA[1]	N	NA
	LVB6850	B12b-TF-18909	Empty Gut	NA[1]	Y	NA
	LVB5839	B12b-TF-18910	Silverside	50	N	54.3
	LVB6950	B12b-TF-18912	Penaeid Shrimp	3	N	9.0
	LVB6950	B12b-TF-18913	Empty Gut	NA[1]	Y	NA
	LVB6837	B12b-TF-18920	Blue crab	1	Y	15.6
			Unidentified Fish	1		
	LVB6871	B12b-TF-18921	Empty Gut	NA[1]	N	NA
	LVB6870	B12b-TF-18922	Empty Gut	NA[1]	N	NA
	LVB6837	B12b-TF-18923	Unidentified Fish	1	N	1.8
	LVB6837	B12b-TF-18924	Sand Eel	1	Y	20.2
	LVB5838	B12b-TF-18926	Empty Gut	NA[1]	N	NA
	LVB5838	B12b-TF-18927	Hardhead Catfish	1	N	20.2
			Inorganic Polymer	1		
			Unidentified Fish	1		
	LVB6870	B12b-TF-18931	Empty Gut	NA[1]	Y	NA
	LVB6871	B12b-TF-18932	Empty Gut	NA[1]	Y	NA
	LVB6871	B12b-TF-18933	Empty Gut	NA[1]	N	NA
	LVB6850	B12b-TF-18940	Blue Crab	4	N	34.3
			Sand Eel	1		
			Unidentified fish	2		
	LVB6850	B12b-TF-18943	Empty Gut	NA[1]	N	NA
	LVB5838	B12b-TF-18944	Hardhead Catfish	1	N	27.8
	LVB6880	B12b-TF-18945	Empty Gut	NA[1]	Y	NA
	LVB6880	B12b-TF-18946	Empty Gut	NA[1]	Y	NA
	LVB6880	B12b-TF-18949	Penaeid Shrimp	2	N	1.6

[1]NA - Gut cavity was empty

3.0 OBSERVATIONS

Observations and figures are based on prey species occurrence per red drum, rather than total count observed. The purpose of reporting instance of occurrence is to reflect general feeding trends without bias if one fish gut exhibits an abundance of a single prey item. Observations are as follows:

- Assortment of prey items available to red drum is different year to year.
- Finfish and blue crab were the most abundant prey items observed in Adjacent Area fish in 2021 (Figures 3, 4 and 5).
    - Twelve (12) occurrences of finfish were observed
    - Blue crab predation was the second most common prey item with 4 occurrences.
- Three (3) fish were collected from reef stations, 3 from other flats habitat, and 24 from marsh stations in the Adjacent Area.
- Fifteen (15) fish were collected from reef stations, 15 fish from other flats habitats in the Closed Area.
- The most common prey item in fish from Closed Area was finfish.
    - There were 6 instances of finfish predation in the Closed reef and flats. (Figures 1 and 2).
- The most common prey item observed in the Closed Area Reefs was hardhead catfish (2).
- The most common prey items in the stomachs of red drum from Closed Area flats was equally observed between blue crabs, hardheads, and other unidentifiable finfish – each observed twice (Figure 2).
- The most common prey item in fish from Adjacent Area marshes was unidentifiable finfish, with numerous identifiable species also observed (Figure 4).
- The most common identifiable prey item in red drum from Adjacent Area flats was mullet (Figure 5).
- This 2021 Lavaca Bay Gut Content Survey found finfish to be a primary component of the redfish diet within the Closed Area.
- Blue crabs were a common prey item found in the 2021 survey, being observed in fish collected from all habitat types except for the Adjacent Area flats.
- Only 18 of the 60 fish sampled were found with gut content present.
    - Thirty-four (34) sampled fish from 2020 were observed with gut content.
    - Thirty-five (35) sampled fish from 2019 were observed with gut content.
    - Thirty-one (31) sampled fish from 2018 were observed with gut content.

