2017 Remedial Action Annual Effectiveness Report

Alcoa (Point Comfort)/Lavaca Bay Superfund Site

March 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/g	micrograms per gram
CAB	Community Advisory Board
CAPA	Chlor-Alkali Process Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CD	Consent Decree
CDF	confined disposal facility
cm	centimeter
cy	cubic yards
DHg	dissolved mercury
DNAPL	dense nonaqueous phase liquid
EE/CA	Engineering Evaluation/Cost Analysis
ESD	Explanation of Significant Differences
GPA	Gypsum Placement Area
IQR	Interquartile Range
meHg	methylmercury
mg/kg	milligrams per kilogram
MS3	Mainland Shoreline No. 3
O&M	operations and maintenance
OMMP	Operation, Maintenance and Monitoring Plan
Orion	Orion Marine Group
PAH	polycyclic aromatic hydrocarbon
PCO	Point Comfort Operations
PCOR	Preliminary Close Out Report
PHg	particulate mercury
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
THg	total mercury
TOC	total organic carbon
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

1.1 Objective

This 2017 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 (CERCLA) 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 (United States et al. 2005).

1.2 Consent Decree and Statement of Work Requirements for the RAAER

Per the SOW attached to the CD (United States et al. 2005), the RAAER needs to adhere to the following guidelines:

> …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. (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 (United States et al. 2005) 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. (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 on the Plant/Mainland (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 both the completed response actions and ongoing activities:

- Stabilization of Dredge Island (completed as a non-time critical removal action prior to the USEPA's Record of Decision [ROD]);
- Removal of shoreline sediment at CAPA and sediment near Dredge Island (completed as treatability studies prior to the ROD);
- Extraction and treatment of groundwater at the CAPA (initiated as a treatability study prior to the ROD and continuing as an ongoing remedial action pursuant to the CD);

[1] Note: the map referenced in the quotation from the CD (United States et al. 2005) is not presented with this report.

- Dredging of the Witco Channel (performed as part of routine Plant maintenance prior to the ROD);
- Installation of a soil cap at the CAPA with institutional controls to manage exposure to soil (completed prior to the ROD);
- Removal of Building R-300 at the CAPA (completed prior to the ROD);
- Natural recovery of sediments (ongoing activity);
- Institutional controls to manage exposure to finfish and shellfish (ongoing activity)
- 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 1.3.5); and
- Removal of marsh along the eastern Causeway Cove and MS3 shorelines (completed in 2017, Section 1.3.5).

The CD (United States et al. 2005) specifies certain performance monitoring activities to evaluate the effectiveness of the remedy. The scopes of each of these monitoring activities are contained in the Remedial Design Reports (RDRs) and Operation, Maintenance and Monitoring Plans (OMMPs) attached to the CD. The following CD documents govern operation, maintenance, and monitoring for ongoing activities:

- CAPA RDR and OMMP (Appendix A);
- Lavaca Bay Sediment Remediation and Long-Term OMMP (Appendix H);
- Lavaca Bay Finfish and Shellfish OMMP (Appendix I);
- Dredge Island OMMP (Appendix D);
- CAPA Soils RDR and OMMP (Appendix F);
- Witco Tank Farm DNAPL Containment System RDR and OMMP (Appendix B); and
- Witco Area Soils RDR and OMMP (Appendix G).

As discussed below, additional activities have been performed in response to the first Five-Year Review Report by the USEPA (2011).

The RDRs and OMMPs provide detailed descriptions of the performance monitoring that is summarized in this RAAER. Although the general scopes of the relevant OMMPs are described subsequently, the reader is directed to the RDR and OMMP documents for specific details about each monitoring program.

1.3.2 Previous Remedial Activities

The 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 in order 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 slops 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 mud line
  - Corrosion of metal portions of the decant structures
  - 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, the USEPA published a notice that an Explanation of Significant Differences (ESD) had been signed for the Site. The ESD (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. The agencies will review each RAAER to determine if the remedy continues to be protective of human health and the environment.

The Preliminary Close Out Report (PCOR) for the Site was signed by USEPA on July 23, 2007 (USEPA 2007b). The PCOR documents that all construction activities required by the ROD (USEPA 2001) have been completed.

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

The 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 Point Comfort Operations (PCO) on February 10, 2016, during which Alcoa plant and remediation representatives provided USEPA and Texas Commission on Environmental Quality status updates on the following: 1) plant curtailment activities and schedule; 2) actions taken to advise the community as the curtailment progressed; and 3) the continuity plan for all ongoing programs required by the CD (United States et al. 2005). A community meeting was hosted by Point Comfort 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.

USEPA published the Second Five-Year Review Report (USEPA 2016), determining:

> …that 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. (cover letter to USEPA 2016)

The following actions were identified in the Second Five-Year 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* (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* (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 Mainland Shoreline No. 3 (MS3) to evaluate dissolved and particulate mercury

(PHg) levels. These studies were reported to USEPA in *Final Report on Lavaca Bay High Resolution Water Column Monitoring Program*. (Alcoa 2016b);

- Further characterize mercury concentrations in near-shore and at-depth sediments
- Utilize results from the above actions 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 2017b).

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

1.3.5 Summary of 2017 Response Actions

Conclusions resulting from the supplemental studies conducted in 2016 supported development of a response action plan to remove mercury-containing sediments and soils which analytical data show to be a source for re-suspension and redistribution for potential subsequent methylation and uptake to the ecosystem. The removal of soils and sediments from the selected areas, along with other marsh removal response actions, are expected to improve the rate of finfish/shellfish tissue recovery. Alcoa prepared and implemented the *Response Action Plan Witco Channel and Harbor Dredging and MS3 Excavation* (Alcoa 2016c) and Causeway Cove Response Action Plan Addendum (Alcoa 2016d) throughout the first half of 2017. Marsh and sediment removal in the Causeway Cove was conducted by Rexco Inc. in January and was reported to USEPA in the *Response Action Completion Report for the Causeway Cove Response Action, Addendum to the Witco Channel and Harbor Dredging and MS3 Excavation* (Alcoa 2017a).

An additional location for dredging was identified and submitted for approval, titled the *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 2017b). Rexco Inc. began excavation of MS3 upland areas and Orion Marine Group (Orion) began dredging at Witco in June. The objectives of the MS3 excavation were confirmed through collection of samples on a 100-foot grid once design elevations designated in the Remedial Action Plan were met. If the mercury concentration for a confirmation sample exceeded the remedial action goal of 0.06 milligram per kilogram (mg/kg), an additional foot of soil was excavated from a 50-foot radius surrounding that sample location. Once completed, an additional confirmation sample was collected, and the process was repeated as necessary until all areas met the remediation action goal. Excavation activities on MS3 resulted in the removal of 36,956 cubic yards (cy) of soil that were placed in the Dredge Island CDF. Prior to the excavation activities on the MS3 Upland Area, grubbing and removal of vegetation was completed as part of the site preparation tasks. Approximately 312 cy of material (primarily vegetation) were taken to Alcoa's Site III Landfill for disposal.

Bathymetric and topographic surveys for the entire removal project were conducted by Orion and verified by G&W Engineers throughout the dredging project to confirm design elevations. Those intermittent surveys were then combined into a final survey. The final survey was used to develop the total dredge volume of approximately 366,667 cy, all of which was pumped to the CDF on Dredge Island. Approximately 64 cy of concrete rubble and other trash (miscellaneous wood, cables, rope, etc.) were removed from the project areas and transported to Alcoa's Site VII Landfill for disposal. Work was suspended from August 25 through September 4 due to Hurricane Harvey; all dredging was completed on September 29. Sampling of decant water from Dredge Island was completed on October 25 and the final report for the project, titled *Response Action Completion Report for the Witco Channel and Harbor Dredging and MS3 Excavation,* was submitted to USEPA on December 28, 2017 (Alcoa 2017c). Agency approval was received via letter dated January 16, 2018.

1.3.6 Community Outreach Process

With USEPA concurrence, Alcoa developed a membership list for a Community Advisory Board (CAB) with an intent for the new panel to reflect current Calhoun County demographics. In addition to the March 2, 2016, plant-sponsored community meeting, the first meeting of the new CAB (which was the twentieth post-CD community meeting) was held on November 29, 2016, at the Point Comfort facility. Approximately 30 people attended the meeting, including the USEPA Remediation Project Manager, Alcoa personnel and contractors, members of the community, state and federal elected officials, and state regulators. USEPA presented a general description of CERCLA activities at the Site, and Alcoa provided updates on the plant's curtailment and remediation activities to date.

Alcoa continued implementation of USEPA's Community Outreach Program by hosting the second Community Advisory Board meeting. Invitation letters were sent to CAB members in March 2017, and the meeting was held at the Alcoa Point Comfort plant site on May 16, 2017 with 21 members of the agencies, Alcoa, and public in attendance. Meeting agenda topics included updates of the facility operations, progress made toward achieving goals resulting from USEPA's second five-year review, reviews of the conceptual site model, 2016 monitoring and supplemental study results, descriptions of work completed in 2017, and future work. The third meeting of the CAB group is planned for late spring 2018.

1.3.7 Hurricane Harvey Impacts

Hurricane Harvey made its first U.S. landfall on August 25 between Port Aransas and Port O'Connor, with the headwall passing through Rockport and Fulton. Located to the east of the eye of the storm, Lavaca Bay experienced significant storm surge and high winds. Storm surge approaching 10 feet was reported near Port Lavaca (http://www.weather.gov/crp/hurricane_harvey). Alcoa surveyed the Site when the storm subsided and submitted a site status update to USEPA via e-mail on August 28, 2017. There was extensive damage to the remnants of the Dredge Island bridge, previously severely damaged by Hurricane Claudette in 2003. There was no observed damage to the physical components of the remedy, with only minor post-hurricane clean-up. Alcoa accompanied USEPA on a site visit on September 15, 2017. At agency direction, samples were collected including: (i) a water sample from the CAPA treatment system (i.e., an effluent sample); (ii) a soil sample from the CAPA cap; and (iii) a soil sample from the Witco cap. Analytical results were reported directly from the laboratory to USEPA via e-mail on September 15, 2017 and were included in the October 2017 quarterly report.

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 (DHg) plume that was believed to contribute 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 or troubleshooting or during power interruptions at the PCO facility. 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 2017 in accordance with the CAPA Groundwater RDR and OMMP (Appendix A of the CD [United States et al. 2005]). The various maintenance activities, operational checks, and sampling requirements are summarized in Table 3-3 of the RDR and OMMP.

The discharge standards for the system effluent are shown in Table 3-1 of the RDR and OMMP. A summary of the CAPA groundwater extraction and treatment system performance for 2017 is provided in Section 2.2 of this report.

1.5 CAPA Offshore Surface Water Sampling

As discussed in the 2006 RAAER (Alcoa 2007a), the performance objective for this 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, which was 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 limit usage of the area by Plant and contractor personnel, 3-by-6-feet warning signs were placed on the north and west sides of the capped area. In addition, a memorandum was distributed to Plant employees to inform workers of the upgrades made to the area, the restrictions on the capped area, and the disciplinary actions for not complying with the restrictions. Additional information is contained in the CAPA Soils RDR and OMMP (Appendix F of the CD). A similar memorandum is distributed annually for review by Site workers.

An inspection and maintenance program was developed for the capped area, as described in the RDR and OMMP (Appendix F of the CD). This program consists of quarterly inspections and maintenance, as required. The main components of the inspection are:

- 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 on 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 sediments/soil visibly contaminated with PAHs 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. Additional information is contained in the Former Witco Area DNAPL Containment System and Witco Area Soils RDR and OMMPs.

Response action activities were performed during the period of 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 operations and maintenance (O&M) activities were initiated in July 2007 as follows:

- 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 (a management memorandum was developed and distributed at the facility);
- 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.

A memorandum was distributed to Plant employees 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 has been submitted annually for review by Site workers.

1.6.3 Dredge Island Inspections

An Engineering Evaluation/Cost Analysis (EE/CA) for a non-time critical removal action was conducted by Alcoa for the 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 of the 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 cy) into the Gypsum Placement Areas (GPAs). In addition, the containment dikes surrounding the GPAs 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 10,700 linear 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 OMMP for Dredge Island 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 dikes;
- 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 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.

All items noted on the inspections are corrected as soon as practicable. Alcoa has continued to evaluate conceptual designs and cost estimates to address erosion of the structural steel comprising the northeast decant structure. Access to the structure is currently restricted through barricades and warning tape and it has not been utilized for decanting events.

The access bridge was damaged during Hurricane Claudette in 2003 and again during Hurricane Harvey in 2017, as described in Section 2.4.1. Dredge Island inspections have not included detailed inspections of the bridge as it is non-operational and not relevant to the remedial action objectives. However, Alcoa continues to maintain signage and navigational lighting to prevent access to, and collision with, the remaining portions of the bridge.

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 and Long-Term OMMP (Appendix H of the CD [United States et al. 2005]), 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 changes are documented below as well as in prior RAAERs and the sample depth intervals and monitoring parameters are summarized in Table 2.4-1.

The CD requires that the open water sediment monitoring program be performed until a mean mercury concentration of less than 0.5 mg/kg (i.e., parts per million [ppm]) dry weight is measured in the Closed Area in two consecutive years (United States et al. 2005). This occurred in 2004 and 2005 when average concentrations of 0.293 ppm and 0.276 ppm, 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 CD has been met. However, Alcoa has elected to continue monitoring the northern half of the open water sediment sampling grid (Appendix C2) 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 the Causeway Cove to monitor a localized area of elevated mercury concentrations observed during the 2015 and 2016 sampling events.

The CD states that the objective of the marsh performance standard is to attain an average mercury concentration in 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. All monitored marshes have met the performance standard. However, marshes remaining after natural erosion and response actions (other than Marsh 11, which is south of CCND and has always meet the performance standard) are currently monitored on a voluntary annual basis in an ongoing effort to better understand and report on trends of mercury concentrations in fish tissue in the northern part of the Closed Area of Lavaca Bay (Figure 2.5-2). Only small segments of Marshes 15 and 19 remain from the original marsh sampling program and were sampled in fall 2017.

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 (TOC) were added to the analytical suite for the 2008 and subsequent marsh monitoring programs. In 2011, a sampling depth of 0-2 cm was approved by USEPA to further target peak meHg concentrations. The changes are documented in the 2012 RAAER (Alcoa 2013) as well as prior RAAERs. The sample depth intervals and monitoring parameters for annual marsh sediment are summarized in Table 2.4-1.

1.8 Routine Finfish and Shellfish Monitoring

The purpose of the Lavaca Bay Finfish and Shellfish OMMP (Appendix I of the CD [United States et al. 2005]) 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 (Appendix I of the CD [United States et al. 2005]) 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 (Appendix I of the CD [United States et al. 2005]). Decreasing trends, also based on multiple annual events, indicate that the sediment 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, and possible consideration, of additional remedial measures, may be necessary.

During the fall 2017 monitoring event, Alcoa collected 30 red drum from 11 sampling stations in the Closed Area and 30 red drum from ten sampling stations in the Adjacent Open Area (three fish per station (Appendix D1). Two fish were processed from Closed Areas station LVB5816, one fish from the Closed Area station LVB5513, and three fish each were processed from the remaining nine stations.

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 2017 annual monitoring event, 30 juvenile blue crab samples were collected from ten marsh stations in the Adjacent Open Area, and 30 juvenile blue crab samples were collected from ten marsh stations in the Closed Area (three samples per station; Appendix D1). The 20 stations sampled during the 2017 monitoring event were the same stations monitored during 2016.

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 (USEPA 2001). 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 facility in 2016, which will not affect its future industrial land use but has reduced marine operations in Lavaca Bay near it.

As described in the 2013 RAAER (Alcoa 2014), industrial development projects at and adjacent to the Calhoun Port Authority harbor (known as the Point Comfort harbor) have been proposed in the past. These projects have included the widening and deepening of the Matagorda Ship Channel and other liquefied natural gas and energy-related projects. Discussion of these projects with the various stakeholder entities indicated the potential for project-related dredging activities to occur within the footprint of areas known to contain buried sediments with residual mercury contamination associated with the Site. However, as of the date of this RAAER, Alcoa has not been made aware of any project in the near term that would result in the disturbance of mercury-contaminated sediments.

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 utilize 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 kept in project binders and maintained in the project filing system.

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 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 RDR and OMMPs. Therefore, all performance standards were met during 2017.

The groundwater extraction and treatment system has essentially operated continuously since 1998. A significant volume of data has been collected since 1998 regarding system operation, system chemistry trends, effluent characteristics, etc. During 2018, Alcoa will evaluate the current inspection, sampling, and analytical program for the CAPA groundwater extraction and treatment system and will provide USEPA with a proposal for appropriate revisions to that program.

2.3 CAPA Offshore

The performance objective for this component of the 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 quarterly throughout 2017 and 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.

Due to Hurricane Harvey that passed through the Point Comfort area in August 2017, post-hurricane inspections were conducted. As noted in Appendix B1, there was no observed damage to the CDF access roads, contents, stone armor, levees, etc.

Inspections and maintenance will continue at the frequency described in the RDR and OMMPs.

2.4.2 CAPA Soil Cap Inspections

Quarterly inspections were conducted during 2017 as required by the RDRs and OMMPs, and inspection records are contained in Appendix B2. Vegetation continues to be controlled to maintain cap integrity.

Inspections and maintenance will continue at the frequency described in the RDR and OMMPs.

2.4.3 Witco Area Inspections

Inspections were conducted at the Witco Area in 2017 as required by the RDRs and OMMPs. Inspection records are contained in Appendix B3.

Conclusions of the 2017 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.

Inspections and maintenance will continue at the frequency described in the RDR and OMMPs.

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 focused in the northern part of the Closed Area since 2004.[2]

Figure 1 in Appendix C2 shows the spatial distribution of open water sediment mercury concentrations for 2017. Average total mercury (THg) concentrations are 0.37 mg/kg and 0.16 mg/kg in in the eastern and western areas of Causeway Cove, respectively, and are comparable to data from 2015 and 2016.

To assess temporal trends in the open water sediment mercury concentrations, the Closed Area was divided into ten sub-areas shown on Figure 2.5-1. Surface sediment sampling depths have been modified over time (Table 2.4-1). Temporal trend analyses include samples from 0 to 2 centimeter (cm) and 0 to 5 cm depths (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 14 years. 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 data indicate that Hurricane Harvey did not cause a shift in the long-term concentration trends observed in these two areas.

[2] Sampling locations which have exhibited consistent recovery in the western Causeway Cove were dropped from the routine sampling program in 2016, as discussed in the 2016 RAAER.

2.5.2 Spatial and Temporal Trends in Total and Methylmercury Sediment Concentrations from Marshes

Marsh locations no longer present due to natural erosion or response actions were not sampled in 2017. Sediments in the remaining limited segments of Marshes 15 and 19 were sampled to assess THg, meHg, and TOC concentrations.

The results are shown in Appendix C1. All marshes met the RAO of less than 0.25 mg/kg THg for two consecutive years in 2015 (Alcoa 2016e).[3] In 2017, Marshes 15 and 19 had average THg concentrations of 0.08 and 0.07 mg/kg, and meHg concentrations of 0.21 and 0.08 nanograms per gram, respectively (Table 2.5-1).

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 and Adjacent Open Areas.

2.6.1 Closed Area Red Drum Trends

Mean mercury concentrations in red drum tissue samples collected during each fall monitoring event since 1997 are provided in Table 2.6-1, and box-and-whisker plots[4] of the data are shown on Figure 2.6-1. Each year includes a wide range of concentrations, and there is considerable overlap among the years.

The geographic distribution of average mercury concentrations measured in red drum samples for each 2017 sampling station is illustrated on Figure 2.6-2. The highest concentrations were mostly found in the Alcoa and Witco channels and in Causeway Cove. This pattern holds when multiple years are grouped, as shown on Figure 2.6-3 for the period 2010 to 2017. The robustness of this geographic pattern indicates that the greatest exposure occurred in the channel areas and Causeway Cove, and it is

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[3] Outliers in the datasets had been removed for the RAO assessment. They were identified using the Dixon-Q test, which is appropriate for small datasets. The dataset for each marsh was tested within each year for outliers, with a Q-table level of confidence of 99%.

[4] Box-and-whisker plots were used to display the distribution of concentrations obtained each year and show the median—the range between the 25th and 75th percentile highest values (defined by the box and called the Interquartile Range [IQR])—and the highest and lowest values that fall inside limits defined by 1.5 times the IQR plus or minus the 75th or 25th percentile values (shown by the whiskers). Values beyond those limits are displayed as individual points. The median and mean values are displayed as the horizontal bar and the black diamond within the boxes, respectively.

likely that this exposure accounts for the higher Closed Area average concentration in comparison to the Adjacent Open Area average concentration.

Closed Area red drum mercury concentrations show no consistent trend over the last 15 years (Figure 2.6-4). Year-to-year variability likely reflects the impact of non-sediment-related factors such as diet, bioenergetics, movement, and intermixing of sub-populations. However, it is important to note that although a consistent trend is not apparent, the low mean mercury concentration of the Closed Area red drum samples in 2017 (0.71 mg/kg) was nearly the same as measured in 2016 (0.75 mg/kg).

To provide a perspective on how the Closed Area red drum mercury concentrations compare to those of the Adjacent Open Area, the 2017 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 2.6-5). Ratios in the range of 2 to 5 are characteristic of locations along the eastern Closed Area from Causeway Cove south through the Alcoa Channel. Lower ratios are characteristic of more southern and western locations. The locations on the west side of Dredge Island are similar to the Adjacent Open Area.

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 OMMP, statistical analyses were conducted to evaluate whether to reject the hypothesis that in 2017 the Closed Area red drum mercury concentrations reached levels statistically indistinguishable from the red drum mercury concentrations in the Adjacent Open Area. The hypothesis is stated as follows:

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

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

To support the test, the OMMP specifies the following:

- Sample up to 30 red drum each from the Adjacent Open Area and 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 (t-test). If the data are not normally distributed, conduct a non-parametric means test (Wilcoxon/Mann-Whitney or equivalent).
- 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 2017—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.