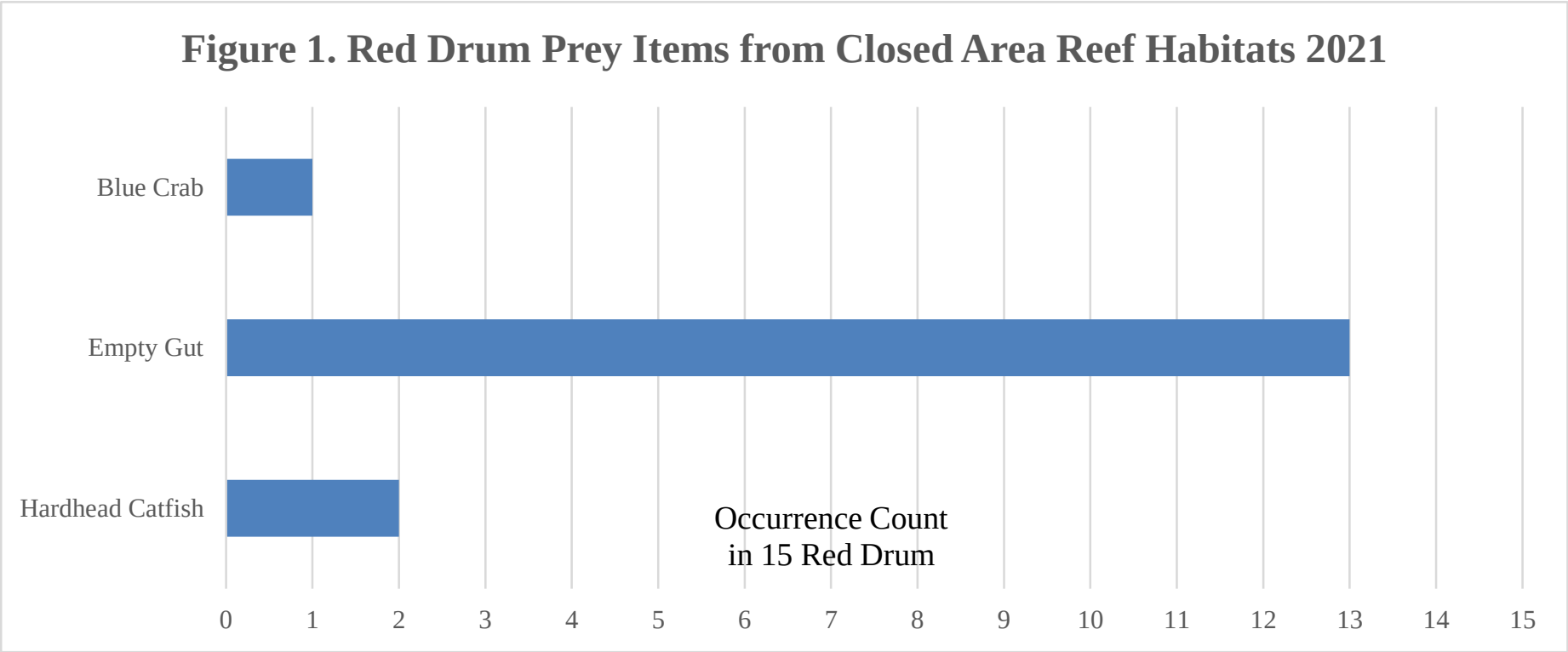


Figure 1. Red Drum Prey Items from Closed Area Reef Habitats 2021
Blue Crab
Empty Gut
Hardhead Catfish
Occurrence Count
in 15 Red Drum
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

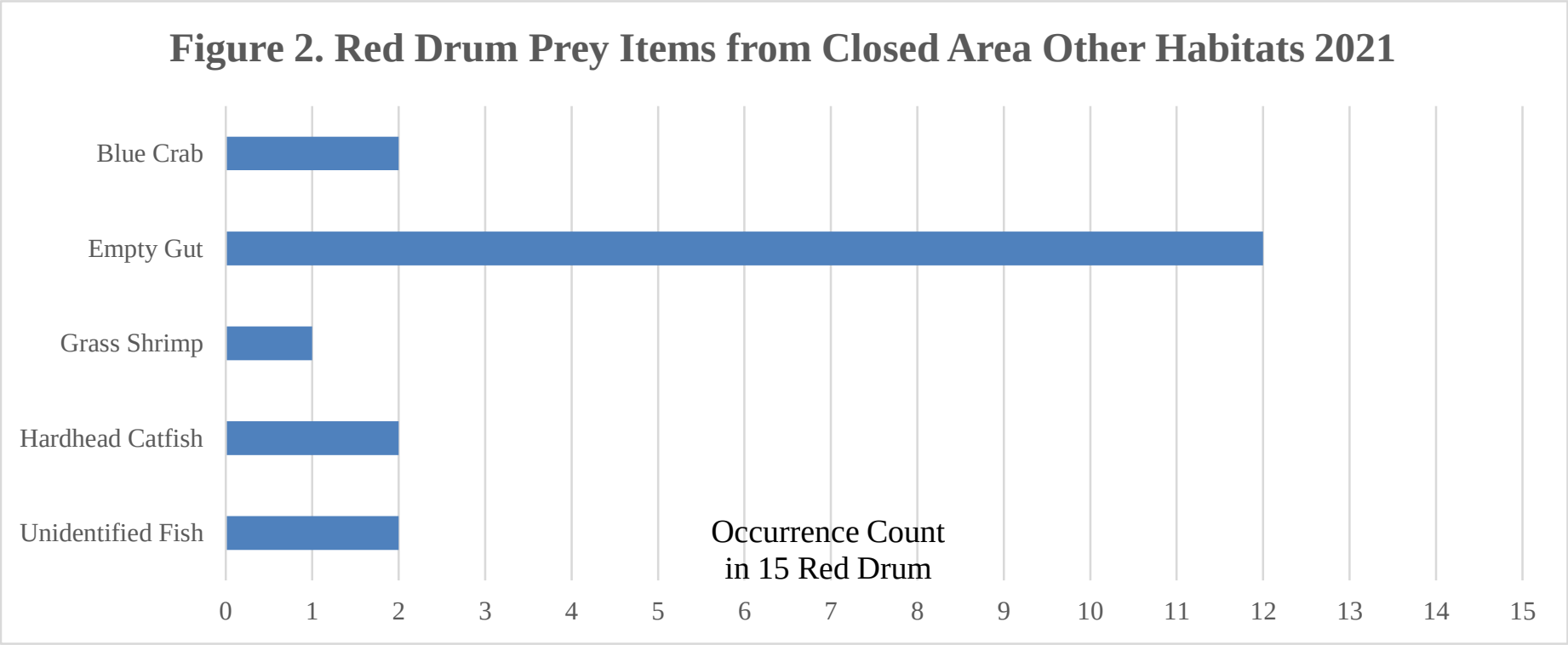


Figure 2. Red Drum Prey Items from Closed Area Other Habitats 2021
Blue Crab
Empty Gut
Grass Shrimp
Hardhead Catfish
Unidentified Fish
Occurrence Count
in 15 Red Drum
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