Cumulative probability plots of the sample sets are shown on Figure 2.6-6 using arithmetic (left) and log scales (right) for the data. Closed Area results indicate a relatively straight line below 0.3 micrograms per gram (μg/g) THg with a sharper slope at concentrations greater than 0.3 μg/g. Adjacent Open Area results plot as a reasonably straight line for both scales. 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 ($p = 8.8 \times 10^{-7}$).

Because the Closed Area sample set does not conform to a normal distribution, the hypothesis of equal means was evaluated using the non-parametric 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; $p<0.001$). The RAO of having mean mercury concentrations in the Closed Area and the Adjacent Open Area be comparable has not been achieved.

2.6.3 Results of 2017 Gut Content Survey

The 2017 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 (including fish not incorporated in mercury tissue analysis due to sample shipment delays) were removed, sorted, and identified to the extent possible.

Legal-sized red drum (508 to 711 millimeters in total length) were collected from established and supplemental sample stations in the Closed and Adjacent Open areas, 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 2017, the following observations can be made:

- Juvenile blue crabs were the dominant species in the guts of fish collected from Adjacent Open Area marshes;
- Hardhead catfish were the dominant species in the guts of fish collected from Closed Area reefs;
- Small fish were the most common prey item from Closed Area marshes;
- Fourteen of 30 red drum collected in the Closed Area and 15 of 30 collected in the Adjacent Open Area had empty guts

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 vicinity of 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. The 2017 Closed Area data exhibit a mean of 0.14 mg/kg, which is about half of the value characteristic of the period from 2006 to 2011, but approximately twice the 2017 mean for the Adjacent Open Area. Annual red drum and blue crab average concentrations are variable and do not demonstrate significant covariation (Table 2.6-1). This is further evidence that factors such as diet, bioenergetics, movement, and intermixing of sub-populations play an important role in red drum mercury concentrations measured in the Closed Area (Section 2.6-1).

Mercury concentrations in juvenile blue crab exhibit a geographic pattern, as shown on Figure 2.6-8. In 2017, the lowest THg concentration in juvenile blue crabs was found in the eastern and southeastern region of the Closed Area, with higher concentrations in the areas along the western shore of Dredge Island and along the shoreline of the former Causeway Cove marshes.

Ratios between 2017 Closed Area blue crab concentrations and the 2017 Adjacent Open Area-wide average provide a perspective of the geographic pattern (Figure 2.6-9). The highest ratios are found at the former Causeway Cove Marsh and western side of Dredge Island, dissimilar to the locations of the highest red drum ratios, which were found at the Causeway Cove reef and in the Alcoa Channel (Figure 2.6-5). These spatial differences likely reflect the wide habitat range and varied diet of red drum.

The geographic pattern in juvenile blue crab concentrations suggests that temporal trends may exhibit a pattern that is not evident when tracking the Closed Area as a whole. Therefore, trends at individual stations were examined.

2.6.6 Trends at Individual Juvenile Blue Crab Stations

Juvenile blue crab samples collected within the Closed Area show low, fairly stable or declining mercury concentration trends at most stations (Figures 2.6-10a through 2.6-10d). The Southwest Dredge Island, East Dredge Island, and former Marsh 1 and 2 stations, however, experienced increases in mercury tissue concentrations in 2017. These concentration trends possibly reflect the impact of short-term sediment and water column disturbances created during 2017 remedial activities. Continued annual sampling will provide greater insight into the long-term benefit of marsh removal and dredging activities, as the presence of crabs in marsh removal areas during the 2017 sampling event was, to a certain extent, unexpected.

Juvenile blue crabs can be found on open water sediment, unvegetated shorelines, and in vegetated marshes. However, they tend to be concentrated in marshes where vegetation and organic detritus provides shelter and additional food. Marshes are targeted by red drum due to the higher concentrations of juvenile blue crabs, small fish, and shrimp. Removing marsh vegetation reduces the habitat that supports red drum prey, but it does not eliminate prey items from the area.

3 CONCLUSIONS

3.1 Comparison to Performance Standards

Assessment of monitoring data and O&M activities during 2017 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 2017 inspections of Dredge Island continue to indicate that the island is in stable condition and performance objectives are being met.
- No significant maintenance issues were noted for the CAPA soil cap.
- Inspections of the Witco Area indicate no DNAPL accumulation and soil caps are functioning as intended.
- Temporal trends of total mercury concentrations in open water sediment from the Closed Area indicate that natural recovery is occurring.
- The mean concentration of mercury measured in Closed Area red drum in 2017 (0.71 mg/kg) represent the lowest mean concentration measured in the CD monitoring program but may reflect variations in non-sediment-related factors such as diet, bioenergetics, movement, and intermixing of sub-populations.
- The mean concentration of mercury measured in the Adjacent Open Area red drum in 2017 is similar to the mean concentrations from prior years.
- The mean concentration of mercury measured in juvenile blue crab during 2017 is similar to prior mean values for the Closed Area and Adjacent Open Area.
- The concentrations of mercury in the 2017 red drum samples from the Closed Area remain statistically elevated relative to concentrations of red drum samples collected from the Adjacent Open Area. Restrictions for the Closed Area remain.

3.2 Planned 2018 Response Actions

In 2018, Alcoa will continue to monitor the effects of response actions conducted to date and will continue to perform O&M activities in those areas.

Public outreach efforts occurred in 2017 and are expected to continue as needed throughout the duration of the project as directed by the USEPA.

3.3 Continued Monitoring

Monitoring activities for 2018 are planned in accordance with established schedules.

3.4 Summary of Overall Remedy Effectiveness

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

Average mercury concentrations of red drum measured in the Closed Area continue to exhibit significant inter-annual fluctuations. These fluctuations are likely related to factors such as variations in diet, bioenergetics, movement, and intermixing of sub-populations. The mercury concentrations of red drum collected in the Closed Area remain statistically elevated relative to red drum collected in the Adjacent Open Area.

Future monitoring of sediment and tissue will document the overall effectiveness of response actions and O&M activities in meeting the remedial action objectives for the Site.

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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

Notes:

Detailed sampling protocol provided in Appendix C1.

cm = centimeter

Hg = mercury

meHg = methylmercury

N/A = not applicable

TOC = total organic carbon

Table 2.5-1
Summary of Marsh Sediment Mercury Concentrations

Marsh	2004	2005	2006	2007	2008	2009	2010	2011	2012	2014	2015	2016	2017
Marshes 1 & 2	0.263	0.495											
Marsh 1			0.111	0.153	0.097	0.112	0.113	0.131	0.094	0.098	0.098	0.164	Removed
Marsh 2			0.066	0.064	0.084	0.073	0.081	0.064	0.062	0.062	0.035	0.061	Removed
Marsh 3	0.279	0.298	0.129	0.211	0.111	0.155	0.148	0.116	0.132	0.093	0.064	0.056	Removed
Marsh 5	0.644	0.495	0.367	0.275	0.375	0.399	0.405	0.286	0.200	0.231	0.124	0.267	Removed
Marsh 6	N.A.	0.337	0.377	0.386	0.748	0.422	0.384	0.300	0.219	0.188	0.178	0.281	Removed
Marsh 7	0.625	0.347	0.297	0.279	0.422	0.391	0.219	0.381	0.308	0.139	0.207	0.549	Removed
Marsh 11	0.019	0.021	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	Removed
Marsh 14	0.626	0.587	1.050	0.909	1.260	1.109	0.535	0.719	N.A.	Removed	Removed	Removed	Removed
Marsh 15	0.943	0.273	0.369	0.327	0.418	0.374	0.440	0.480	0.287	0.034	0.022	0.046	0.080
Marsh 19	0.447	0.478	0.126	0.214	0.155	0.201	0.210	0.353	2.055	0.095	0.068	0.421	0.070

Notes:

Concentrations are milligrams per kilogram (mg/kg) dry weight.

Marsh locations are shown in Appendix C1.

Basic data are provided in Appendix C1.

Remediation goal is 0.25 mg/kg measured in two consecutive years (Highlighted green if < 0.25 mg/kg).

Text is red if outliers were removed (details in text of annual RAAER).

Marshes 1 and 2 were sampled as a single marsh in 2004 and 2005, but beginning in 2006, they are sampled separately.

N.A. = not analyzed

Table 2.6-1
Summary of Red Drum and Juvenile Blue Crap Tissue Data 1997-2017

Red Drum Sampling Event	Closed Area		Adjacent Open Area	
	Number of Samples	Mean HG (mg/kg ww)	Number of Samples	Mean HG (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	0.87	36	0.48
2006 Annual	30	1.17	30	0.43
2007 Annual	30	1.29	30	0.65
2008 Annual	30	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	29	1.06	28	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
Juvenile Blue Crab Sampling Event	**Number of Samples**	**Mean HG (mg/kg ww)**	**Number of Samples**	**Mean HG (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

Notes:
Hg = mercury
mg/kg ww = milligrams per kilogram wet weight

Table 2.6-2
Summary of 2017 Red Drum Tissue Mercury Results

Area	Sample Size	Mean HG (mg/kg ww)[1]	Standard Deviation
Closed	30	0.71	0.484
Adjacent Open	30	0.30	0.072

Notes:

1 = Basic data are presented in Appendix D1.

HG = mercury

mg/kg ww = milligrams per kilogram wet weight

FIGURES

Sediment Sub Group Areas

0 500 1,000
Feet

2017 RAAER

Closed Area Sediment Sub-areas

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 01/17/2017

Figure 2.5-1

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\2016_02\SedimentSubGroups.mxd jsfox 1/17/2017 11:18:48 AM

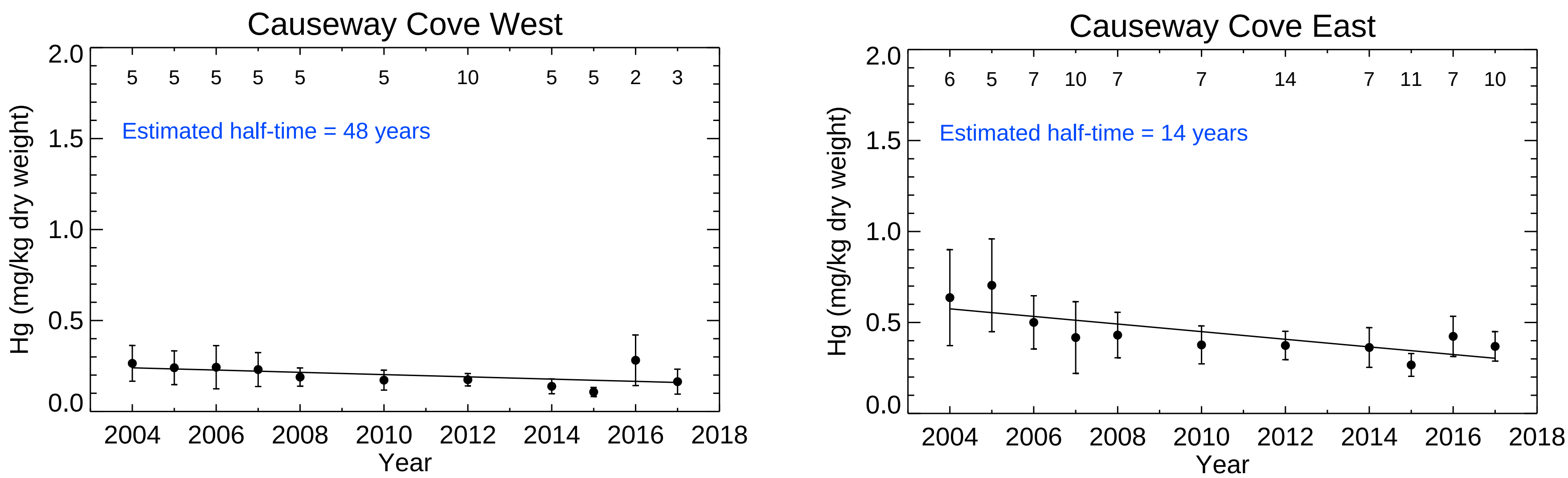

Figure 2.5-2

Closed Area Open-water Sediment Total Mercury Trends in Sub-areas Sampled in 2017

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 data points for each year. Outliers excluded from averaging: 2.88 mg/kg Hg in Alcoa Channel in 2015 and 1.25 mg/kg Hg in Northwest of Dredge Island in 2014. Half-time = -log(2) / regression slope.

Prepared for Alcoa Corporation

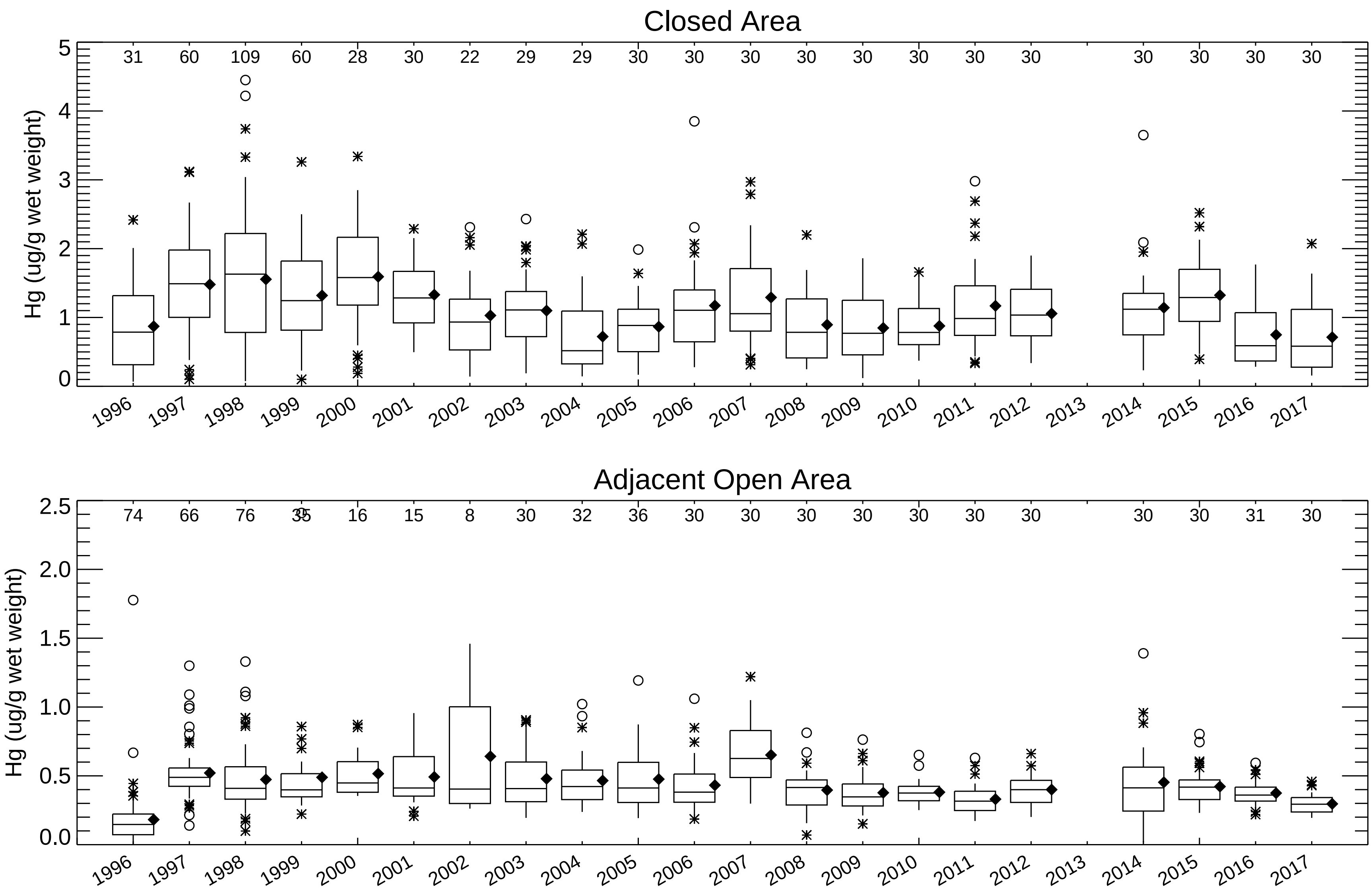

Figure 2.6-1

Lavaca Bay Red Drum Tissue Mercury Concentrations by Year, 1996-2017

Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\AUSTIN2\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Hg_Trends\tissue_trend_analysis_boxplots_w2017data.pro
Tue Feb 06 14:51:41 2018

Red Drum Stations (2017)

0 1,000 2,000
Feet

NOTES:
Total mercury (Hg) results are shown in ug/g wet weight

2017 RAAER

Closed Area Average Red Drum Total Hg (2017)

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/09/2018

Figure 2.6-2

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\LavacaBayTissueResults2017.mxd jsfox 2/9/2018 3:47:20 PM

Red Drum Stations

0 1,000 2,000
Feet

NOTES:
Total mercury (Hg) results are shown in ug/g wet weight

2017 RAAER

Average Red Drum Total Hg 2010-2017

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/09/2018

Figure 2.6-3

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\LavacaBayTissueResults2017.mxd jsfox 2/9/2018 3:47:46 PM

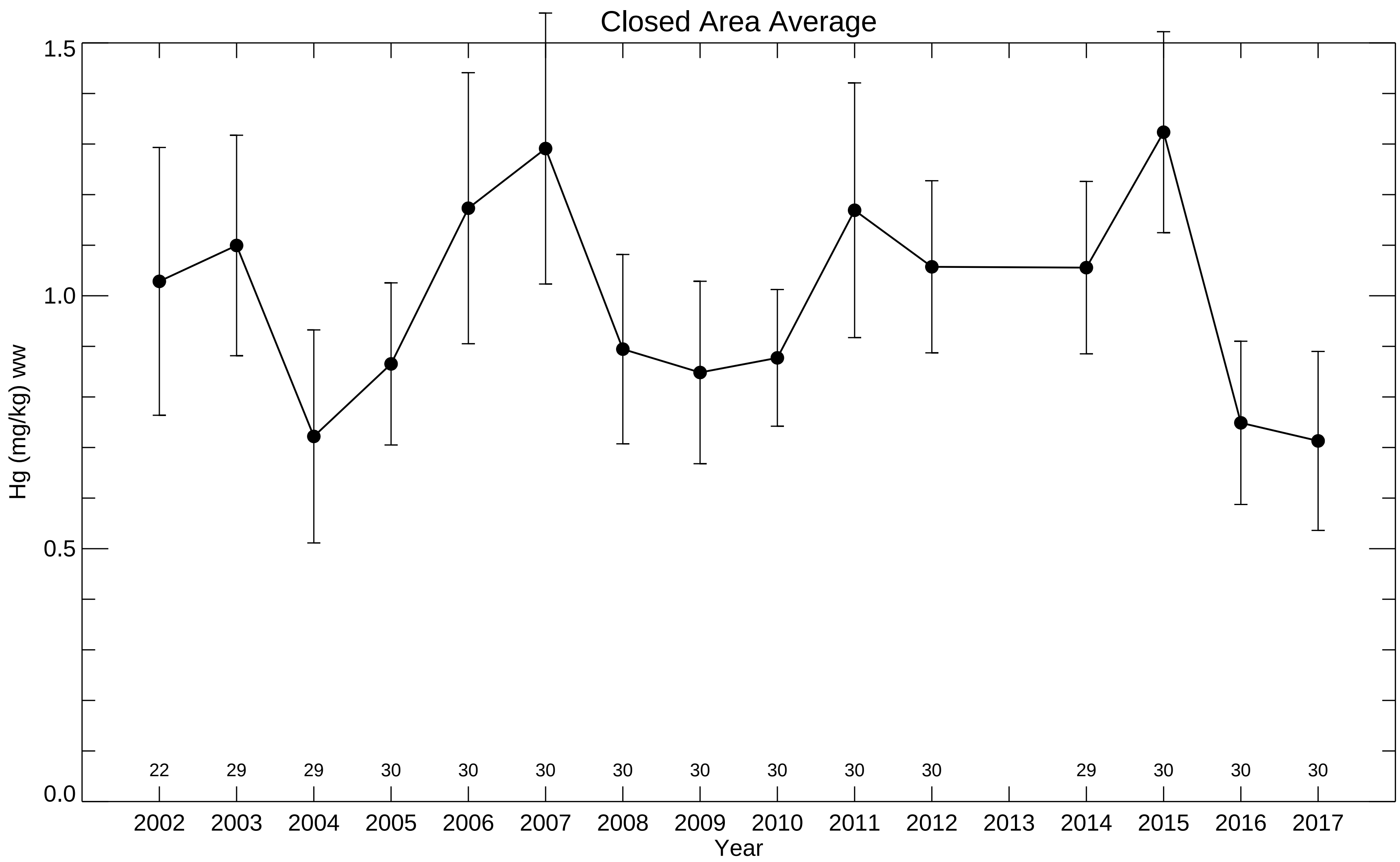

Figure 2.6-4

Lavaca Bay Red Drum Mercury Concentrations in Closed Area

Notes: Values at bottom of panel represent number of samples. One 3.65 mg/kg outlier in 2014 removed.
Error bars represent 2 standard errors
Prepared for Alcoa Corporation

sm - \\iris\Woodcliff\Projects\ALCOA\Lavaca_Bay\Analysis\Hg_Trends\tissue_temporals.pro
Tue Feb 06 15:03:25 2018

Red Drum Stations

0 1,000 2,000 Feet

NOTES:
Total mercury (Hg) results are shown in ug/g wet weight

2017 RAAER

Ratio of Closed Area Red Drum Station 2017 Average to Average in Adjacent Open Area

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/09/2018

Figure 2.6-5

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\LavacaBayTissueResults2017.mxd jsfox 2/9/2018 3:46:41 PM