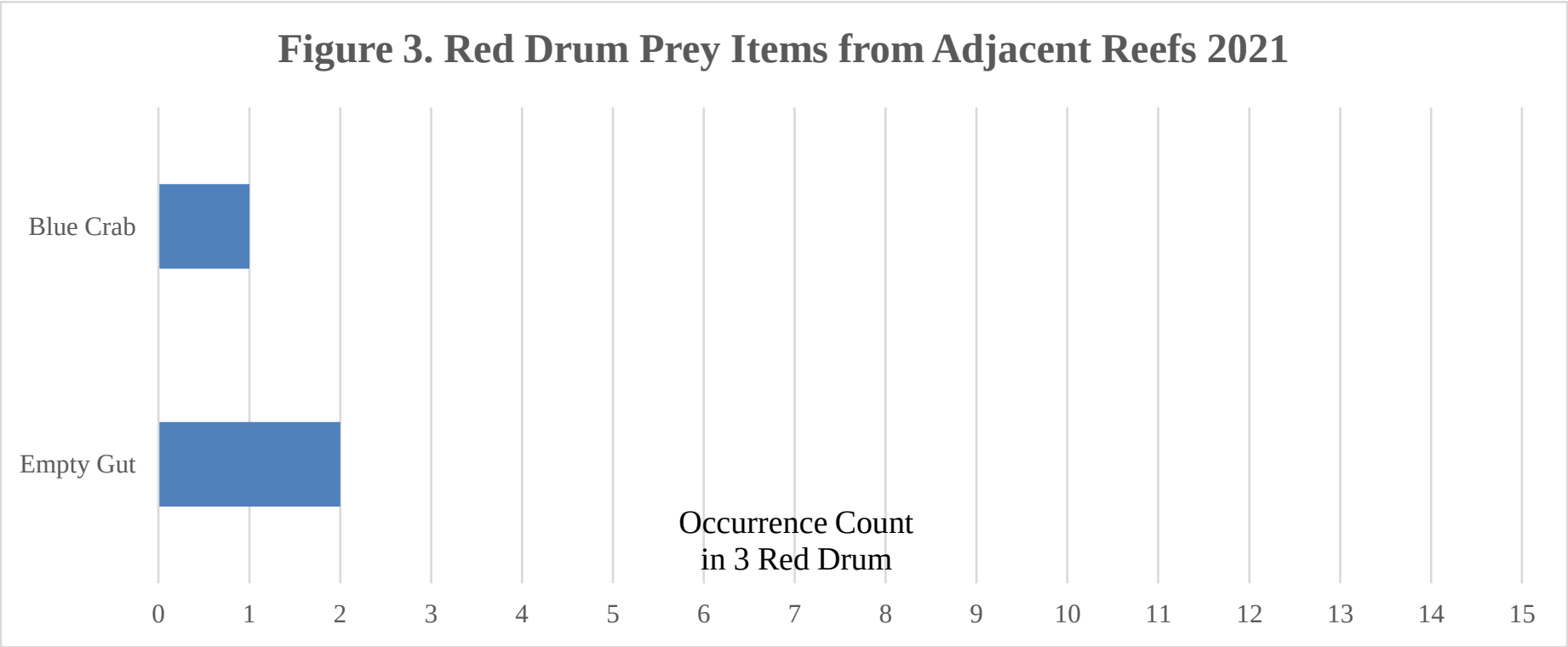


Figure 3. Red Drum Prey Items from Adjacent Reefs 2021
Blue Crab
Empty Gut
Occurrence Count
in 3 Red Drum
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