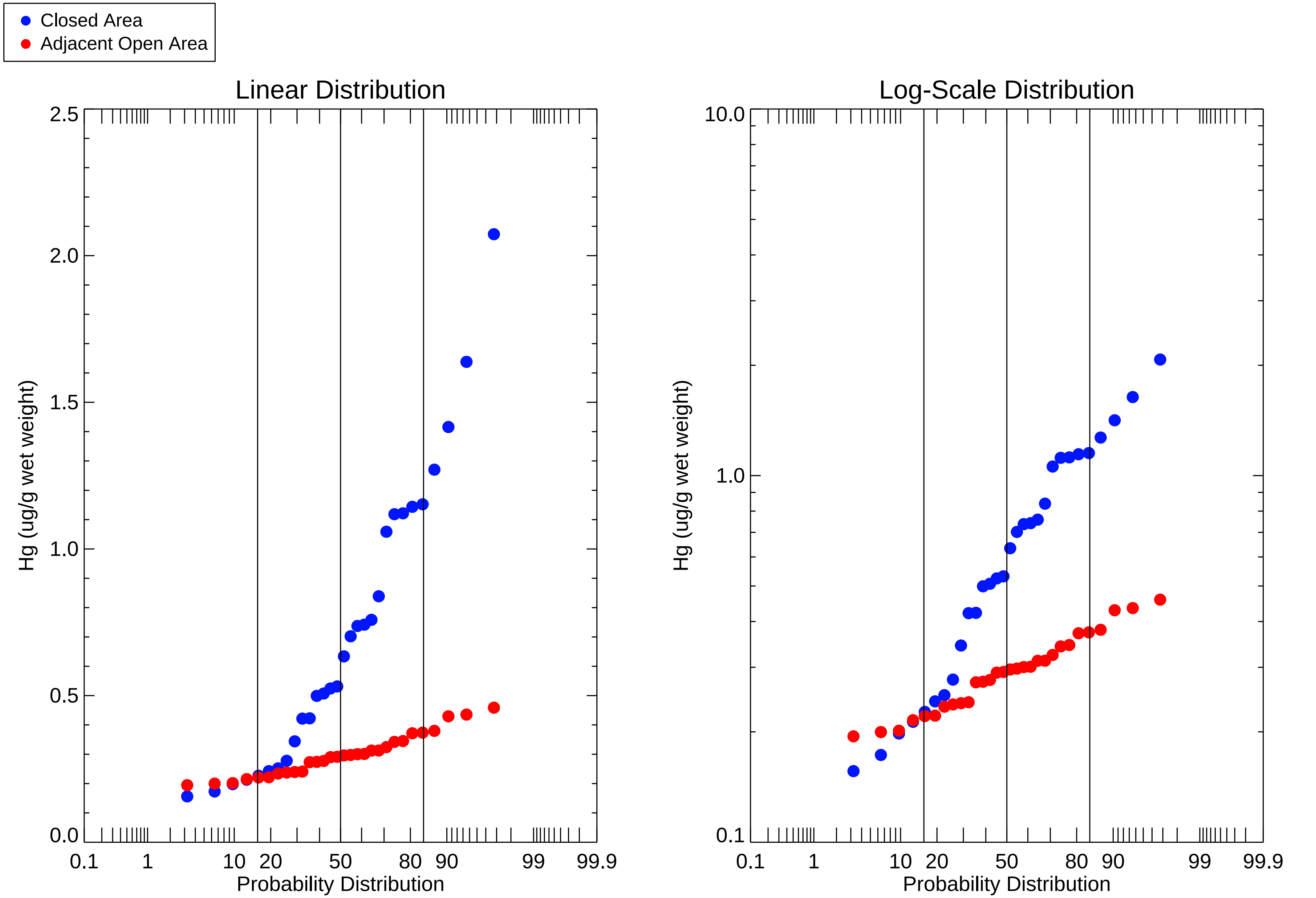

Figure 2.6-6

Lavaca Bay 2017 Red Drum Mercury Distributions

Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\AUSTIN2\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\RAAER_2015\Tissue_ProbPlots\Red_Drum_Probplots.pro
Tue Feb 06 15:07:05 2018

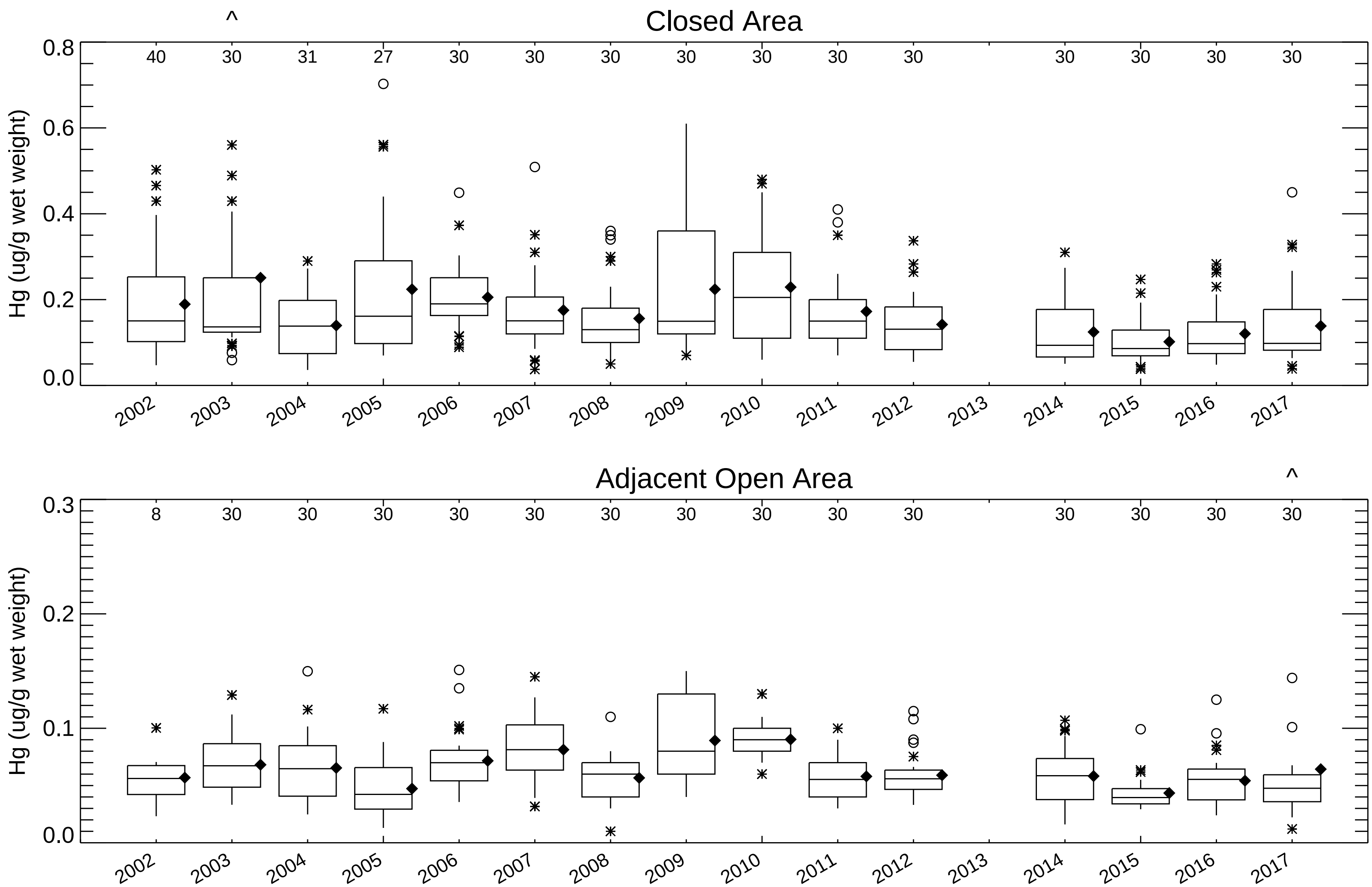

Figure 2.6-7

Lavaca Bay Juvenile Blue Crab Mercury Concentrations by Year, 2002-2017

Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\austin2\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Hg_Trends\tissue_trend_analysis_boxplots_w2017data.pro
Fri Feb 23 09:07:29 2018

Juvenile Blue Crab Stations (2017)

0 1,000 2,000
Feet

NOTES:
Total mercury (Hg) results are shown in ug/g wet weight

2017 RAAER

Closed Area Average Juvenile Blue Crab Total Hg (2017)

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/08/2018

Figure 2.6-8

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\LavacaBayTissueResults2017.mxd jsfox 2/8/2018 12:52:57 PM

Juvenile Blue Crab Stations

0 1,000 2,000
Feet

NOTES:
Total mercury (Hg) results are shown in ug/g wet weight

2017 RAAER

Ratio of Closed Area Juvenile Blue Crab Station 2017 Average to Average in Adjacent Open Area

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 02/08/2018

Figure 2.6-9

\\orcas\GIS\Jobs\Alcoa_0002\Lavaca_Bay\Maps\RAAER\LavacaBayTissueResults2017.mxd jsfox 2/8/2018 12:50:49 PM

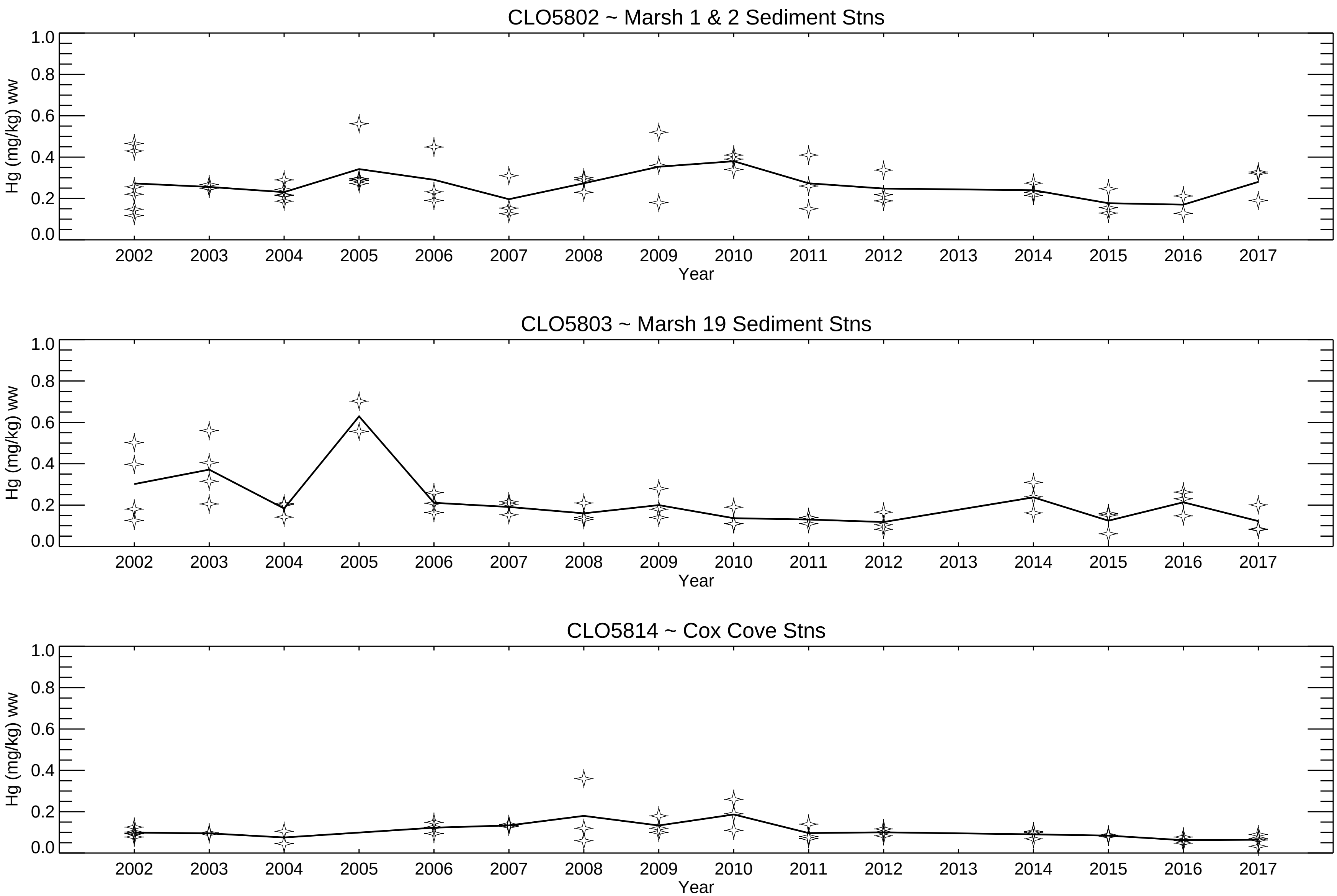

Figure 2.6-10a

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\iris\Woodcliff\Projects\ALCOA\Lavaca_Bay\Analysis\Hg_Trends\bluecrab_temporals_wnewdata.pro
Tue Mar 20 11:29:16 2018

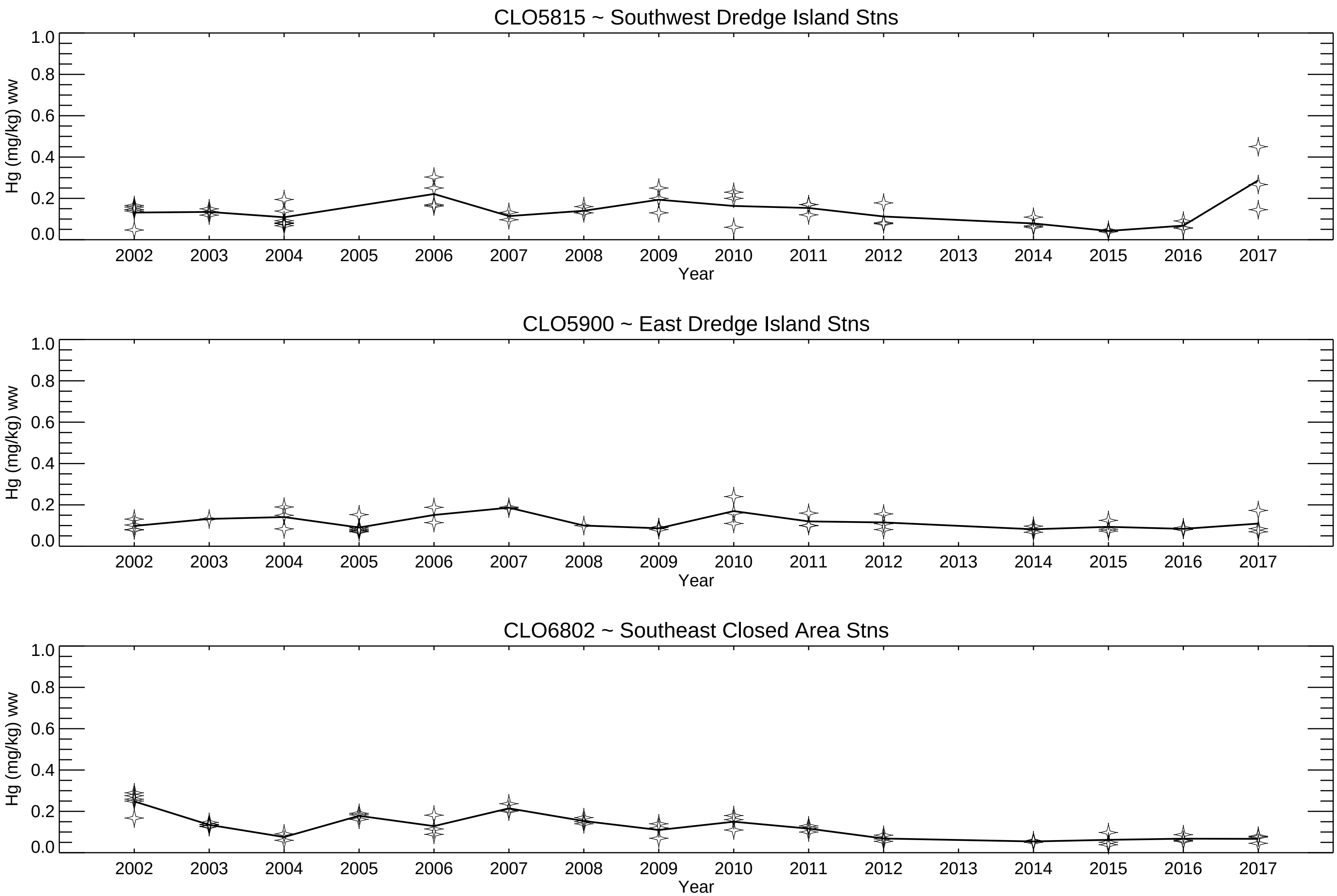

Figure 2.6-10b

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\iris\Woodcliff\Projects\ALCOA\Lavaca_Bay\Analysis\Hg_Trends\bluecrab_temporals_wnewdata.pro
Tue Mar 20 11:29:16 2018

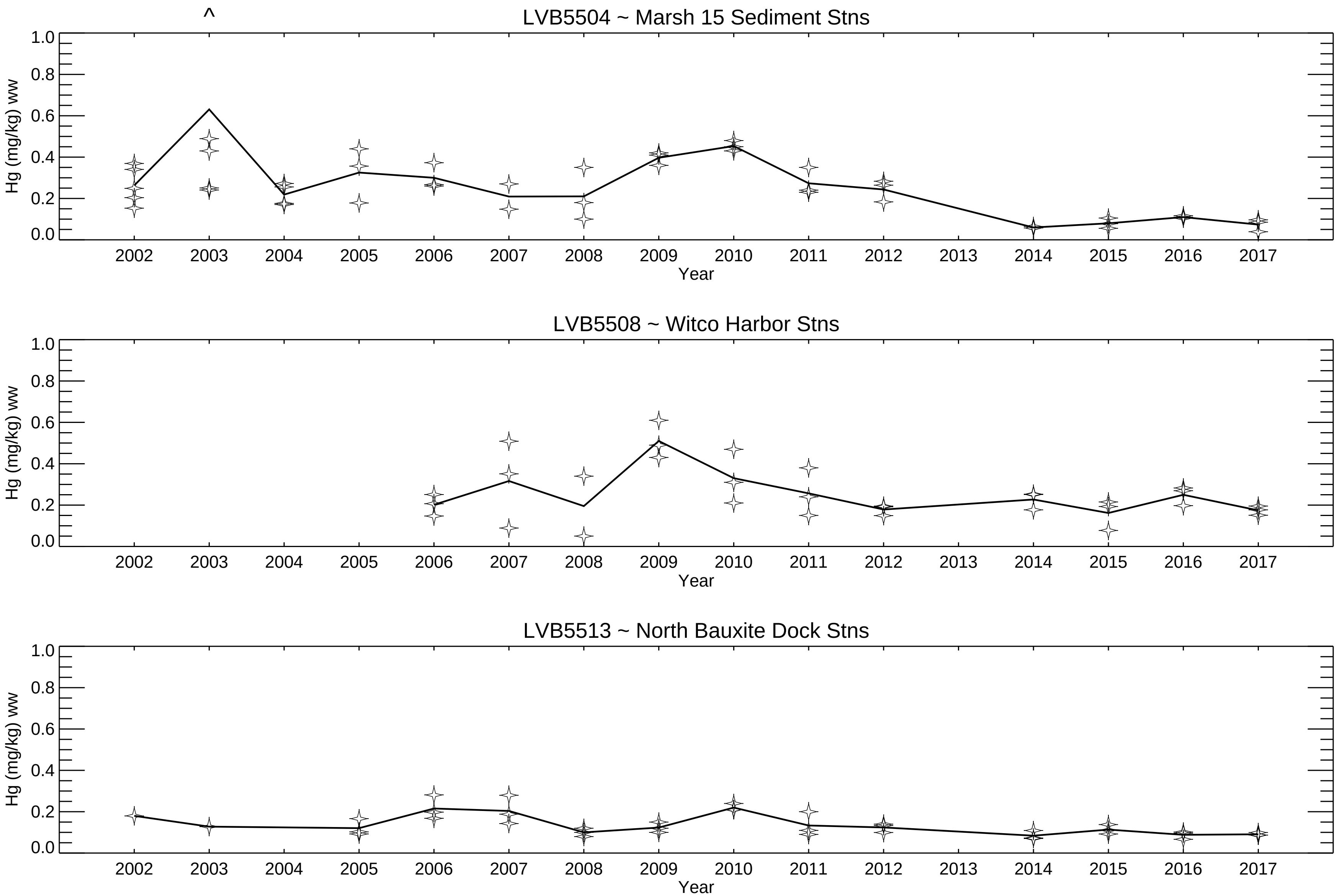

Figure 2.6-10c

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\iris\Woodcliff\Projects\ALCOA\Lavaca_Bay\Analysis\Hg_Trends\bluecrab_temporals_wnewdata.pro
Tue Mar 20 11:29:16 2018

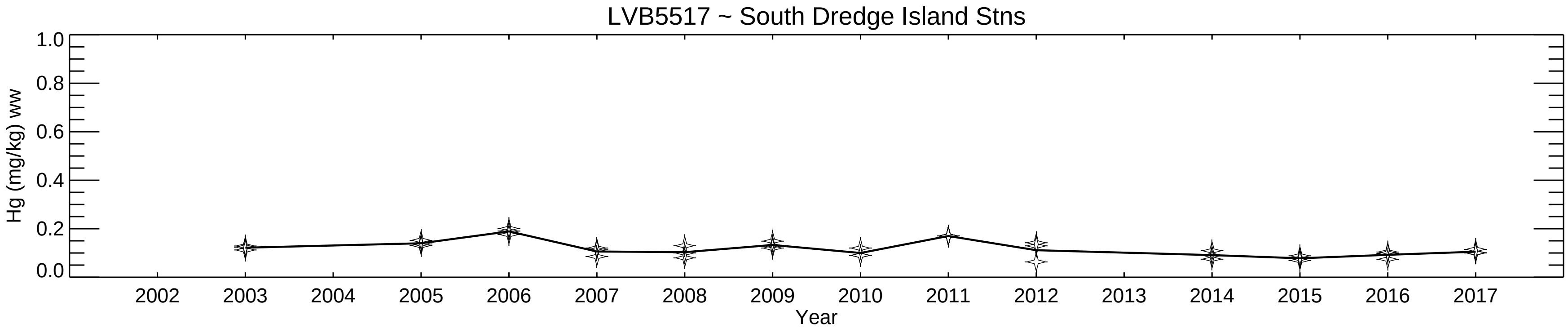

Figure 2.6-10d

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
Prepared for Alcoa Corporation