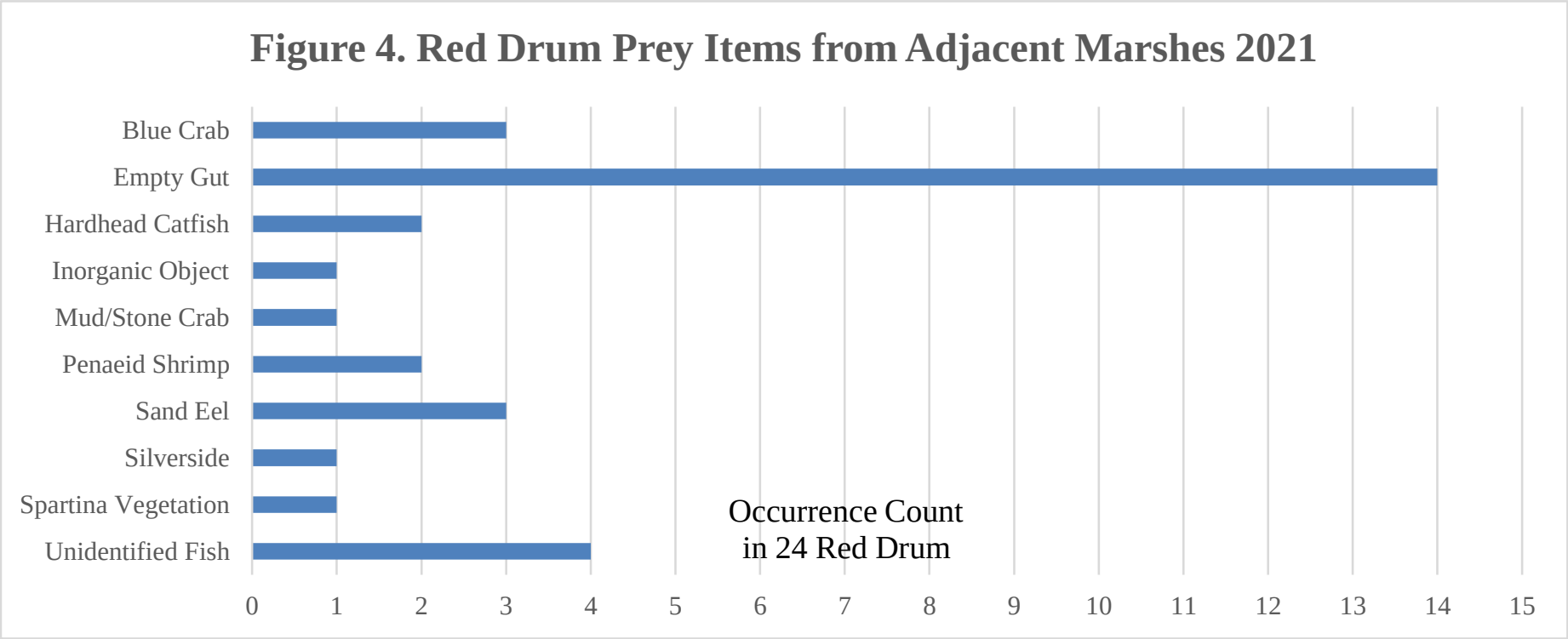


Figure 4. Red Drum Prey Items from Adjacent Marshes 2021
Blue Crab
Empty Gut
Hardhead Catfish
Inorganic Object
Mud/Stone Crab
Penaeid Shrimp
Sand Eel
Silverside
Spartina Vegetation
Unidentified Fish
Occurrence Count
in 24 Red Drum
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

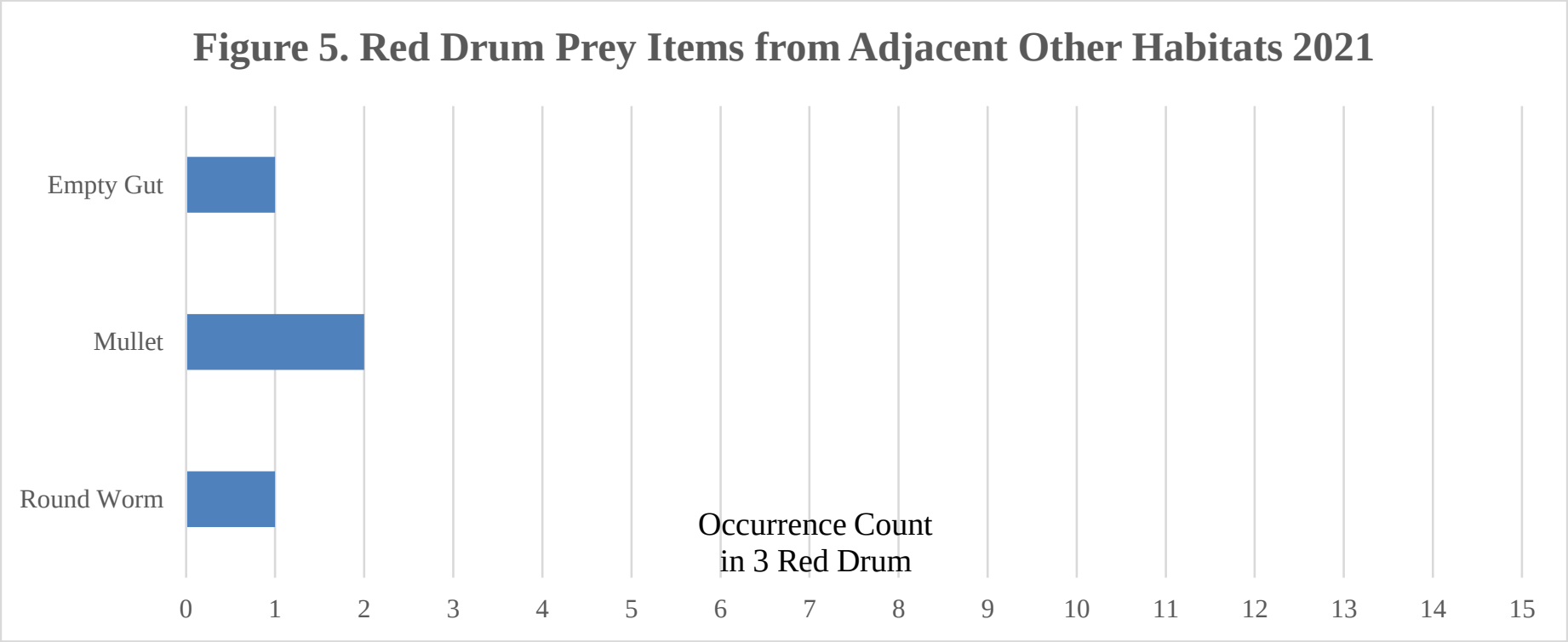


Figure 5. Red Drum Prey Items from Adjacent Other Habitats 2021
Empty Gut
Mullet
Round Worm
Occurrence Count
in 3 Red Drum
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

4.0 REFERENCES

Alcoa, 2005. Appendix B. *Statement of Work for Remedial Action. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan.* Alcoa (Point Comfort) / Lavaca Bay Superfund Site. October 2003. Appendix I.

Alcoa, 2015. *2014 Remedial Action Annual Effectiveness Report.* Alcoa (Point Comfort) / Lavaca Bay Superfund Site. March 31, 2015.