ANCHOR QEA

CF - \\iris\Woodcliff\Projects\ALCOA\Lavaca_Bay\Analysis\Hg_Trends\bluecrab_temporals_wnewdata.pro
Tue Mar 20 11:29:16 2018

APPENDIX A
CAPA GROUNDWATER AND SURFACE WATER DATA

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	6/23/99		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	
	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			

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	8/16/00		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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	10/1/01	<	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	
	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	

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Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	6/6/07		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	
	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	Date	Analytical Results (mg/L)[1,2]																		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	
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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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 3/14/10
	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	
	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	
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	Carbon change out 9/10/10
	9/20/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		J	0.0011		U	0.0005		7.37	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2] Mercury			Carbon Tetrachloride			Chloroform			Methylene Chloride			Tetrachloroethene			Trichloroethene			pH	Comments
		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	9/27/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.12	
Continued	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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[5]	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	

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Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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	
	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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	5/23/16	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	
	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			0.12			0.016		U	0.0010		U	0.00060		U	0.00050		6.88	
	4/28/17	J	0.0000720			0.18			0.025		U	0.0010		U	0.00060		U	0.00050		6.97	
	5/3/17	J	0.0000700			0.20			0.027		U	0.0010		U	0.00060		U	0.00050		6.96	
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	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		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	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																		Post-Hurricane Harvey Sample[9]
	9/22/17	J	0.0000850		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.35	
	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	

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) Post-Hurricane Harvey Sample Requested by EPA

Table 2
CAPA Groundwater Treatment System
Analytical Results
Recovery Wells

Sample Locations	Date	Analytical Results (mg/L)[1,2]																		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		
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			0.33		U	0.050		J	0.074		U	0.025		6.82	
	9/9/16		0.396			25			0.35		U	0.010			0.074		J	0.010		6.76	
	9/29/17		0.332			17		U	0.015		U	0.025		J	0.043		U	0.012		6.99	
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			
	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			

Table 2
CAPA Groundwater Treatment System
Analytical Results
Recovery Wells

Sample Locations	Date	Analytical Results (mg/L)[1,2]																		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		
CAO51B Continued	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	
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	
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			
	12/22/98		1.400			127			3.60			0.0390	J		0.790			0.044			
	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			

Table 2
CAPA Groundwater Treatment System
Analytical Results
Recovery Wells

Sample Locations	Date	Analytical Results (mg/L)[1,2]																		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		
CAOU23B Continued	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			0.83		U	0.050			0.30		J	0.045		6.96	
	9/9/16		0.0975			14			1.10		U	0.010			0.30		J	0.041		6.77	
	9/29/17		0.123			13			1.20		U	0.010			0.51			0.073		6.81	

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)[1,2]																		pH	Comments
		Mercury			Carbon Tetrachloride			Chloform			Methylene Chloride			Tetrachloroethene			Trichloroethene				
		Q[3]	Result	Flag[4]	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		7.8	
	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	

Table 3
CAPA Groundwater Treatment System
Analytical Results
Stripper Effluent

Sample Tap	Date	Analytical Results (mg/L)[1,2]																		pH	Comments
		Mercury			Carbon Tetrachloride			Chloform			Methylene Chloride			Tetrachloroethene			Trichloroethene				
		Q[3]	Result	Flag[4]	Q	Result	Flag	Q	Result	Flag	Q	Result	Flag	Q	Result	Flag	Q	Result	Flag		
ST-9 Continued	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	

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 (gal)[1]	CA051B (gal)	CA052B (gal)	CA0U23B (gal)	Total Influent (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**
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

Table 4
CAPA Groundwater Treatment System
Recovery Well Pumping Data

Year	Month	CA050B (gal)[1]	CA051B (gal)	CA052B (gal)	CA0U23B (gal)	Total Influent (gal)
2004 Cont.	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**
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**
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 (gal)[1]	CA051B (gal)	CA052B (gal)	CA0U23B (gal)	Total Influent (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**
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**

NOTE:
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***
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***

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)
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***
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

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)
2007	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
Cont.	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***
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***
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

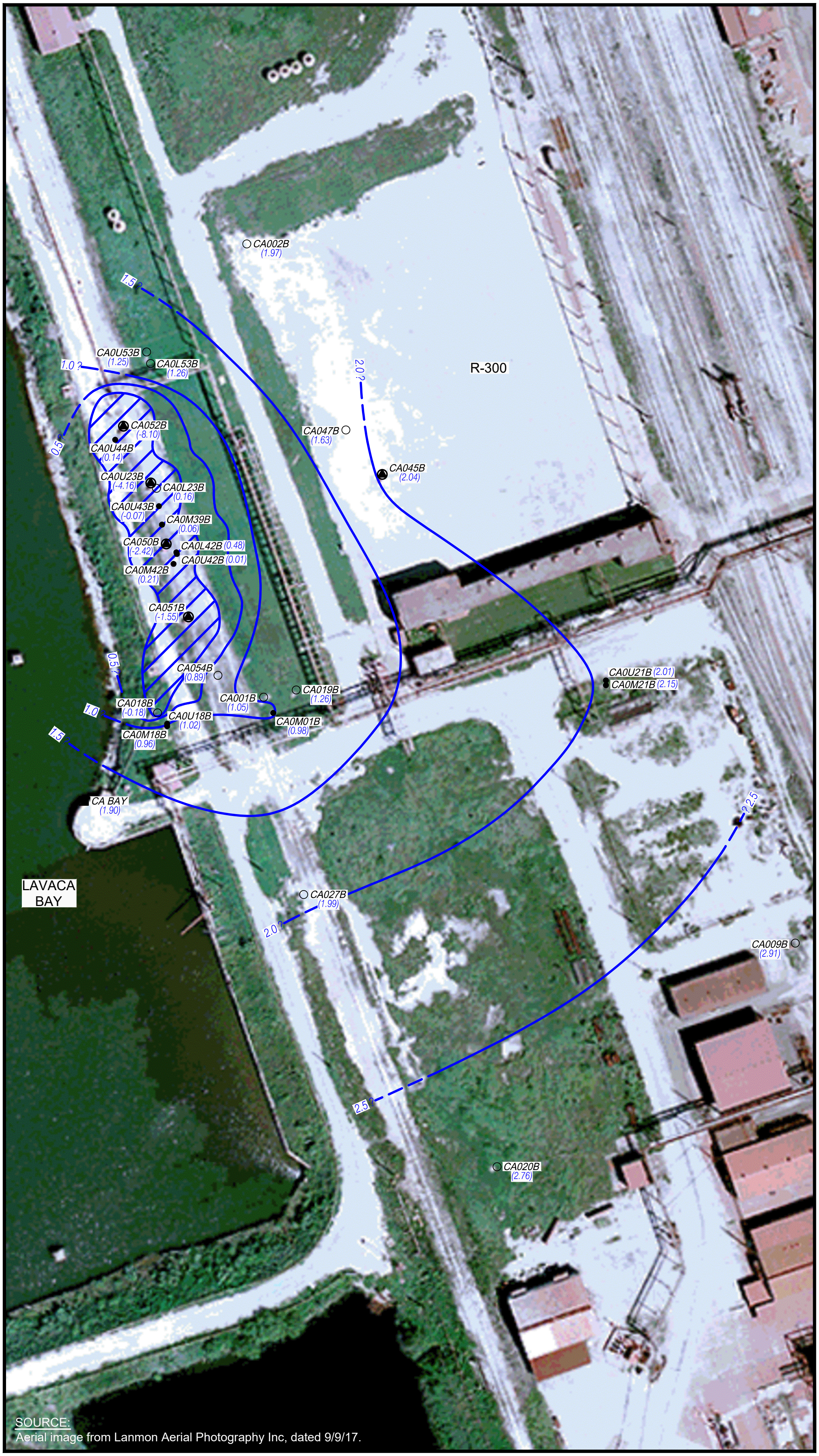
Table 5
CAPA Groundwater Treatment System
Approximate Mass of Mercury Removed
Recovery Wells

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)
2012 Cont.	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***
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

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)
2016 Cont.	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***
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***

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



EXPLANATION

CA018B	Well Designation
○	Monitoring Well
●	Piezometer
	Recovery Well
	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)

0 60 120
Feet

Notes:
1. Groundwater elevations measured in pumping wells are probably influenced by well inefficiencies.
2. Groundwater elevations are corrected for salinity effects.
3. Only wells measured for water levels are shown on this figure.
4. Surface water elevation used for contouring is from tidal gauge located southwest of CAPA (CA Bay).

2017 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (3/15/2017)

PBW
PASTOR, BEHLING & WHEELER, LLC

Project: 3423

Date: 1/5/2018

Figure 1

Prepared for
ALCOA CORPORATION

EXPLANATION

CA018B Well Designation

○ Monitoring Well

● Piezometer

Recovery Well

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)

STATE OF TEXAS
MATTHEW K. WICKHAM
GEOLOGY
LIC. # 5330
LICENSED
PROFESSIONAL GEOSCIENTIST

0 60 120
Feet

Notes:
1. Groundwater elevations measured in pumping wells are probably influenced by well inefficiencies.
2. Groundwater elevations are corrected for salinity effects.
3. Only wells measured for water levels are shown on this figure.
4. Surface water elevation used for contouring is from tidal gauge located southwest of CAPA (CA Bay).

2017 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (6/15/2017)

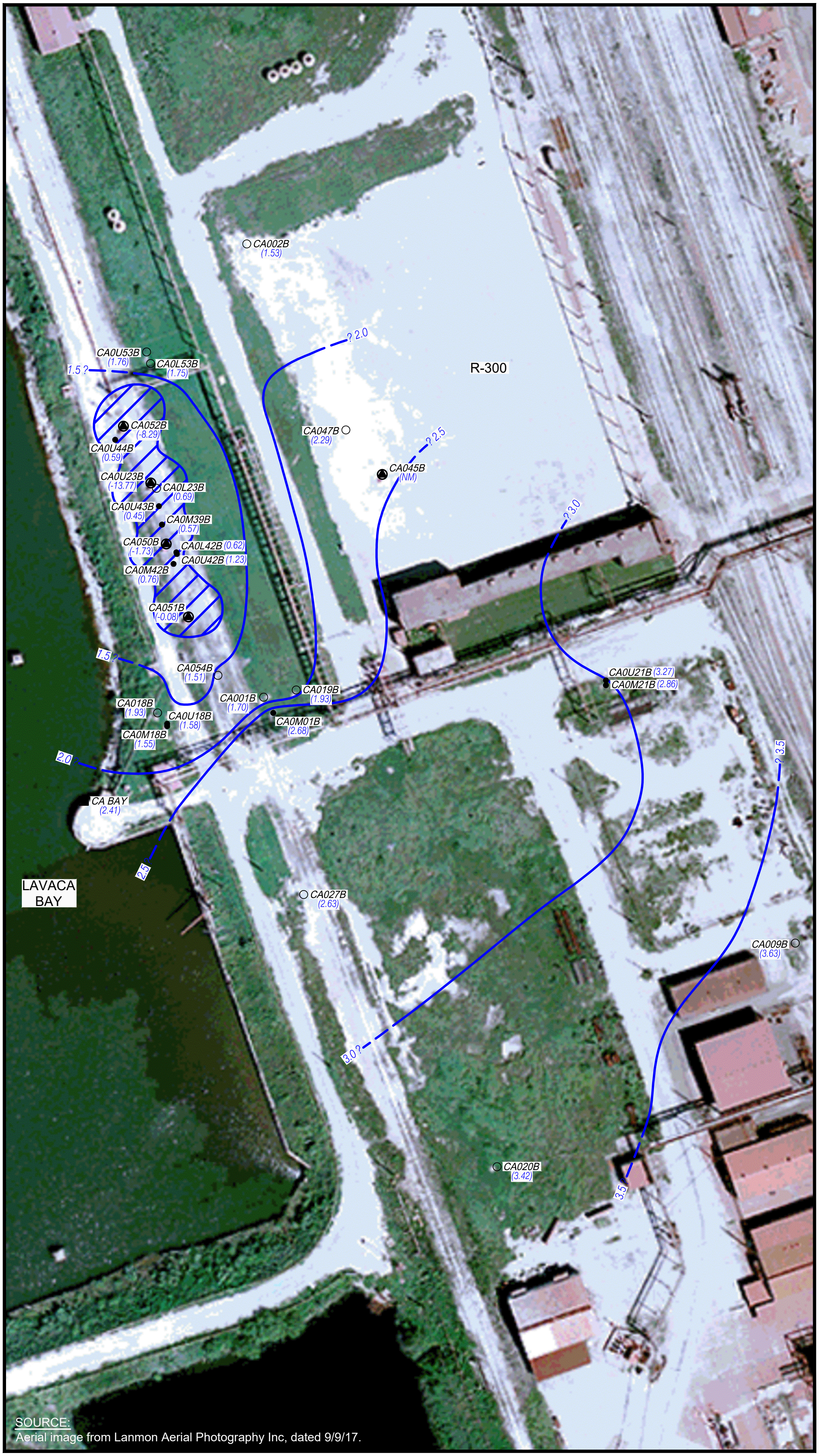
PBW
PASTOR, BEHLING & WHEELER, LLC

Project: 3423

Date: 1/5/2018

Figure 2

Prepared for
ALCOA CORPORATION



EXPLANATION

CA018B Well Designation

○ Monitoring Well

● Piezometer

Recovery Well

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)

STATE OF TEXAS
MATTHEW K. WICKHAM
GEOLOGY
LIC. # 5330
LICENSED
PROFESSIONAL GEOSCIENTIST

0 60 120
Feet

Notes:
1. Groundwater elevations measured in pumping wells are probably influenced by well inefficiencies.
2. Groundwater elevations are corrected for salinity effects.
3. Only wells measured for water levels are shown on this figure.
4. Surface water elevation used for contouring is from tidal gauge located southwest of CAPA (CA Bay).

2017 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (9/29/2017)

PBW
PASTOR, BEHLING & WHEELER, LLC

Project: 3423

Date: 1/5/2018

Figure 3

Prepared for
ALCOA CORPORATION

EXPLANATION

CA018B	Well Designation
○	Monitoring Well
●	Piezometer
◉	Recovery Well
◪	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)

STATE OF TEXAS
MATTHEW K. WICKHAM
GEOLOGY
LIC. # 5330
LICENSED
PROFESSIONAL GEOSCIENTIST

0 60 120
Feet

Notes:
1. Groundwater elevations measured in pumping wells are probably influenced by well inefficiencies.
2. Groundwater elevations are corrected for salinity effects.
3. Only wells measured for water levels are shown on this figure.
4. Surface water elevation used for contouring is from tidal gauge located southwest of CAPA (CA Bay).

2017 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (10/12/2017)

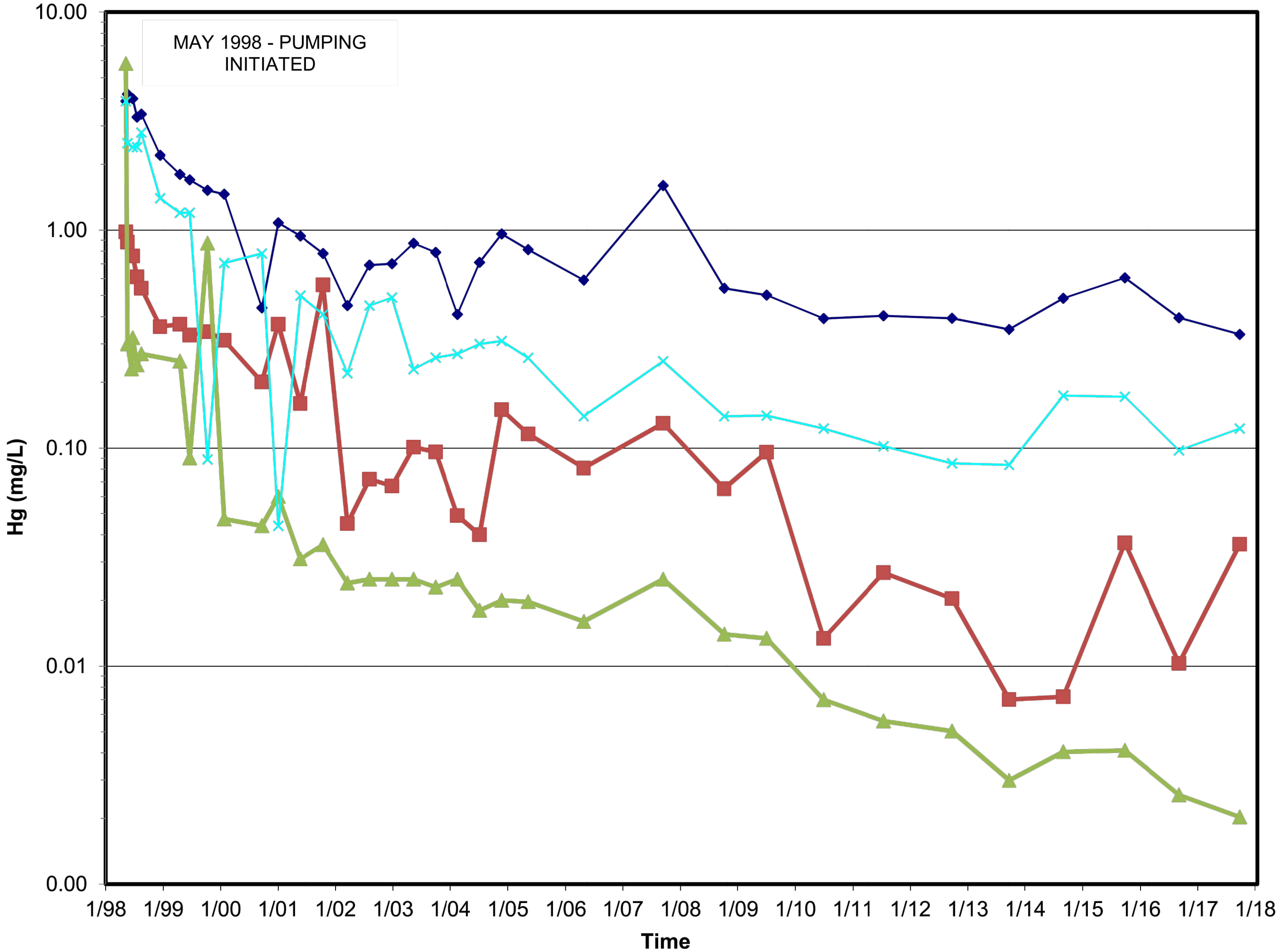
PBW
PASTOR, BEHLING & WHEELER, LLC

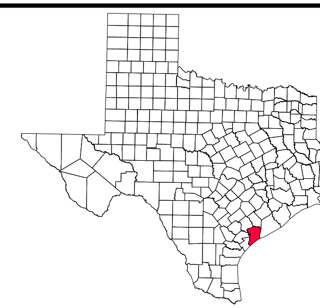
Project: 3423

Date: 1/5/2018

Figure 4

Prepared for
ALCOA CORPORATION





EXPLANATION

- CAO50B
- CA051B
- CA052B
- CA0U23B

2017 RAAER

CAPA GROUNDWATER TREATMENT SYSTEM
RECOVERY WELLS - ANALYTICAL RESULTS
MERCURY CONCENTRATIONS vs. TIME

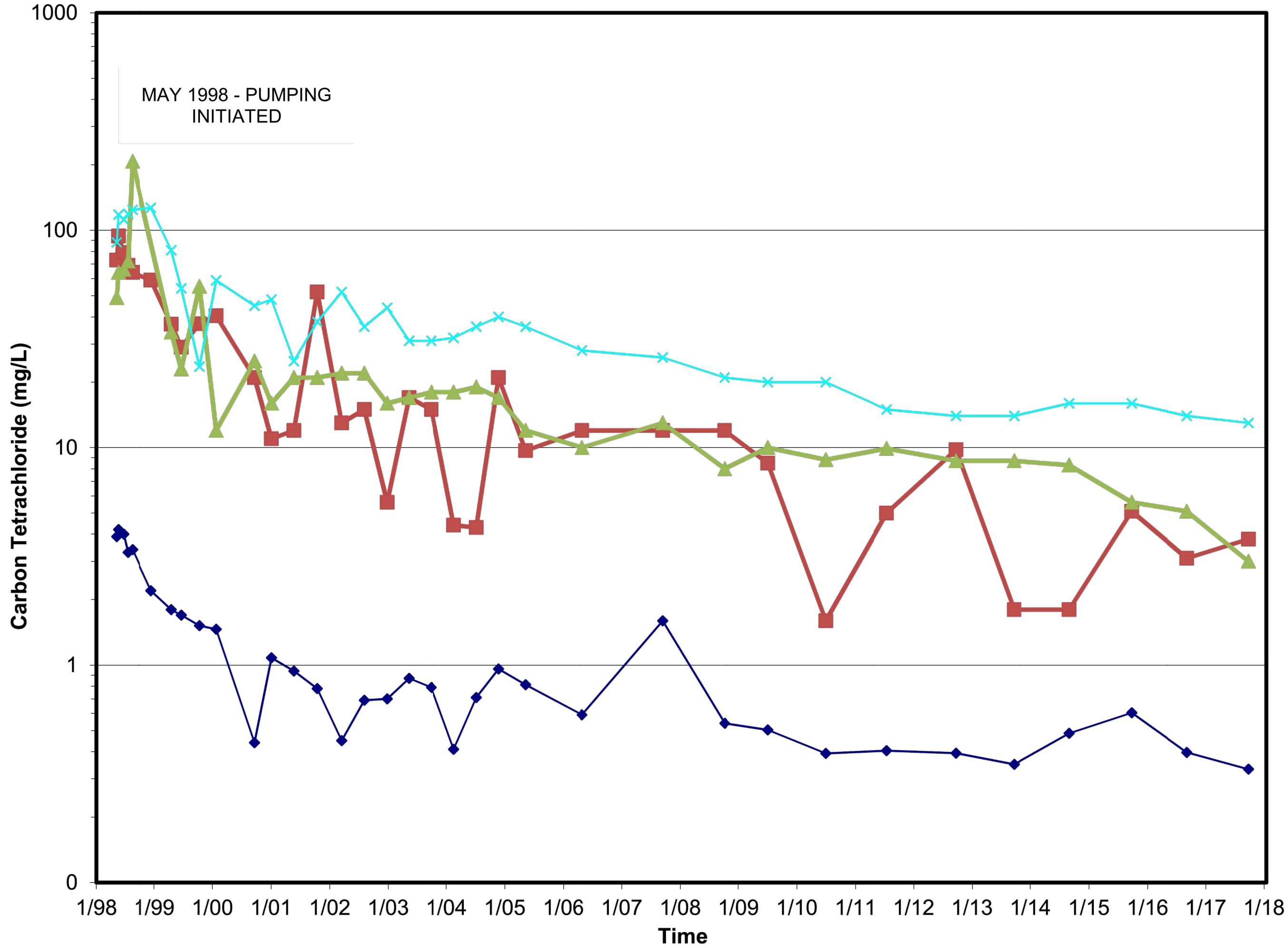
PBW
PASTOR, BEHLING & WHEELER, LLC

Project: 3423

Date: 02/07/2018

Figure 5

Prepared for
ALCOA CORPORATION



EXPLANATION

- CA050B
- CA051B
- CA052B
- CA0U23B

2017 RAAER

CAPA GROUNDWATER TREATMENT SYSTEM RECOVERY WELLS - ANALYTICAL RESULTS CARBON TETRACHLORIDE vs. TIME

PBW PASTOR, BEHLING & WHEELER, LLC

Project: 3423

Date: 02/07/2018

Figure 6

Prepared for
ALCOA CORPORATION

APPENDIX B1
DREDGE ISLAND INSPECTION RECORDS

DREDGE ISLAND INSPECTION RECORD

Inspector's Name: **Kevin Dworsky** **Weather:** **Cloudy, North Wind** **Temperature:** **53° F** **KBD accompanied by Benchmark Ecological Services, Inc during the inspection.**	**Date:** **03/13/2017 (1Q17)** **Time Begin:** **0900** **Time End:** **1100** **Inspector's Signature:**

SPECIFIC ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS OBSERVED NORMAL	CONDITIONS OBSERVED ABNORMAL	COMMENTS OR CORRECTIVE ACTION(S) IMPLEMENTED AND DATES
General Dredge Island	Erosion Deterioration Settling/Ponding Uplift Washouts Rodent Holes Vegetation	X X X X X X 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. This should be monitored as part of future inspections. Appears there has been little to no erosion of the area since the 4Q16 inspection. All original vehicular signs and some of the reflectors on Island are damaged and/or knocked down. New signs were placed in a few locations during 2011 maintenance event on the island. Most of these signs have also been knocked down by the strong winds. Minor to moderate vegetation on the road and minor to moderate vegetation along the sides of the roads, interior dikes, outer dikes, and on toes of the exterior dikes. Hard to inspect the side slopes of the ramps thoroughly due to healthy/heavy vegetation. Some rutting of the road and gravel of the exterior dike on the northeast side of the CDF caused by the heavy equipment used during a previous dredging event. Some small trees/bushes are forming in the gravel of the inner and outer dikes and there are some larger trees/bushes in the stone armor. There is minor erosion observed along the crest of the north entry ramp.
Access Bridge	Deterioration Damage Navigation Lights	□ □ □	X X X	Conditions similar to previous 4Q16 report completed by Dan Bullock (BBA). Bridge abutments severely eroded. Hazard signs indicating the presence of water hazards appear in good condition. Detailed inspection of the bridge was not performed as part of this site visit.
CDF Dike	Erosion Deterioration Damage Vegetation	X X X X	□ □ □ □	There is water inside the CDF, most of which is from recent rain events. Minor erosion observed in areas of the exterior dike side slope where the north entry ramp meets the dike. 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 quarterly inspections. Minor to moderate erosion has been noted on the interior dikes along the north, west and south ends. The geomembrane has been exposed in some of

				these locations. Several areas of the exposed geomembrane have been damaged. Action in the near future may be necessary. The geomembrane component of the water stop on the CPA dike, near the Alcoa CDF station 23+00 and Station 37+00, is exposed due to severe erosion of the overlying topsoil. Small holes have been observed in the exposed geomembrane. There are also large erosion rills on the exterior of the CPA dike. Both the inner and outer levee erosions have slightly 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 quarterly inspections. There was no seepage noted from the top of the dike.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage Vegetation	X X X X X X X	□ □ □ □ □ □ □	No damage observed. Minor to moderate vegetation present in areas. There are some large trees/bushes that are pushing through the stone armor. These trees/bushes were not part of the 2015 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 without traversing the stone on the exterior dike slopes. The exterior dike locations were observed via the dike crest.
Gravel Erosion Protection	Erosion Fabric Exposure Deterioration Damage	X X X X	□ □ □ □	The inside slope of the 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 slope was not placed as part of the work. These sections are currently showing minor to moderate erosion. Most of the remaining sections of the dikes' inside slope exhibit minor to moderate 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 slope interiors does not appear to be problematic as long as the water levels are kept low.
Emergency Spillway	Obstructions Cracks in Concrete Deterioration Damage	X X X X	□ □ □ □	Generally good condition. Slight erosion and some cracks in the concrete. Slight erosion has occurred along the outer and inner edge of the spillway. Some localized concrete deterioration observed.
Decant Structures	Weir Board Elevation Depth of Water Obstructions Deterioration Rust/Corrosion Damage Overflow Quality (NA)	□ X X □ □ X □	X □ □ X X □ □	As of January 2012, the North Structure will be placed under restricted access until a thorough structural and safety inspection of this structure can be performed by a qualified structural engineer. All inspections will be completed visually from the catwalk of the structure. This recommendation was made due to the severe visual corrosion of the structural I-beam sections.

DREDGE ISLAND INSPECTION RECORD

	Overflow Quantity Flap Gate	X X	□ □	North Structure: Coated surfaces on structure exhibiting rusting and pitting on handrails. Channel iron also exhibits corrosion. Corrosion of the structural I-beam sections was observed. The majority of the structural I-beams are not visible without removal of the grates and access of the structure interior. Therefore, the interior I-beam was not observed during this inspection. The plastic around the top of the structure is in good condition. There is no discharge observed coming from the North Decant Structure. The area around the structure is dry (5.20' from the platform of the structure). Water inside of the structure was 20.95' below the top of the platform. South Structure: Several stop logs (boards) were removed to allow water to decant during the previous dredging event and have not been replaced. These boards should be replaced to prevent accidental discharge. Minor to moderate rust observed on handrails and channel iron. A section of angle iron used to guide the stop logs in the slots has broken loose from the welds and show corrosion. Conditions appear to have worsened since the last inspection. The plastic around the top of the structure appears to be in good condition. There is no discharge observed coming from the South Decant Structure. The area around the structure is dry (7.45' from the platform of the structure). The water inside of the structure is 17.80' from the platform. Outfall structures were only observed from the dikes and do not appear to be discharging.
Gravel Road	Potholes Ponding Deterioration Washouts Vegetation	X X X X □	□ □ □ □ X	Generally in good condition. Some minor rutting at several locations. There is some slight erosion on the sides of portions of the road. There are several areas of thin gravel and geomembrane exposure. Vegetation is starting to re-establish in some areas on and along the road. Implementation of a routine vegetation control program is needed.
Water Stops	Erosion Membrane Exposed Deterioration Damage	□ □ X X	X X □ □	Severe erosion, fines accumulation, and geomembrane exposed at the water stop on the inside CPA dike as previously reported. Moderate erosion on the exterior of the East CPA Dike. Severe erosion on the exterior of the West CPA Dike. Continue to monitor.
Reflectors Station Tags	Intact/Reflecting Intact/Legibility	□ □	X X	Some reflectors and traffic signage observed to be leaning or entirely down on the ground. 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 QUARTER 2017
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 washout and cracking

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

5 – Northeast Corner Inner Dike, viewing vegetation

6 – Northeast Corner Outer Dike, viewing west

7 – Northeast Corner Inner Dike, viewing west

8 – Northeast Corner Inner Dike, viewing south

9 – East Outer Dike, viewing north

10 – North Outfall

11 – North Decant Structure

12 –East Outer Dike - vegetation at the bottom of the gravel protection and in the armor

13 – Southeast Inner Dike, viewing southwest

14 – Southeast Outer Dike, historic seepage area

15 – Southeast Corner Outer Dike, viewing south

16 – Southeast Corner Inner Dike, viewing south

17 – Southeast Corner Inner Dike, viewing west

18 – Southeast Corner Outer Dike, viewing west

FIRST QUARTER 2017
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – South Dike, viewing exposed geomembrane

20 – Southwest Corner Inner Dike, viewing north

21 – Southwest Corner Outer Dike, viewing north

22 – South Outfall

23 – South Decant Structure

24 – South Decant Structure, viewing corrosion of angle iron


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 outer edge


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


31 – Southeast Outer Dike, viewing damaged sign


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


33 – East CPA Outer Dike, viewing erosion


34 – West CPA Outer Dike, viewing erosion


35 – View North Decant Structure deterioration


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

37 – Northeast Corner Inner Dike, panoramic view

38 – Southwest Corner Inner Dike, panoramic view

DREDGE ISLAND INSPECTION RECORD

Inspector's Name: **Kevin Dworsky** **Weather:** **Mostly Clear** **Temperature:** **86° F** **KBD accompanied by Benchmark Ecological Services, Inc during the inspection.**	**Date:** **06/14/2017 (2Q17)** **Time Begin:** **0900** **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	Erosion Deterioration Settling/Ponding Uplift Washouts Rodent Holes Vegetation	X X X X X X □	□ □ □ □ □ □ X	Dredging event was initiating during this inspection event. 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. This should be monitored as part of future inspections. Appears there has been little to no erosion of the area since the 1Q17 inspection. All original vehicular signs and some of the reflectors on Island are damaged and/or knocked down. New signs were placed in a few locations during 2011 maintenance event on the island. Most of these signs have also been knocked down by the strong winds. Moderate vegetation on the road, along the sides of the roads, interior dikes, outer dikes, and on toes of the exterior dikes. Action needed to control vegetation on the levees. Hard to inspect the side slopes of the ramps thoroughly due to healthy/heavy vegetation. Some rutting of the road and gravel of the exterior dike on the northeast side of the CDF caused by the heavy equipment used during a previous dredging event. Some small trees/bushes are forming in the gravel of the inner and outer dikes and there are some larger trees/bushes in the stone armor. There is minor erosion observed along the crest of the north entry ramp. There are no issues that compromise the integrity of the levees and other structures on the island.
Access Bridge	Deterioration Damage Navigation Lights	□ □ □	X X X	Conditions similar to previous 1Q17 report. Bridge abutments severely eroded. Hazard signs indicating the presence of water hazards appear in good condition. Detailed inspection of the bridge was not performed as part of this site visit.
CDF Dike	Erosion Deterioration Damage Vegetation	X X X X	□ □ □ □	There is water inside the CDF, most of which is from recent rain events. Minor erosion observed in areas of the exterior dike side slope where the north entry ramp meets the dike. 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

CDF Dike (cont.)				should continue to be monitored during quarterly inspections. Minor to moderate erosion has been noted on the interior dikes along the north, west and south ends. The geomembrane has been exposed in some of these locations. Several areas of the exposed geomembrane have been damaged. Action in the near future may be necessary. The geomembrane component of the water stop on the CPA dike, near the Alcoa CDF station 23+00 and Station 37+00, is exposed due to severe erosion of the overlying topsoil. Small holes have been observed in the exposed geomembrane. There are also large erosion rills on the exterior of the CPA dike. Both the inner and outer levee erosions have slightly 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 quarterly inspections. There was no seepage noted from the top of the dike.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage Vegetation	X X X X X X X	□ □ □ □ □ □ □	No damage observed. Moderate vegetation present in areas. There are some large trees/bushes that are pushing through the stone armor. These trees/bushes were not part of the 2015 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 without traversing the stone on the exterior dike slopes. The exterior dike locations were observed via the dike crest.
Gravel Erosion Protection	Erosion Fabric Exposure Deterioration Damage	X X X X	□ □ □ □	The inside slope of the 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 slope was not placed as part of the work. These sections are currently showing minor to moderate erosion. Most of the remaining sections of the dikes' inside slope exhibit minor to moderate 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 slope interiors does not appear to be problematic as long as the water levels are kept low.
Emergency Spillway	Obstructions Cracks in Concrete Deterioration Damage	X X X X	□ □ □ □	Generally good condition. Slight erosion and some cracks in the concrete. Slight erosion has occurred along the outer and inner edge of the spillway. Some localized concrete deterioration observed.

DREDGE ISLAND INSPECTION RECORD

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 □ □ □ □	As of January 2012, the North Structure will be placed under restricted access until a thorough structural and safety inspection of this structure can be performed by a qualified structural engineer. All inspections will be completed visually from the catwalk of the structure. This recommendation was made due to the visual corrosion of the structural I-beam sections. North Structure: Coated surfaces on structure exhibiting rusting and pitting on handrails. Channel iron also exhibits corrosion. Corrosion of the structural I-beam sections was observed. The majority of the structural I-beams are not visible without removal of the grates and access of the structure interior. Therefore, the interior I-beam was not observed during this inspection. The plastic around the top of the structure is in good condition. There is no discharge observed coming from the North Decant Structure. The area around the structure is dry (5.35' from the platform of the structure). Water inside of the structure was 24.72' below the top of the platform. South Structure: Several stop logs (boards) were removed to allow water to decant during the previous dredging event and have not been replaced. These boards should be replaced to prevent accidental discharge. Minor to moderate rust observed on handrails and channel iron. A section of angle iron used to guide the stop logs in the slots has broken loose from the welds and show corrosion. Conditions appear to have worsened since the last inspection. The plastic around the top of the structure appears to be in good condition. There is no discharge observed coming from the South Decant Structure. The area around the structure is dry (7.50' from the platform of the structure). The water inside of the structure is 17.70' from the platform. The south outfall structure was only observed from the dike and does not appear to be discharging. The north outfall structure was observed from the bay and does not appear to be discharging.
Gravel Road	Potholes Ponding Deterioration Washouts Vegetation	X X X X □	□ □ □ □ X	Generally in good condition. Some minor rutting at several locations. There is some slight erosion on the sides of portions of the road. There are several areas of thin gravel and geomembrane exposure. Vegetation is starting to re-establish in some areas on and along the road. Implementation of a routine vegetation control program is needed.
Water Stops	Erosion Membrane Exposed Deterioration Damage	□ □ X X	X X □ □	Severe erosion, fines accumulation, and geomembrane exposed at the water stop on the inside CPA dike as previously reported. Moderate erosion on the exterior of the East CPA Dike. Severe erosion on the exterior of the West CPA Dike. Continue to monitor.
Reflectors Station Tags	Intact/Reflecting Intact/Legibility	□ □	X X	Some reflectors and traffic signage observed to be leaning or entirely down on the ground. 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.

SECOND QUARTER 2017
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 washout and cracking

4 – North Inner Dike, viewing vegetation

5 – North Inner Dike, viewing dredge pipe placement

6 – Northeast Corner Outer Dike, viewing west

7 – Northeast Corner Inner Dike, viewing west

8 – Northeast Corner Inner Dike, viewing south

9 – East Outer Dike, viewing north

10 – North Outfall

11 – North Decant Structure

12 –East Outer Dike - vegetation at the bottom of the gravel protection and in the armor

SECOND QUARTER 2017
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

13 – Southeast Inner Dike, viewing southwest

14 – Southeast Outer Dike, historic seepage area

15 – Southeast Corner Outer Dike, viewing south

16 – Southeast Corner Inner Dike, viewing south

17 – Southeast Corner Inner Dike, viewing west

18 – Southeast Corner Outer Dike, viewing west

19 – South Dike, viewing exposed geomembrane

20 – Southwest Corner Inner Dike, viewing north

21 – Southwest Corner Outer Dike, viewing north

22 – South Outfall

23 – South Decant Structure

24 – South Decant Structure, viewing corrosion of angle iron

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 outer edge

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

31 – Southeast Outer Dike, viewing damaged sign

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

33 – East CPA Outer Dike, viewing erosion

34 – West CPA Outer Dike, viewing erosion

35 – View North Decant Structure deterioration

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

37 – Northeast Corner Inner Dike, panoramic view

38 – Southwest Corner Inner Dike, panoramic view

SITE INSPECTION LOG

Inspector's Name: Dan Bullock, P.E. (BBA, LLC)
Weather: Clear
Temperature: Approx. 70-75 F

STATE OF TEXAS
DANIEL B. BULLOCK
82596
REGISTERED PROFESSIONAL ENGINEER

10/31/2017

Inspector's Signature:

Inspection Date: 9-21-17
Time Begin: Approx. 10:00 a.m.
Time End: Approx. 1:00 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	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	Hurricane Harvey (late August) appears to have had very little if any impact on the confined disposal facility (CDF). Shoreline bank cut observed (as was last year) near northeast dike toe of exterior slope. Appears possibly associated with previous 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 erosion observed on north entry ramp, along edges of ramp crest as shown in photos. 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), although additional damage appears to have been sustained due to recent Hurricane Harvey. 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 soil cover material (see attached photos) as noted in previous inspections. Some small (approx. 1 inch dia.) holes observed in exposed geomembrane. Erosion in these areas currently does not appear to impact the CDF dikes but should continue to be monitored during quarterly inspections. CDF dikes appear in generally good condition, with some vegetation intrusion becoming re-established as shown in photos. Recent 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 is becoming re-established in some areas as shown in photos, should continue to 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 issues) 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. 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. Most of the remaining sections (generally along the south) 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. As noted under "CDF Dike", recent, minor erosion appears to have occurred along the interior toe of the west dike. Aerial extent couldn't be observed due to water levels in the CDF.
Emergency Spillway	Obstructions Cracks in Concrete Deterioration Damage	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	Generally good condition. Some localized, minor, surficial concrete deterioration observed.
Decant Structures	Weir Board Elevation Depth of Water Obstructions Deterioration Rust/Corrosion Damage Overflow Quality (NA) Overflow Quantity Flap Gate	☒ ☒ ☒ ☐ ☐ ☒ ☐ ☒ ☒	☐ ☐ ☐ ☒ ☒ ☐ ☐ ☐ ☐	<u>North Structure:</u> <u>Severe</u> corrosion of structural steel was observed during this limited visual inspection. Access restriction signage was temporarily down at time of inspection. The majority of steel was not visible. Based on site observations of surface and near surface steel (see attached photos) it is recommended that personnel access to this structure beyond the access walkway, and use of the structure for operational purposes, continue to be restricted until repaired or replaced. Handrails and channel iron slots containing the stoplogs on the structure exhibit severe corrosion, per attached photos. CDF water surface at decant was 24 inches below structure surface during inspection, with no apparent flow (other than incidental seepage) into structure and no discharge. Plastic wrap around the structure was in place. <u>South Structure:</u> Moderate to severe corrosion was observed in localized areas on south decant structure hand rails and channel iron slots containing the stoplogs. Structure was in use during ongoing dredging at the time of inspection. *<u>Note</u>: Terms used for this inspection to describe corrosion observations may include "mild or minor', "moderate" or "severe" – and are not based on steel inspection standards but simply offered to provide reader relative scale of limited visual observations made during this site inspection.*
Gravel Road	Potholes Ponding Deterioration Washouts	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	Generally good condition, some minor rutting observed at various locations. Vegetation was removed in 2015 but is re-establishing in some areas as shown in photos – should continue to implement vegetation control program and continue to monitor.
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 Port CDF dikes. 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
9/21/2017

North Exterior Slope and Entry Ramp (facing northwest)

North Interior, Step-in Test Section (facing northeast)

Entry Ramp Minor Erosion (facing south)

Damaged Access Bridge (facing north)

(note: some photos were inadvertently taken with color filter setting on)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
9/21/2017

North Decant Structure (facing south)

East Dike Crest (facing south)

North Decant Structure (facing west)

North Decant Structure (facing west)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
9/21/2017

North Decant Structure (interior)

North Decant Structure (corrosion)

East Dike Exterior (facing south)

East Dike Crest (facing south)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
9/21/2017

East Dike Crest and Interior (facing south)

East Dike Exterior (facing south)

Historic Seep Location 5 (ponding)

East Dike Exterior (facing south)

East Dike Exterior (facing north)

Port CDF Erosion/Exposed FML at East Water Stop – Interior Slope

South Dike (facing west)

Port CDF Erosion/Exposed FML at West Water Stop – Interior Slope

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
9/21/2017

Southwest Corner, Interior Dike (facing north)

Southwest Corner, Exterior Dike (facing north)

West Dike, Exterior (facing north)

South Decant Outfall (facing west)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
9/21/2017

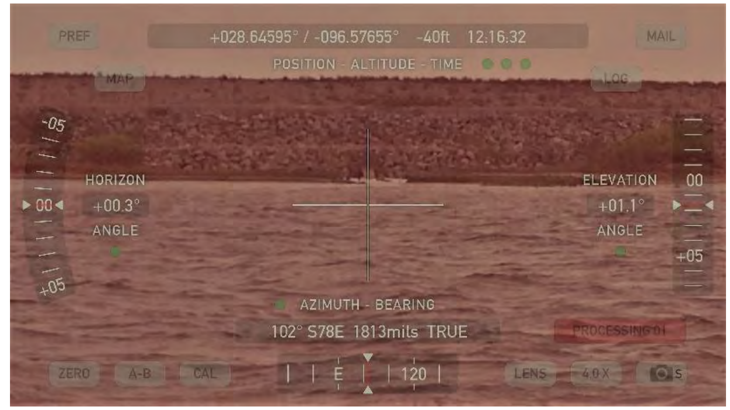
West Dike Crest (facing north)

South Decant Structure Intake

West Dike, Interior (Facing north)

South Decant Structure (facing south)

West Dike, Interior, Minor Erosion at Toe (facing north)



South Decant Outfall (facing east)

North Dike, Exterior (facing west)

East Dike, Exterior (facing west)

East Dike Exterior, Bank Cut (facing west)