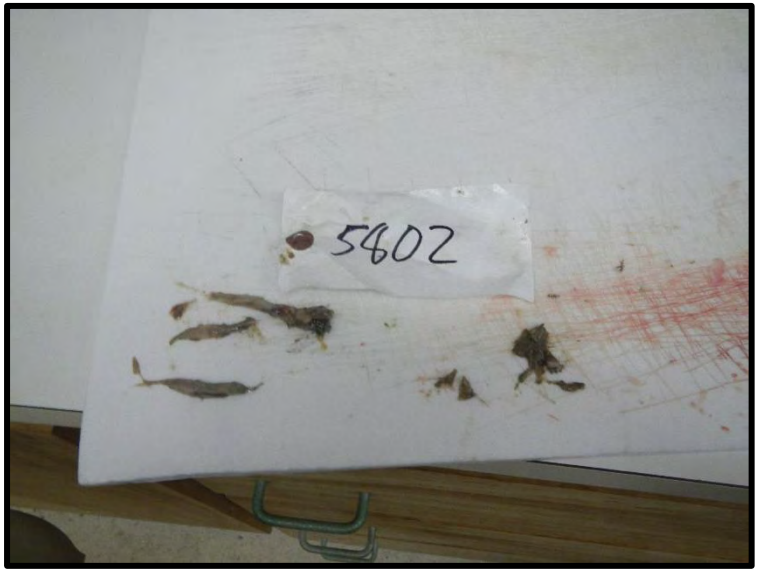
ATTACHMENT 1

Representative Photos: Lavaca Bay Gut Content Study 2021

Station ID: CLO6802, Sample ID:B12b-TF-18892

Station ID: CLO5815, Sample ID:B12b-TF-18890

Station ID: CLO5815, Sample ID: B12b-TF-18893



Station ID: CLO5802, Sample ID:B12b-TF-18898

BESI Benchmark Ecological Services, Inc

Fall 2021

Gut Content Photos

Station ID: LVB6870, Sample ID:B12b-TF-18902

Station ID: CLO5830, Sample ID:B12b-TF-18901

Station ID: CLO5830, Sample ID: B12b-TF-18904

Station ID: LVB5841, Sample ID:B12b-TF-18907

BESI Benchmark Ecological Services, Inc

Fall 2021

Gut Content Photos

Station ID: LVB5839, Sample ID:B12b-TF-18910

Station ID: LVB6950, Sample ID:B12b-TF-18912

Station ID: CLO6837, Sample ID: B12b-TF-18920

Station ID: LVB6837, Sample ID:B12b-TF-18923

BESI Benchmark Ecological Services, Inc

Fall 2021

Gut Content Photos

Station ID: LVB6837, Sample ID:B12b-TF-18924

Station ID: LVB5837, Sample ID:B12b-TF-18927

Station ID: CLO1414, Sample ID: B12b-TF-18939

Station ID: LVB5838, Sample ID:B12b-TF-18944

BESI Benchmark Ecological Services, Inc

Fall 2021

Gut Content Photos

Station ID: CLO5816, Sample ID:B12b-TF-18948

Station ID: LVB6880, Sample ID:B12b-TF-18949

Alcoa Corporate Center
201 Isabella Street
Pittsburgh, PA 15212-5858 USA

May 26, 2022

Laura Hunt, PhD
Superfund and Emergency Management Division
U.S. Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas, Texas 75270

Simon Payne, P.G.
Texas Commission on Environmental Quality
Project Manager, Superfund Section
Remediation Division, Office of Waste, MC-136
12100 Park 35 Circle
Austin, Texas 78753

Re: Addendum - 2021 Remedial Action Annual Effectiveness Report (RAAER), Alcoa (Point Comfort)/Lavaca Bay Superfund Site
Response to April 26, 2022 Agency Comments

Dear Dr. Hunt:

This document contains responses to Agency comments regarding the above-referenced report. Responses provide clarification/corrections to the report text and figures, indicate where such clarifications will be made in future RAAERs, and indicate engagement/assessment actions that may be required based on future work being performed in the Closed Area.

Should you have any questions please do not hesitate to contact me.

Sincerely,

Ronald M. Morosky
Director, Corp. Remediation and Technology

Attachments

cc: Keith Schmidt, Alcoa Corp.

Responses to Agency Comments on the 2021 RAAER,
Alcoa (Point Comfort)/Lavaca Bay Superfund Site

Comment Number	Section, Page Reference	Comment	Response
1	General Comment	Historically, past RAAERs have not included an appendix of statistical analyses. As the closed area and open area approach equivalency, please provide a compilation of the statistical output to supplement the results and conclusions of the RAAER.	To assist with remedial action and natural attenuation evaluation, a compilation of the statistical output will be added to the presentation of statistical analyses used to compare Closed Area to Adjacent Open Area fish tissue monitoring results in future RAAERs.
2	2.1, 13 (2nd paragraph, 3rd sentence)	Please provide more detail as to why the three locations were dredged, including final volume and disposal location of dredged materials.	In June and July 2021, 54 near-surface sediment samples were collected and analyzed to support CPA's Liquid Docks Project on the CPA South Peninsula and identify areas with mercury concentrations in sediment above 0.5 ppm pursuant to the Sediment Management Framework in the Final Feasibility Study (Alcoa, May 2001, Figure 2-24. Page 2-109) that would require removal. As a result of that effort, approximately 31,622 cubic yards of sediments were dredged and placed into the CDF on Dredge Island.
3	2.1, 13 (2nd paragraph, 5th sentence)	As per the 2021 FYR, please include that stakeholder engagement would occur in order to assess if dredging activities would affect the remedy and/or ongoing remedial actions at the site.	As future expansion or maintenance projects are planned within the Closed Area, Alcoa will continue to communicate with external stakeholders regarding appropriate assessment actions prior to project implementation. Also, this engagement activity will be stated in future RAAERs.
4	2.4.1, 14 (2nd sentence)	Inspection reports indicate that vegetation control is not performed on any routine schedule, this sentence implies otherwise. Please revise with a current description of vegetation control currently employed.	Control of upland vegetation on Dredge Island is performed as needed when the presence of vegetation on the interior dikes, exterior armor protection or other areas of the island is considered to potentially affect the dike integrity (e.g., although inspections conducted in 2021 do not indicate that vegetation control is required at this time, a vegetation control event will likely be conducted within the next several years). The 2022 RAAER will clarify this issue and will include a vegetation control schedule.
5	2.5.1, 15 (1st paragraph, 2nd sentence)	Suggest that clarification of sampling occurrence is added to this paragraph, including the qualification that open water	Having met the open-water sediment RAO in 2005, Alcoa voluntarily monitors select open water sediment stations, typically once every two years or more frequently if an assessment is required (see