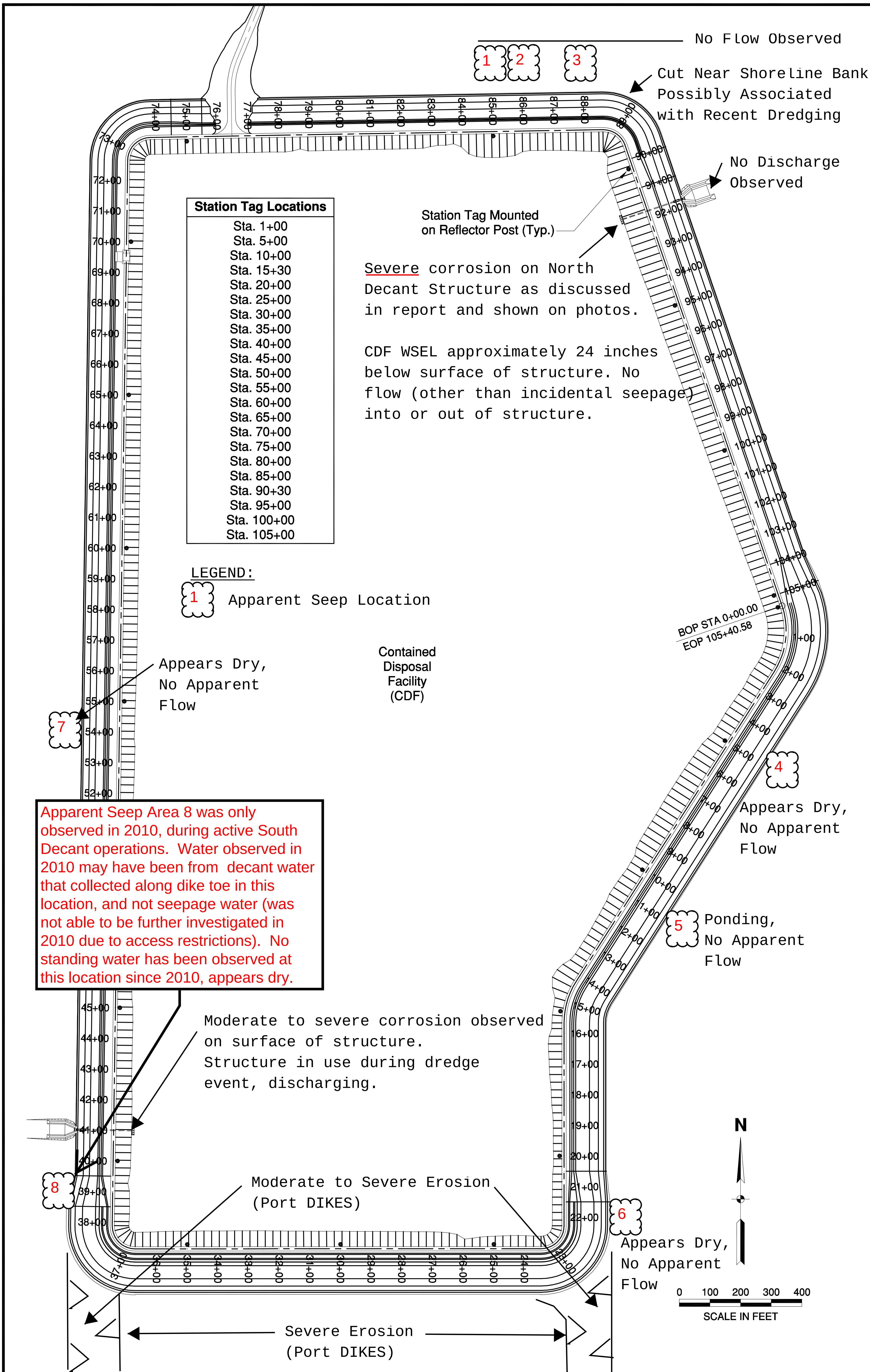
North Decant Structure Outfall (facing west)

Port CDF South Dike Erosion (facing north)

Port CDF South Dike Erosion, (facing north)

Northwest Corner, Exterior (facing east)

9-21-2017 DI Inspection



URS

4-4

FIGURE 4-2
STATION NUMBER LOCATIONS

SITE INSPECTION LOG

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

STATE OF TEXAS
DANIEL B. BULLOCK
82596
REGISTERED
PROFESSIONAL ENGINEER

2/7/2018

Inspector's Signature:

Inspection Date: 12-12-17
Time Begin: Approx. 10:00 a.m.
Time End: Approx. 2;00 p.m.

Sheet: 1 of 2

Specific Item to Inspect	Typical Problems Encountered	Conditions Observed: Normal	Conditions Observed: Abnormal	Comments or Corrective Action(s) Implemented and Dates
General Dredge Island	Erosion Deterioration Settling/Ponding Uplift Washouts Rodent Holes	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	Hurricane Harvey (late August) appears to have had very little if any impact on the confined disposal facility (CDF) as noted during the September 21, 2017 Inspection. Shoreline bank cut observed (as noted during recent inspections) near northeast dike toe of exterior slope. Appears possibly associated with previous 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 erosion observed on north entry ramp, along edges of ramp crest as shown in photos. 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), although additional damage appears to have been sustained due to recent Hurricane Harvey. 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 soil cover material (see attached photos) as noted in previous inspections. Some small (approx. 1 inch dia.) holes observed in exposed geomembrane. Erosion in these areas currently does not appear to impact the CDF dikes but should continue to be monitored during quarterly inspections. CDF dikes appear in generally good condition, with some vegetation intrusion becoming re-established as shown in photos. Recent minor erosion observed along the west dike interior (see photos).
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	No damage observed. Vegetation was removed in 2015 – however is becoming re-established in some areas as shown in photos, should continue to 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 issues) 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. 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. Most of the remaining sections (generally along the south) 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. As noted under "CDF Dike", and reported in the 9/21/17 inspection, minor erosion appears to have occurred along the interior toe of the west dike (see photos).
Emergency Spillway	Obstructions Cracks in Concrete Deterioration Damage	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	Generally good condition. Some localized, minor, surficial concrete deterioration observed.
Decant Structures	Weir Board Elevation Depth of Water Obstructions Deterioration Rust/Corrosion Damage Overflow Quality (NA) Overflow Quantity Flap Gate	☒ ☒ ☒ ☐ ☐ ☒ ☐ ☒ ☒	☐ ☐ ☐ ☒ ☒ ☐ ☐ ☐ ☐	North Structure: Severe corrosion of structural steel was observed during this limited visual inspection. The majority of steel was not visible. Based on site observations of surface and near surface steel (see attached photos) it is recommended that personnel access to this structure beyond the access walkway, and use of the structure for operational purposes, continue to be restricted until repaired or replaced. Handrails and channel iron slots containing the stoplogs on the structure exhibit severe corrosion, per attached photos. CDF area had no significant standing water during inspection, with no apparent flow into structure and no discharge. Plastic wrap around the structure was in place. South Structure: Moderate to severe corrosion was observed in localized areas on south decant structure hand rails and channel iron slots containing the stoplogs. Previous dredging discharge observed during September inspection had ceased and stoplogs were in place. *Note: Terms used for this inspection to describe corrosion observations may include "mild or minor', "moderate" or "severe" – and are not based on steel inspection standards but simply offered to provide reader relative scale of limited visual observations made during this site inspection.*
Gravel Road	Potholes Ponding Deterioration Washouts	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	Generally good condition, some minor rutting observed at various locations. Vegetation was removed in 2015 but is re-establishing in some areas as shown in photos – should continue to implement vegetation control program and continue to monitor.
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 Port CDF dikes. 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.

Note:
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

North Exterior Slope and Entry Ramp (facing northwest)

North Interior, Step-in Test Section (facing south)

Entry Ramp Minor Erosion (facing south)

Damaged Access Bridge (background, facing north)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

North Dike Mid-slope (facing west)

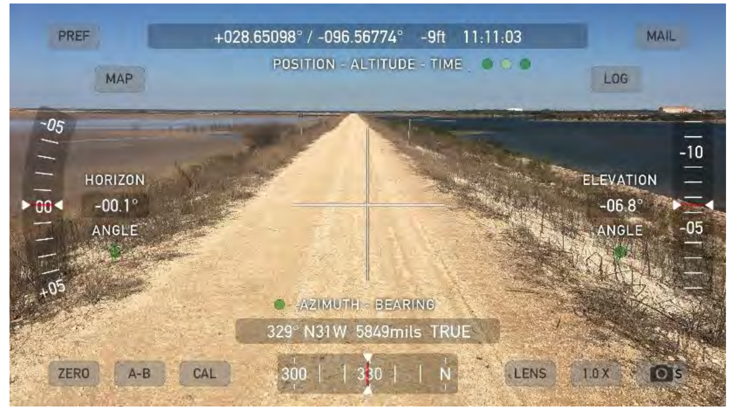
East Dike Crest (facing south)

North Decant Structure Outfall (facing east)

North Decant Structure (corrosion)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

East Dike Interior and North Decant Structure (facing north)



East Dike Crest (facing north)

East Dike Crest and Interior (facing south)

East Dike Exterior (facing south)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

East Dike Exterior (facing south)

Historic Seep No. 4 (dry)

Historic Seep No. 5 (ponding, apparent tidal influence)

East Dike Exterior (facing south)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

East Dike Exterior (facing north)

Port CDF Erosion/Exposed FML at East Water Stop – Interior Slope

South Dike Exterior (facing west)

South Dike Exterior (facing east)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

Port CDF Erosion/Exposed FML at West Water Stop – Interior Slope

West Dike Crest/South Decant Outfall (facing north)

South Dike Interior (facing east)

South Decant Outfall (facing west)

West Dike Mid-slope, Exterior (Facing north)

South Decant Structure (facing east)

South Decant Structure Interior

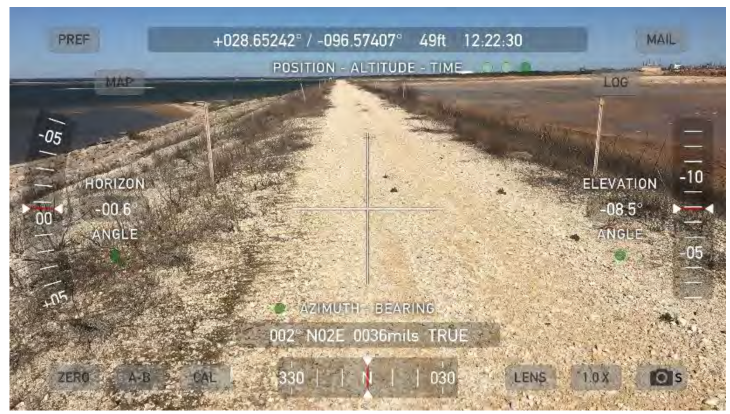
South Decant Structure Corrosion

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

West Dike Interior Erosion (facing north)

South Decant Structure Walkway/West Dike Interior (facing west)

West Dike Interior Erosion (facing north)



West Dike Crest (facing north)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/12/2017

West Dike Dike Crest, Spillway (facing north)

Northwest Corner Dike Exterior (facing southwest)

Northwest Corner Dike Crest (facing east)

South Decant Outfall (facing east)

Port CDF South Dike Erosion (facing north)

Port CDF South Dike Erosion (facing north)

12-12-2017 DI Inspection

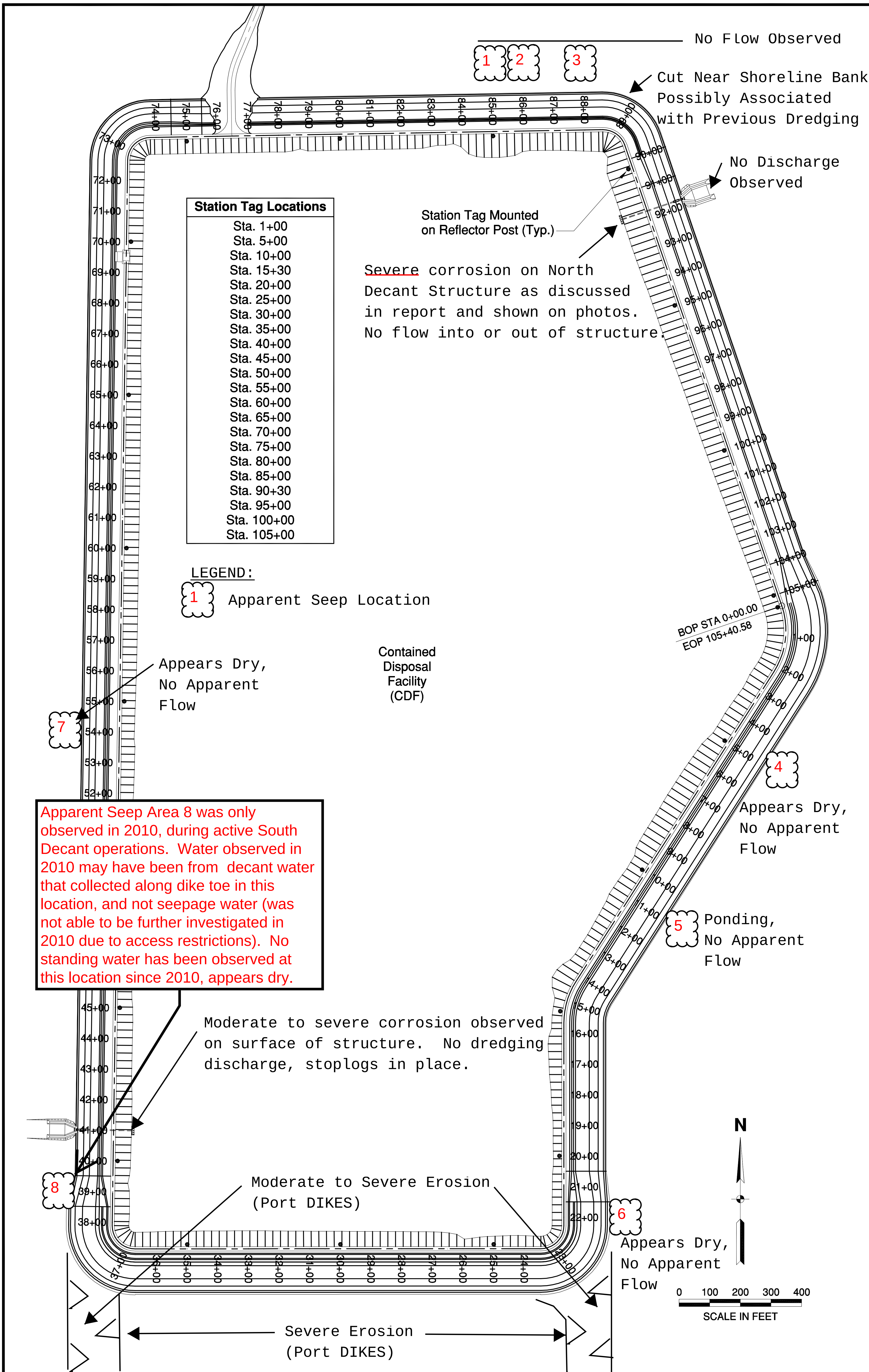


FIGURE 4-2
STATION NUMBER LOCATIONS

APPENDIX B2
CAPA CAP INSPECTION RECORDS

CAPA CAP INSPECTION RECORD

Date: 03/13/2017 **Time Started:** 1400 **Time Ended:** 1500

Weather Conditions: 62°F, Cloudy 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	☑	☐	Signs of minor ponding in various locations on the cap. Currently no standing water on the cap.
	Washouts	☑	☐	There is a buildup of soil/alumina/bauxite material along the outer perimeter of the cap. Difficult to inspect the limestone cover in some areas due to the buildup. Some soil/alumina/bauxite has migrated off the cap on the NW corner, SW corner, and along the north side. This buildup does not compromise the integrity of the cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	Northeast corner has been compacted due to years of vehicular activity.
	Intrusive Vegetation	☑	☐	Traces of vegetation over portions of the cap. Vegetation on the Northern and Western perimeter of the cap is beginning to extend back onto the cap.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Slight damage to the drain in the NW corner due to vehicular activity over the top of the grate. No effect on the flow into the drain.
	Debris	☑	☐	Vegetation covering the west drain. Some rock debris covering the south drain by R-301. Some gravel and vegetation debris on the northwest drain. No effect on the flow into the drain.
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.
	Boxes	☑	☐	Good condition.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Good condition.
	Transfer Piping	☑	☐	Good condition.
	Vegetation	☑	☐	Good condition.
Treatment System	Equipment	☑	☐	Good condition.

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Treatment System (cont.)	Building	☐	☑	Some support members showing signs of rust and pieces of the roof are loose. There are large holes in the roof that allow rain to enter building during a heavy rain storm. Several of the equipment stands have moderate to severe rusting at the connection to the ground. Stairway has been boarded up and access has been limited by barriers, locks, and restricted entry ways. Does not effect the integrity of the system.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is in good condition. Will need to continue to monitor the amount of material that is washing off the cap. Continue to monitor structural condition of building.

Recommendations: A consistent vegetation schedule needs to be set to spray the cap on a routine basis. Mowing/shredding needs to be continually performed around the outer edge of the cap and the monitoring and recovery wells.

Inspector:

Kevin Dworsky

Inspectors Signature:

620 E. Airline | Victoria, Texas 77901

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www.pbwllc.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

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

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

FIRST QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 - Building, showing damaged roof on western side of building

2 - Cap, storm sewer drain at R-301

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

6 – Cap, Northeast storm drain

7 – Cap, view Southeast from Northwest corner

8 – Cap, view Southwest from Northeast corner

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – Viewing northern side of building

12 – Viewing southern side of building

13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – Building, viewing system

16 – Building, viewing corridor

17 – Building, viewing satellite collection station

18 – Building, viewing system

19 – Viewing inside one of the recovery well system boxes

20 – View South of monitoring wells and recovery wells

21 – View North of monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West side viewing East

CAPA CAP INSPECTION RECORD

Date: 06/14/2017 **Time Started:** 1200 **Time Ended:** 1245

Weather Conditions: 91°F, 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	☑	☐	Signs of minor ponding in various locations on the cap. Currently no standing water on the cap.
	Washouts	☑	☐	There is a buildup of soil/alumina/bauxite material along the outer perimeter of the cap. Difficult to inspect the limestone cover in some areas due to the buildup. Some soil/alumina/bauxite has migrated off the cap on the NW corner, SW corner, and along the north side. This buildup does not compromise the integrity of the cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	Northeast corner has been compacted due to years of vehicular activity. The compaction doesn't compromise the integrity of the cap but access should be restricted.
	Intrusive Vegetation	☐	☑	Traces of vegetation over portions of the cap. Vegetation on the Northern and Western perimeter of the cap is beginning to extend back onto the cap.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Good Condition
	Debris	☐	☑	Heavy vegetation covering the west drain. Some rock debris covering the south drain by R-301. Some gravel and vegetation debris on the northwest drain. No effects on the flow into the drain.
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.
	Boxes	☑	☐	Good condition.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Good condition.
	Transfer Piping	☑	☐	Good condition.
	Vegetation	☑	☐	Good condition.
Treatment System	Equipment	☑	☐	Signs of minor rusting and deterioration to metal pieces such as equipment and gauging stands. Does not effect the integrity of the system.

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Treatment System (cont.)	Building	☐	☑	Some support members showing signs of rust and pieces of the roof are loose. There are large holes in the roof that allow rain to enter building during a heavy rain storm. Several of the equipment stands have moderate to severe rusting at the connection to the ground. Stairway has been boarded up and access has been limited by barriers, locks, and restricted entry ways. Does not effect the integrity of the system.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Will need to continue to monitor the amount of material that is washing off the cap and deterioration of system supports and equipment. Continue to monitor structural condition of building.

Recommendations: A consistent vegetation schedule will be set to spray the cap on a routine basis. All vegetation will be removed from inside of the signs to the building. Vegetation and debris will be removed from the west drain. Mowing/shredding will continually be performed around the outer edge of the cap and the monitoring and recovery wells.

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

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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

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

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

SECOND QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – Cap, viewing sediment on Southwest corner of Cap.

2 - Cap, storm sewer drain at R-301

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

6 – Cap, Northeast storm drain

SECOND QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

7 – Cap, view Southeast from Northwest corner

8 – Cap, view Southwest from Northeast corner

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – Viewing northern side of building

12 – Viewing southern side of building

SECOND QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – Building, viewing system

16 – Building, viewing corridor

17 – Building, viewing satellite collection station

18 – Building, viewing system

19 – Viewing inside one of the recovery well system boxes

20 – View South of monitoring wells and recovery wells

21 – View North of monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West side viewing East

CAPA CAP INSPECTION RECORD

Date: 09/27/2017 **Time Started:** 1035 **Time Ended:** 1130

Weather Conditions: 78°F, Cloudy 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	☑	☐	Signs of minor ponding in various locations on the cap. Currently no standing water on the cap.
	Washouts	☑	☐	There is a buildup of soil/alumina/bauxite material along the outer perimeter of the cap. Difficult to inspect the limestone cover in some areas due to the buildup. Some soil/alumina/bauxite has migrated off the cap on the NW corner, SW corner, and along the north side. This buildup does not compromise the integrity of the cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	Northeast corner has been compacted due to years of vehicular activity. The compaction doesn't compromise the integrity of the cap but access should be restricted. Traces of vehicular ruts from herbicide treatment.
	Intrusive Vegetation	☐	☑	Traces of vegetation in spots on the cap. Vegetation on the Northern and Western perimeter of the cap is beginning to extend back onto the cap.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Good Condition
	Debris	☐	☑	Heavy vegetation covering the west drain. Some rock debris covering the south drain by R-301. Some gravel and vegetation debris on the northwest drain. No effects on the flow into the drain.
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.
	Boxes	☑	☐	Good condition.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Good condition.
	Transfer Piping	☑	☐	Good condition.
	Vegetation	☑	☐	Good condition.
Treatment System	Equipment	☑	☐	Signs of minor rusting and deterioration to metal pieces such as equipment and gauging stands. Does not effect the integrity of the system.

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Treatment System (cont.)	Building	☐	☑	Some support members showing signs of rust and pieces of the roof are loose. There are large holes in the roof that allow rain to enter building during a heavy rain storm. Several of the equipment stands have moderate to severe rusting at the connection to the ground. Stairway has been boarded up and access has been limited by barriers, locks, and restricted entry ways. Does not effect the integrity of the system.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Will need to continue to monitor the amount of material that is washing off the cap and deterioration of system supports and equipment. Continue to monitor structural condition of building.

Recommendations: A consistent vegetation schedule will be set to spray the cap on a routine basis. All vegetation will be removed from inside of the signs to the building. Vegetation and debris will be removed from the west drain. Mowing/shredding will continually be performed around the outer edge of the cap and the monitoring and recovery wells.

Inspector:

Kevin Dworsky

Inspectors Signature:

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www.pbwllc.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

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

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

THIRD QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 - Building, showing damaged roof on western side of building

2 - Cap, storm sewer drain at R-301

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

6 – Cap, Northeast storm drain

THIRD QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

7 – Cap, view Southeast from Northwest corner

8 – Cap, view Southwest from Northeast corner

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – Viewing northern side of building

12 – Viewing southern side of building

THIRD QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – Building, viewing system

16 – Building, viewing corridor

17 – Building, viewing satellite collection station

18 – Building, viewing system

19 – Viewing inside one of the recovery well system boxes

20 – View South of monitoring wells and recovery wells

21 – View North of monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West side viewing East

CAPA CAP INSPECTION RECORD

Date: 12/20/2017 **Time Started:** 1440 **Time Ended:** 1520

Weather Conditions: 77°F, 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	☑	☐	Signs of minor ponding/sediment buildup in various locations on the cap. Currently no standing water on the cap. Does not effect the integrity of the cap.
	Washouts	☑	☐	There is a buildup of soil/alumina/bauxite material along the outer perimeter of the cap. Difficult to inspect the limestone cover along the edges due to the buildup. Some soil/alumina/bauxite has migrated off the cap on the NW corner, SW corner, and along the northern side. This buildup does not compromise the integrity of the cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	Northeast corner has been compacted due to years of vehicular activity. The compaction does not compromise the integrity of the cap but assess should be restricted. Traces of vehicular ruts from herbicide treatment along outer edge.
	Intrusive Vegetation	☑	☐	Continue herbicide treatment. Monitor vegetation along the western and northern edges.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Good Condition
	Debris	☑	☐	None observed.
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.
	Boxes	☑	☐	Good condition.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Good condition.
	Transfer Piping	☑	☐	Good condition.
	Vegetation	☑	☐	Good condition.
Treatment System	Equipment	☐	☑	Signs of moderate rusting and deterioration of metal pieces such as equipment and gauging stands. Does not effect the integrity of the system.

ITEM TO INSPECT	TYPICAL PROBLEMS ENCOUNTERED	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Treatment System (cont.)	Building	☐	☑	Some support members showing signs of rust and pieces of the roof are loose. There are large holes in the roof that allow rain to enter building during a heavy rain storm. Several of the equipment stands have moderate to severe rusting at the connection to the ground. Stairway has been boarded up and access has been limited by barriers, locks, and restricted entry ways. Does not effect the integrity of the system.
	Leaks	☑	☐	Traces of leaks from piping connections within the containment. No water being released from the containment.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Will need to continue to monitor the amount of material that is washing off the cap and deterioration of system supports and equipment. Continue to monitor structural condition of building. Continue mowing of the area and herbicide treatment on the cap.

Recommendations: PBW will repair/tighten any pipe connection that is showing signs of leaking. PBW will apply rust killer to equipment and equipment stands overtime to slow down the deterioration from rust.

Inspector:

Kevin Dworsky

Inspectors Signature:

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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

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

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

FOURTH QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 - Building, showing damaged roof on western side of building

2 - Cap, storm sewer drain at R-301

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

6 – Cap, Northeast storm drain

FOURTH QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

7 – Cap, view Southeast from Northwest corner

8 – Cap, view Southwest from Northeast corner

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – Viewing northern side of building

12 – Viewing southern side of building

FOURTH QUARTER 2017
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – Building, viewing system

16 – Building, viewing corridor

17 – Building, viewing satellite collection station

18 – Building, viewing system

19 – Viewing inside one of the recovery well system boxes

20 – View South of monitoring wells and recovery wells

21 – View North of monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West side viewing East

APPENDIX B3
WITCO INSPECTION RECORDS

WITCO AREA INSPECTION RECORD

Date: 03/13/17 **Time Started:** 1320 **Time Ended:** 1400

Weather Conditions: 57° F, Cloudy

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.
	Obstructions	☑	☐	Vegetation is starting to hang over the sides of the west (new) channel. No sign of obstructing the flow. The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. Not obstructing flow at this time.
	Erosion	☑	☐	Slight erosion underneath the inlet pipes, noted previously in reports. Signs of minor erosion at the end of the channel in the outfall rip rap.
	Deterioration	☑	☐	Old marks on concrete, cause is unknown. Areas of the east (old) drainage channel continue to deteriorate. Signs of deterioration around some of the inlet drains. There is not restriction to flow.
	Washouts	☑	☐	Signs of soil washing out around the rip rap at the end of the channel.
	Rip Rap	☑	☐	Some movement caused by washouts and erosion. Minor build-up of sediment at the discharge of the channel into the rip-rap.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few ponding areas holding water.
	Vegetation	☑	☐	Healthy vegetation; continue with shredding of the cap.
	Intrusive Trees	☑	☐	Some trees starting to grow along edge of rip rap and west (new) channel.
	Drainage/Rip Rap	☑	☐	Minor vegetation forming in the rip rap.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Damage	☑	☐	None observed.
Soil Cap (O/W Separator)	Erosion	☑	☐	Difficult to inspect due to healthy vegetation.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Healthy vegetation; continue with shredding of cap.
	Damage	☑	☐	None observed.
Slope from Cap to Channel	Erosion	☑	☐	None observed.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Mostly healthy vegetation in area with an area of dead vegetation. Will continue to monitor.
Signage	Damage	☑	☐	Good condition
	Illegible	☑	☐	Good condition

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid.
	Product Level	☑	☐	WL in sump = 3.83' BMP, no DNAPL, 12.78' TD

Additional Comments or Observations: The deterioration of the old portion of the drainage channel is currently not a concern as flow is not restricted or there are no signs of seepage from the cap. Monitor wells are in good condition. An alligator has been observed in the marsh area of MS3. Will monitor the erosion of the soil around the rip rap at the end of the channel. Will monitor the sediment deposits at the end of the channel.

Recommendations: Continue shredding the Witco Area and weedeating the slope, spray the rip rap at the channel, and remove vegetation along the top edges of the channel. Remove the trees along the edge of the channel and monitor the dead area at the top and bottom of the slope.

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

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FIRST QUARTER 2017
WITCO 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, viewing ponding area on southern edge of cap

4 – Tank Farm, Southeast corner, viewing Northwest

5 – O/W Separator, viewing signage

6 – O/W Separator, Northeast corner, viewing Southwest

7 – Tank Farm, viewing rip rap

8 – Drainage Channel, viewing seem between old and new channel

9 – Drainage channel, West end of old channel, viewing east

10 – Drainage channel, viewing deterioration of old channel

11 – Drainage channel, East end of new channel, viewing west

12 – Drainage channel, west end of new channel, viewing east

13 – Drainage channel, viewing drainage pipe into channel

14 – Drainage channel, West end of new channel, view rip rap to bay

15 – Drainage channel, viewing some slight movement and buildup of sediment

16 – Slope from cap to channel, viewing sump well

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

18 – Slope from cap to channel, viewing monitoring well

WITCO AREA INSPECTION RECORD

Date: 06/14/2017 **Time Started:** 1245 **Time Ended:** 1315

Weather Conditions: 90° F, Clear to Partly Cloudy

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 new (west) portion of the channel. Old channel continues to deteriorate.
	Obstructions	☑	☐	Vegetation is starting to hang over the sides of the west (new) channel. No sign of obstruction to the flow. The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. Not obstructing flow at this time.
	Erosion	☑	☐	Slight erosion underneath the inlet pipes, noted previously in reports. No obstrustruction to the flow.
	Deterioration	☑	☐	Old marks on concrete, cause is unknown. Areas of the east (old) drainage channel continue to deteriorate. No obstruction to flow at this time.
	Washouts	☑	☐	Signs of minor sediment buildup in the rip rap at the bay.
	Rip Rap	☑	☐	Some minor movement of the rip rap has occurred. Minor build-up of sediment has formed. Some minor vegetation forming in rip rap.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low ponding areas. Cap was difficult to inspect due to healthy vegetation.
	Vegetation	☑	☐	Healthy vegetation.
	Intrusive Trees	☑	☐	Some small trees starting to grow along edge of the new channel.
	Drainage/Rip Rap	☑	☐	Minor vegetation forming in the rip rap.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Damage	☑	☐	None observed.
Soil Cap (O/W Separator)	Erosion	☑	☐	Difficult to inspect due to healthy vegetation but none observed.
	Settlement	☐	☐	None observed.
	Vegetation	☑	☐	Healthy vegetation.
	Damage	☑	☐	None observed.
Slope from Cap to Channel	Erosion	☑	☐	Difficult to inspect due to healthy.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Mostly healthy vegetation in area with several bare spots with geofabric netting exposed. Will monitor.
Signage	Damage	☑	☐	Good condition
	Illegible	☑	☐	Good condition
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
DNAPL Collection Sump (cont.)	Product Level	☑	☐	WL in sump = 3.08' BMP, no DNAPL, 12.78' TD

Additional Comments or Observations: The deterioration of the old portion of the drainage channel is currently not a major concern as long there is no restriction to the flow and are no signs of seepage from the cap. Monitoring wells are in good condition. Will monitor the buildup of sediment in the rip rap at the end of the channel. Continue shredding the Witco Area and weedeating the slope. PBW will continue to monitor the bare spots.

Recommendations: Maintain vegetational control along the edge of the newer drainage channel to prevent vegetation from obstructing the flow down the channel, spray rip rap with marine friendly herbicide to remove the vegetation at the western end of the channel, remove trees from the edge of the channel, and spray rip rap at the tank farm cap to remove the vegetation.

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

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www.pbwllc.com

SECOND QUARTER 2017
WITCO 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, viewing Northeast

4 – Tank Farm, Southeast corner, viewing Northwest

5 – O/W Separator, viewing signage

6 – O/W Separator, viewing monitoring well

SECOND QUARTER 2017
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

7 – Tank Farm, viewing rip rap

8 – Drainage Channel, viewing seem between old and new channel

9 – Drainage channel, West end of old channel, viewing east

10 – Drainage channel, viewing deterioration of old channel

11 – Drainage channel, East end of new channel, viewing west

12 – Drainage channel, west end of new channel, viewing east

13 – Drainage channel, viewing drainage pipe into channel

14 – Drainage channel, West end of new channel, view rip rap to bay

15 – Drainage channel, viewing some slight movement and buildup of sediment

16 – Slope from cap to channel, viewing sump well

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

18 – Slope from cap to channel, viewing monitoring well

WITCO AREA INSPECTION RECORD

Date: 09/27/2017 **Time Started:** 0950 **Time Ended:** 1030

Weather Conditions: 78° F, Mostly Clear

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 new (west) portion of the channel. Old channel continues to deteriorate.
	Obstructions	☑	☐	Vegetation is starting to hang over the sides of the new channel. No sign of obstructing the flow. The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. Vegetational growth in the channel has began. No obstructions to the flow.
	Erosion	☑	☐	Slight erosion underneath the inlet pipes, noted previously in reports. No obstructions to the flow. Signs of minor to moderate erosion behind the western ends of the channel walls.
	Deterioration	☐	☑	Old marks on concrete, cause is unknown. Areas of the east (old) drainage channel continue to deteriorate. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	Signs of sediment buildup in the rip rap at the bay.
	Rip Rap	☑	☐	Some minor to moderate movement of the rip rap has occurred. Minor to moderate build-up of sediment has formed. Some vegetation growning in the rip rap.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low areas. Cap was difficult to inspect due to healthy vegetation.
	Vegetation	☑	☐	Healthy vegetation.
	Intrusive Trees	☑	☐	Some small trees starting to grow along edge of rip rap and new channel. Some small trees beginning to grown along edge of cap and on the cap.
	Drainage/Rip Rap	☑	☐	Moderate vegetation in the rip rap. Some small trees growing in and along the rip rap edge.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Damage	☑	☐	None observed.
Soil Cap (O/W Separator)	Erosion	☑	☐	Difficult to inspect due to healthy vegetation but none observed.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Healthy vegetation.
	Damage	☑	☐	None observed.
Slope from Cap to Channel	Erosion	☑	☐	Difficult to inspect due to healthy vegetation.
	Slumping	☑	☐	None observed.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Slope from Cap to Channel (cont.)	Vegetation	☑	☐	Mostly healthy vegetation in area with several bare spots with geofabric netting exposed. Will monitor.
Signage	Damage	☑	☐	Good condition
	Illegible	☑	☐	Good condition
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid.
	Product Level	☑	☐	WL in sump = 4.06' BMP, no DNAPL, 12.72' TD

Additional Comments or Observations: The deterioration of the old portion of the drainage channe is currently not a major concern as long as the vegetation is controlled, there is no restriction in flow, and there are signs of seepage from the cap. Monitoring wells are in good condition. Will monitor the buildup of sediment in the rip rap at the end of the channel. Will monitor the sediment deposits in the newer portion of the channel. Continue shredding the Witco Area and weedeating the slope. PBW will continue to monitor the bare spots.

Recommendations: Maintain vegetational control along the edge of the newer drainage channel to prevent vegetation from obstructing the flow down the channel. Weedeat/spray vegetation in the old portion of the channel where the rip rap from the cap directs water into the channel to prevent obstruction of the flow. Spray rip rap with marine friendly herbicide to remove the vegetation at the western end of the channel. Removal of the trees from the edge of the channel, from the edge and within the rip rap, and from on the cap. Spray rip rap at the tank farm cap to remove the vegetation.

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

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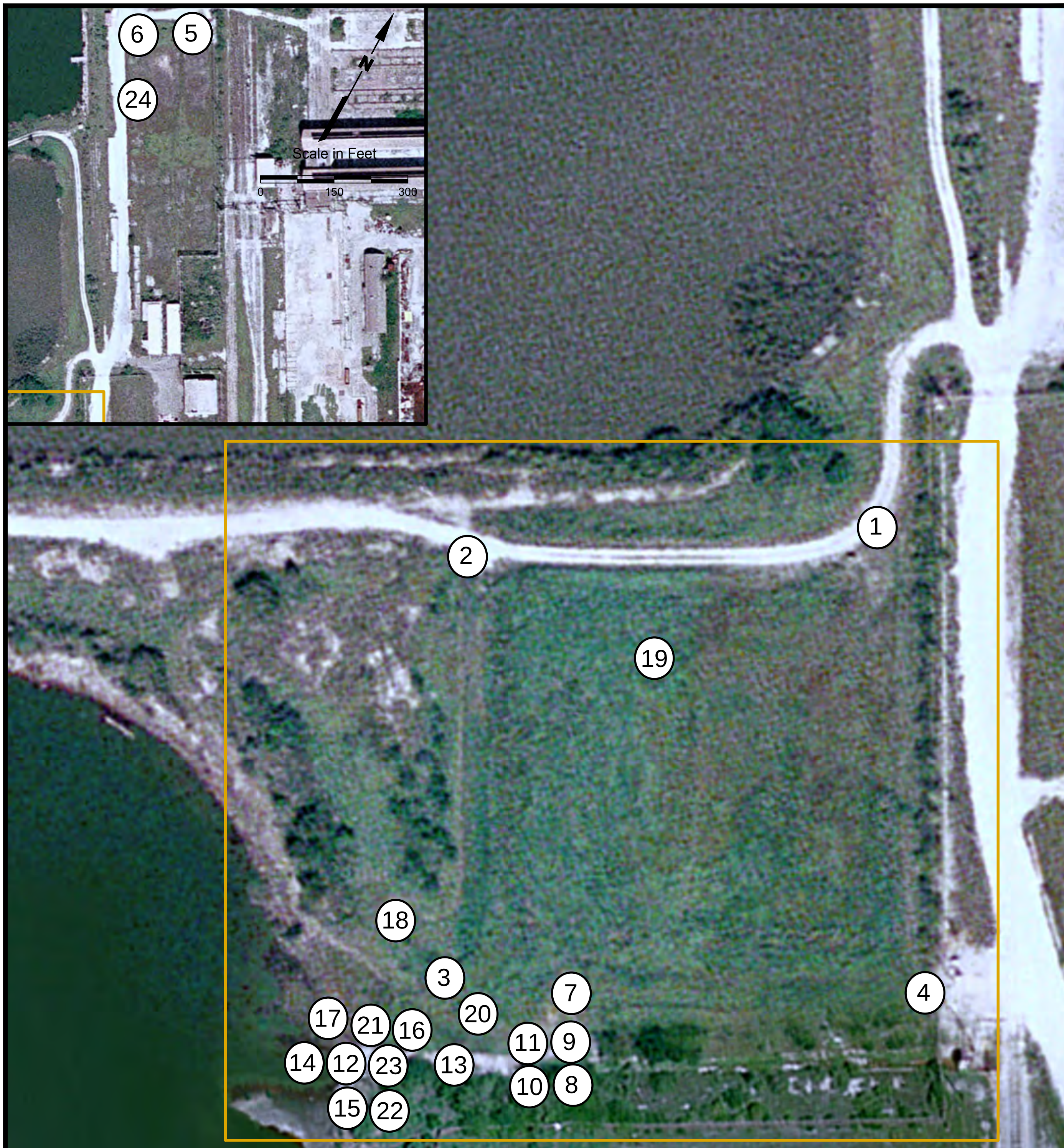
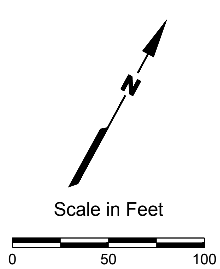
www.pbwllc.com





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

ALCOA
WITCO SITE

PHOTO LOCATION MAP

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

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

THIRD QUARTER 2017
WITCO 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, viewing Northeast

4 – Tank Farm, Southeast corner, viewing Northwest

5 – O/W Separator, viewing signage

6 – O/W Separator, Northeast corner, viewing Southwest

7 – Tank Farm, viewing rip rap

8 – Drainage Channel, viewing seem between old and new channel

9 – Drainage channel, West end of old channel, viewing east

10 – Drainage channel, viewing deterioration of old channel

11 – Drainage channel, East end of new channel, viewing west

12 – Drainage channel, west end of new channel, viewing east

13 – Drainage channel, viewing drainage pipe into channel

14 – Drainage channel, West end of new channel, view rip rap to bay

15 – Drainage channel, viewing some slight movement and buildup of sediment

16 – Slope from cap to channel, viewing sump well

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

18 – Slope from cap to channel, viewing monitoring well

19 – Tank farm, viewing mesquite bush on cap

20 – Slope from cap to channel, viewing bare spot and exposed geofabric

21 – Drainage channel, viewing slight erosion on Southwest corner

22 – Drainage channel, viewing slight erosion on Northwest corner

23 – Drainage Channel, viewing sediment buildup at West end of channel

24 – O/W Separator, viewing monitoring well

4Q17 WITCO AREA INSPECTION RECORD

Date: 12/20/2017 **Time Started:** 1540 **Time Ended:** 1605

Weather Conditions: 77° F, Clear

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 new (west) portion of the channel. Old channel continues to deteriorate.
	Obstructions	☑	☐	The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. There is some sediment buildup at the western end of the west (new) channel. No obstruction to flow at this time.
	Erosion	☑	☐	Signs of minor erosion behind the western ends of the west (new) channel walls and riprap.
	Deterioration	☐	☑	Old marks on concrete of west (new) channel, cause is unknown. Areas of the old (east) drainage channel continue to deteriorate rapidly. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	Signs of sediment buildup in the rip rap and at the outlet of the west (new) channel.
	Rip Rap	☑	☐	Some minor movement of the rip rap has occurred. Minor to moderate build-up of sediment has formed in the rip rap. Some vegetation growing in the rip rap.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low ponding areas.
	Vegetation	☑	☐	Healthy vegetation.
	Intrusive Trees	☑	☐	None observed.
	Drainage/Rip Rap	☑	☐	Traces of sediment and dead vegetation. No obstruction to flow.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Damage	☑	☐	None observed.
Soil Cap (O/W Separator)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Healthy vegetation.
	Damage	☑	☐	None observed.
Slope from Cap to Channel	Erosion	☑	☐	Several areas of exposed geofabric netting. The geofabric netting is torn in a few areas. Will monitor.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Several bare spots with geofabric netting exposed.
Signage	Damage	☑	☐	Good condition
	Illegible	☑	☐	Good condition
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid.

DNAPL Collection Sump (cont.)	Product Level	☑	☐	WL in sump = 4.31' BMP, no DNAPL, 12.72' TD

Additional Comments or Observations: The deterioration of the old portion of the drainage channel is currently not a major concern as long as the vegetation is controlled, there is no restriction in flow, and there are no signs of seepage from the cap. Monitoring wells are in good condition. Will monitor the buildup of sediment in the rip rap at the end of the channel and the sediment deposits in the west (new) portion of the channel. Continue shredding the Witco Area and weedeating the slope. PBW will continue to monitor the bare spots and torn geofabric.