Comment Number	Section, Page Reference	Comment	Response
		sediment sampling is sampled on a voluntary basis on every odd year.	Response To Comment No. 3). This clarification will be added to future RAAERs.
6	2.6.1, 16 (2nd paragraph, 2nd sentence)	Please clarify if this sentence implies that the "various remedial/removal actions" have been attributed to the downward trend in mercury concentrations.	While there certainly are multiple factors that influence mercury trends in red drum, the referenced remedial/response actions are believed to have contributed to currently observed downward and less variable trends in mercury concentrations in red drum.
9	3.1, 21 (8th bullet point)	Prefer to see a quantifiable number as opposed to the word "most".	In lieu of “most”, note that 7 out of 10 juvenile blue crab samples collected over the last three years within the Closed Area exhibit mean concentrations of mercury that are generally declining and approaching the Adjacent Open Area average.
10	Section 2.4.1 Dredge Island Inspections	In Appendix B1: Dredge Island Inspection Records vegetation conditions are indicated as abnormal. Comments and corrective actions noted by the inspector include maintaining vegetation on the inner dikes to prevent further erosion and routine vegetation control along roads and exterior dikes. Please include findings of abnormal vegetation and corrective actions (e.g., general vegetative maintenance schedule) in section 2.4.1.	The 2022 RAAER will include a vegetation control schedule. Furthermore, Section 2.4.1 of future RAAERs will include details of any observed abnormal vegetation conditions. For 2021, such conditions included: 1. Minor vegetation on the road and moderate to heavy vegetation along the sides of the roads, interior dikes, exterior dikes, and on toes of the exterior dikes. 2. Some small trees/bushes in the gravel of the interior dike and small to large trees/bushes in the gravel and rock of the exterior dikes. 3. Some larger trees/bushes in the stone storm armor. However, as noted in the inspection reports, no issues that compromise the integrity of the dikes and other structures on the island were found during the 2021 inspections.
11	Figure 2.6-10	There are 6 points represented within this figure but there were 10 sample locations in the closed area in 2021. If more data exists, please add it to this plot.	There are two figures in Appendix D1 that show the 2021 sampling stations for red drum and juvenile blue crab surveys: Figure 1 shows the 10 Closed Area red drum sample stations; and Figure 3 shows the 10 Closed Area juvenile blue crab sample stations. Only six stations are common in the two surveys: CLO5802, CLO5803, CLO5815, CLO6802, LVB5504, LVB5508. Data collected at those six common stations are plotted on Figure 2.6-10.

Comment Number	Section, Page Reference	Comment	Response
12	Figure 2.6-1	Explanation of numbers across the top of each plot is missing from the figure description. Please add text to the figure description stating the meaning of the numbers displayed along the top of the plot.	Numbers at the top of the panels in Figures 2.6-1 and 2.6-7 indicate the number of samples collected that year. This omission will be corrected in future RAAERs.