Recommendations:

Inspector:

Kevin Dworsky

Inspectors Signature:

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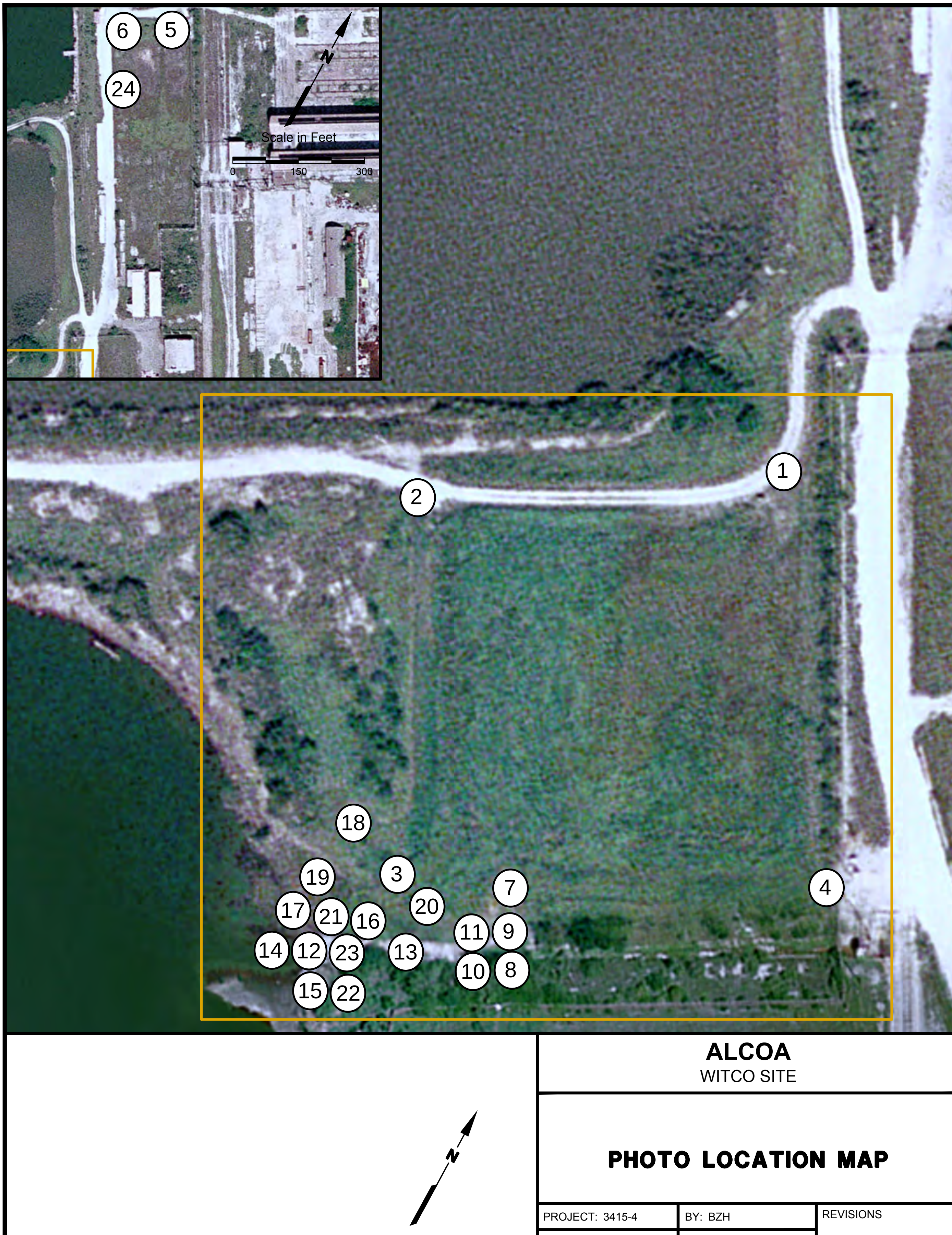

SOURCE:
Aerial image from Lanmon Aerial Photography Inc, dated 09/17.

ALCOA
WITCO SITE

PHOTO LOCATION MAP

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

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

FOURTH QUARTER 2017
WITCO 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, viewing Northeast

4 – Tank Farm, Southeast corner, viewing Northwest

5 – O/W Separator, viewing signage

6 – O/W Separator, Northeast corner, viewing Southwest

7 – Tank Farm, viewing rip rap

8 – Drainage Channel, viewing seem between old and new channel

9 – Drainage channel, West end of old channel, viewing east

10 – Drainage channel, viewing deterioration of old channel

11 – Drainage channel, East end of new channel, viewing west

12 – Drainage channel, west end of new channel, viewing east

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14 – Drainage channel, West end of new channel, view rip rap to bay

15 – Drainage channel, viewing some slight movement and buildup of sediment

16 – Slope from cap to channel, viewing sump well

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

18 – Slope from cap to channel, viewing monitoring well

19 – Slope from cap to channel, viewing slope

20 – Slope from cap to channel, viewing bare spot and exposed geofabic

21 – Drainage channel, viewing slight erosion on Southwest corner

22 – Drainage channel, viewing slight erosion on Northwest corner

23 – Drainage Channel, viewing sediment buildup at West end of channel

24 – O/W Separator, viewing monitoring well

APPENDIX C1
LAVACA BAY ANNUAL SEDIMENT MONITORING REPORT

LAVACA BAY ANNUAL SEDIMENT MONITORING REPORT FALL 2017

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

February 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

ALS	ALS Laboratory Group/Laboratory
Battelle	Pacific Northwest National Laboratory Marine Sciences Laboratory, operated by Battelle
cm	centimeter(s)
GPS	Global Positioning System
Hg	Mercury
ID	Identification
meHg	Methylmercury
OMMP	Operation Maintenance and Monitoring Plan
RAO	Remedial Action Objective
RAAER	Remedial Action Annual Effectiveness Report
SQL	Sample Quantification Limit
TOC	Total Organic Carbon

1.0 INTRODUCTION

A key factor in the Lavaca Bay remedy is the reduction in sediment mercury concentrations through targeted sediment removal efforts, capping, enhanced natural recovery, and/or natural recovery. 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, March 2005), surface sediment within open water and marshes of the Closed Area adjacent to the Point Comfort Facility is monitored to document the effectiveness of the remedy.

The Consent Decree requires that the marsh sediment monitoring program be performed until all designated marshes have met the Remedial Action Objective (RAO) for marsh sediment (0.25 mg/kg dry weight) for two consecutive years. An average total mercury concentration is calculated for each marsh and compared to the marsh sediment RAO. Monitoring will occur in each marsh until the mean mercury concentration in each is less than the RAO for two consecutive years.

The RAO for marsh sediments has been met in Marshes 1, 2, 3, 5, 6, 7, 11, 15, and 19 (all marshes).

In 2017, Alcoa physically removed Marshes 1, 2, and 3 located in the Eastern Causeway Cove, and portions of Marshes 6 and 7 adjacent to Mainland Shoreline Number 3 (Response Action Plan, Witco Channel and Harbor Dredging and MS3 Excavation October 17, 2016). As listed in the Response Action Plan Refinement Notice dated August 9, 2017, Alcoa conducted herbicide applications on Marsh 5 and the remainder of Marshes 6 and 7 along the north and south shorelines of Mainland Shoreline Number 3 (Alcoa, 2017).

Alcoa has elected to continue annual monitoring of sediment in marshes 15 and 19 on a voluntary basis as part of an ongoing effort to better understand trends in tissue mercury concentrations in the Closed Area of Lavaca Bay.

In accordance with the Fall 2017 Sample Plan, Total Hg, methylmercury (meHg) and total organic carbon (TOC) analyses were performed on all marsh sediment samples.

The Consent Decree requires that open water sediment monitoring be performed until a mean mercury concentration of less than 0.5 mg/kg dry weight is measured in the Closed Area in two consecutive years. As documented in the 2005 RAAER (Alcoa 2006), this occurred in 2004 and 2005 when the average concentrations of 0.293 ppm and 0.276 ppm respectively. Thus, the performance objective of the open water sediment monitoring program established in the Consent Decree has been met. However, to date Alcoa has elected to continue monitoring Open Water sediment in the northern half of the Closed Area biannually on a voluntary basis during even numbered years as part of an ongoing effort to better understand trends in tissue mercury concentrations in the Closed Area. Annual Open water sediment stations were not sampled in 2017.

1.1 PURPOSE AND SCOPE

In 2017 Marshes 15 and 19 were sampled and analyzed for Total Hg, meHg, and TOC. Eight of the ten historical sample stations included in Marsh 15 were not sampled in 2017 as they were dredged in 2013 or have eroded over time. Six of the eight historical sample stations included in Marsh 19 have been lost due to erosion and were not sampled in 2017. Sediment samples were collected from the following stations:

- Marsh-15-9R
- Marsh-15-10R
- Marsh-19-4R
- Marsh-19-5R

Sample stations are listed in Table 1 and shown on Figure 1.

This report documents the sampling methods, analytical methods, and analytical results for the 2017 annual sediment monitoring project. Detailed descriptions of the methods and procedures for this project are presented in the Lavaca Bay Sediment Remediation and Long Term Monitoring Plan OMMP.

Table 1 - Marsh Sediment Stations, Sample IDs, and Results

Habitat	Station ID	Sample ID	Date	Total Hg				meHg			TOC	
				% M	(mg/kg) dry wt	SQL[1] (mg/kg)	Flag	% M	(ng/g) dry wt	Flag	% M	(wt%) dry wt
Marsh 15	Marsh-15-9R	SMP-SE-19002	10/24/2017	21.6	0.0437	0.000639		26.7	0.024	J	21.6	0.141
	Marsh-15-10R	SMP-SE-19004	10/24/2017	24.5	0.121	0.000651		31.7	0.265		24.5	0.138
	Average				**0.0824**				**0.1447**			**0.1395**
Marsh 19	Marsh-19-4R	SMP-SE-19000	10/24/2017	22.5	0.0381	0.000631		31.3	0.0476		22.5	0.147
	Marsh-19-5R	SMP-SE-19001	10/24/2017	27.6	0.0948	0.000682		20.1	0.064		27.6	0.348
	Average				**0.0665**				**0.0558**			**0.2475**

[1]SQL - Sample Quantitation Limit

J - Analyte detected below quantitation limits.

M:\98003\090\002 Sediment\arc\post sampling\Figure_1_marsh_17_stations1519_PostSampling.mxd

1.2 SITE DESCRIPTION

Alcoa Point Comfort Operations is located in Calhoun County, Texas, adjacent to Lavaca Bay. The 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 shellfish for consumption by order of the Texas Department of State Health Services. This area is referred to as the Closed Area.

2.0 METHODS

Sediment samples for the 2017 annual sediment monitoring project were collected and processed by Benchmark Ecological Services, Inc. (Benchmark). Samples collected for Total Hg and TOC were analyzed by ALS Laboratory Group (ALS) in Houston, Texas and samples collected for meHg were analyzed by Pacific Northwest National Laboratory, Marine Sciences Laboratory, operated by Battelle (Battelle) in Sequim, Washington. Marsh monitoring samples were collected on 24 October 2017 and consisted of the top 2 cm of sediment analyzed for Total Hg, meHg, and TOC. Validation and evaluation of the analytical results was conducted by Environmental Chemistry Services, Inc., in Houston, 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 a sub-meter differential GPS. Marsh sediment stations are shown on Figure 1.

2.2 SAMPLE COLLECTION

Marsh sediment samples were collected using pre-cleaned 4-inch long polycarbonate core tubes. The tubes were inserted into the sediment approximately 5 to 10 cm, the bottom of each core was capped by digging around the outside of the core tube and placing a cap over the bottom of the tube, and the sample was removed from the sediment. Each core sample was processed in the field by extruding the top 2 cm of sediment and placing the sediment immediately into sample jars using a new (clean) disposable plastic spoon for each sample.

Sample containers were labeled with the sample ID, collection date, time, and intended analysis; were placed in re-sealable plastic bags, bubble wrapped, and then immediately placed in an insulated chest for storage and transport. Total Hg, TOC, and percent moisture samples were stored on ice and meHg samples were stored on dry ice.

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

3.0 ANALYTICAL RESULTS

Sediment samples were analyzed for Total Hg (Method 7471A), TOC, and percent moisture by ALS in Houston, Texas, and meHg by Battelle in Sequim, Washington. Total mercury results were reported in mg/kg as dry weight, meHg results were reported as ng/g as dry weight, and TOC results were reported in wt% as dry weight. Benchmark received all final data packages on 11 January 2018 and data validation and evaluation was completed by Environmental Chemistry Services on 22 January 2018.

Marsh sediment analytical results are provided in Table 1. Results for individual samples from each marsh were averaged in this report to produce the average mercury concentration for each marsh as required by the OMMP. The analytical results are also shown on Figure 2a (Total Hg), Figure 2b (meHg), and Figure 2c (TOC).

Validation was conducted according to the Standard Operating Procedure Data Validation (Appendix E) in the Quality Assurance Project Plan Alcoa Point Comfort/Lavaca Bay Superfund Site (22 August 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, 2005a. Appendix B. 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, 2013. Response Action Completion Report for the Activities Conducted Under the 2012 Five-Year Review Response Action Plan, Alcoa, September 25, 2013. Submitted to EPA on September 26, 2013.

Alcoa, 2016. Response Action Plan, Witco Channel and Harbor Dredging and MS3 Excavation October 17, 2016. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. October 17, 2016.

Alcoa, 2017. Response Action Plan Addendum 2 to the Witco 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.

N

0 125 250 500
Feet

Legend

2017 Marsh Monitoring Stations

Marsh Total Hg Results (mg/kg - dry weight)

Notes

2015 DOQQ (Point Comfort Quad)

2017 Marsh Sample Stations

Marshes 15 and 19
Total Hg Results

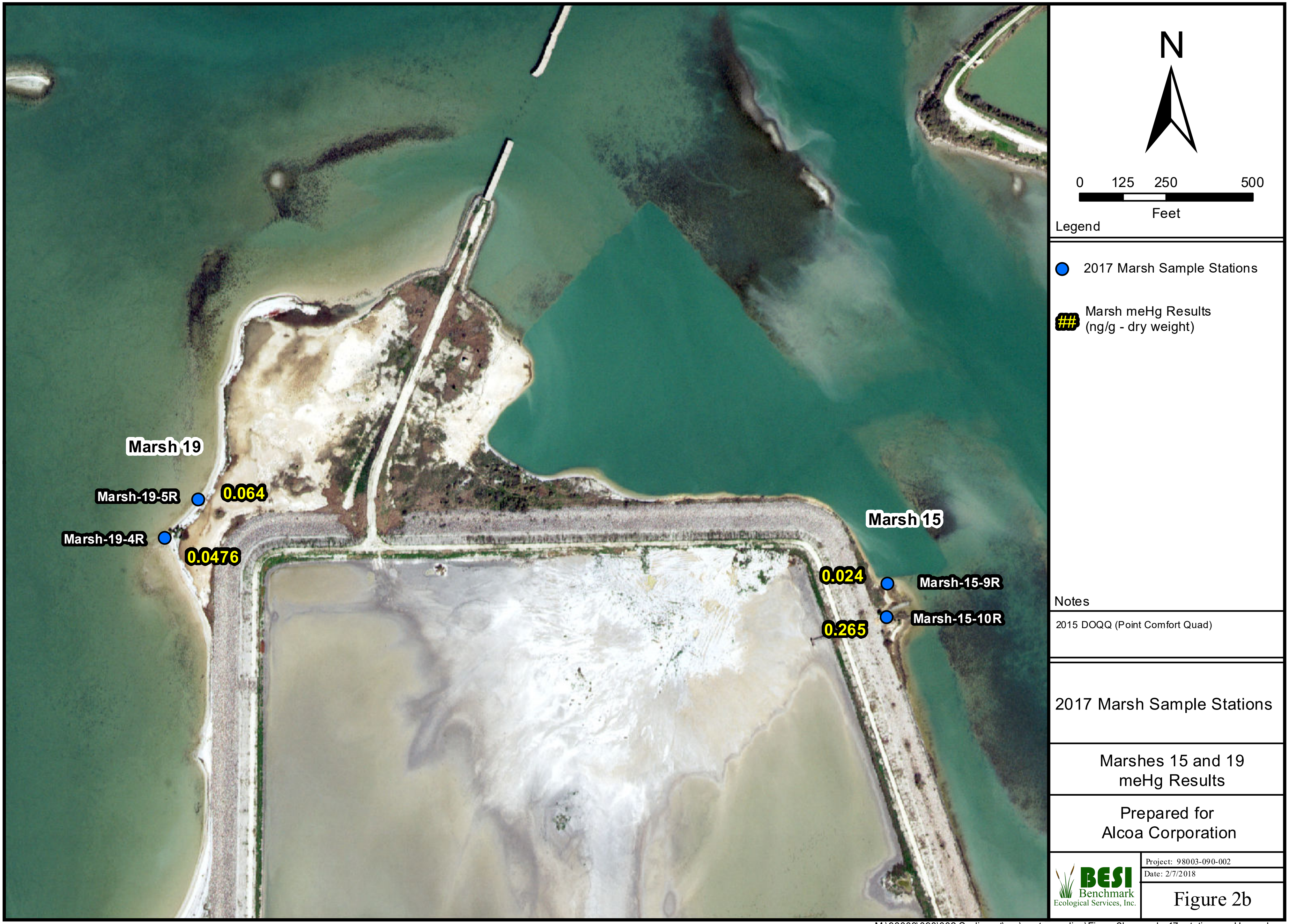
Prepared for
Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-002
Date: 2/7/2018

Figure 2a

M:\98003\090\002 Sediment\arc\post sampling\Figure2a_marsh_17_stationHg.mxd



2017 Marsh Sample Stations

Marshes 15 and 19
meHg Results

Prepared for
Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-002
Date: 2/7/2018

Figure 2b

M:\98003\090\002 Sediment\arc\post sampling\Figure2b_marsh_17_station_meHg.mxd

Legend

2017 Marsh Sample Stations

Marsh TOC Results (wt% - dry weight)

Notes

2015 DOQQ (Point Comfort Quad)

2017 Marsh Sample Stations

Marshes 15 and 19
TOC Results

Prepared for
Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-002
Date: 2/7/2018

Figure 2c

M:\98003\090\002 Sediment\arc\post sampling\Figure2c_marsh_17_station_TOC.mxd

APPENDIX C2
LAVACA BAY EAST CAUSEWAY COVE SEDIMENT MONITORING REPORT

LAVACA BAY SUPPLEMENTAL SEDIMENT
EAST CAUSEWAY COVE OPEN WATER SEDIMENT SAMPLES
FALL 2017

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

February 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

ALS	ALS Laboratory Group/Laboratory
cm	centimeter(s)
ECC	Eastern Causeway Cove
ft	foot / feet
GPS	Global Positioning System
Hg	Total Mercury
ID	Identification
MS3	Mainland Shoreline #3
OMMP	Operation Maintenance and Monitoring Plan
oz	ounce
%M	Percent Moisture
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 EPA's selected remedy. As stated in the OMMP the open water sediment monitoring program will be performed until a mean total Hg (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 bi-annual (even-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 concentration 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 (Figure 1). 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 2017, 13 sediment samples were collected from the ECC to continue monitoring of 10 historical open water stations and 3 supplemental ECC locations that were sampled in 2016. 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 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 open water and marsh sediment contains elevated mercury concentrations. The project area and sampling strategy for the open water sediment samples and marsh 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 10 November 2017. 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 Environmental Chemistry Services, Inc., in Houston, 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 locations are shown on Figure 1.

N

0 125 250 500 Feet

Legend	Notes
2017 Open Water Sample Stations ## 2017 Open Water Total Hg Results (mg/kg - dry weight) ## 2017 Open Water TOC Results (wt%-dry)	2015 DOQQ (Point Comfort Quad) Calhoun County, TX

2017 Supplemental ECC Sample Event

2017 Sample Station Locations and Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-002

Date: 2/7/2018

Figure 1

M:\98003\090\002 Sediment\Supplemental ECC Open Water Samples\arc\Figure1_OW_Hg_TOC.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 cut off to transform the syringe barrel into an open cylinder. The open end of the syringe barrel was placed on the surface of the sediment, and 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 to ensure proper depth was sampled. 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 thoroughly 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 analysis; were placed in re-sealable plastic bags; bubble wrapped; and then immediately placed in 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 Total Hg Results

Station ID	Easting[1]	Northing[1]	Sample ID	Date	Time	Water Depth[2] (ft)	Total Hg			% M		TOC		
							(mg/kg) dry wt	SQL[3] (mg/kg)	Flag	wt%	SQL[3] (wt%)	wt%-dry	SQL[3] (wt%-dry)	Flag
STO0201	2746959.51	13433789.36	SMP-SE-19005	11/10/2017	11:00	3.8	0.140	0.00110		55.9	0.0100	0.965	0.0600	
SMP004	2746192.12	13433674.25	SMP-SE-19006	11/10/2017	11:15	3.8	0.165	0.000843		40.5	0.0100	0.279	0.0600	
LVB0902	2745309.91	13433637.80	SMP-SE-19007	11/10/2017	11:30	3.8	0.0971	0.000694		28	0.0100	0.159	0.0600	
SMP0007	2745303.68	13432876.91	SMP-SE-19008	11/10/2017	11:40	5.0	0.0184	0.000615		22.9	0.0100	<0.0600	0.0600	U
STO0193	2746120.26	13432995.33	SMP-SE-19010	11/10/2017	12:00	4.3	0.441	0.000707		29.6	0.0100	0.180	0.0600	
ECC-017	2745977.96	13432749.79	SMP-SE-19011	11/10/2017	12:10	4.3	0.439	0.000976		50	0.0100	0.499	0.0600	
ECC-036	2746436.17	13432649.33	SMP-SE-19012	11/10/2017	12:25	4.3	0.407	0.000983		50.2	0.0100	0.570	0.0600	
ECC-031	2746571.41	13432926.11	SMP-SE-19013	11/10/2017	12:35	4.3	0.527	0.000886		56.8	0.0100	0.665	0.0600	
SMP0009	2746959.89	13432890.74	SMP-SE-19014	11/10/2017	12:50	4.2	0.448	0.000973		51.1	0.0100	0.788	0.0600	
STO0160	2745320.36	13432198.03	SMP-SE-19015	11/10/2017	13:00	4.9	0.211	0.000735		31.8	0.0100	0.195	0.0600	
SMP0014	2746166.55	13432103.28	SMP-SE-19016	11/10/2017	13:15	4.3	0.338	0.00115		58.3	0.0100	0.743	0.0600	
STO0203	2746963.48	13432179.06	SMP-SE-19017	11/10/2017	13:20	3.7	0.458	0.000804		40.7	0.0100	0.512	0.0600	
SUP0016	2747363.39	13432658.05	SMP-SE-19018	11/10/2017	13:30	2.0	0.325	0.000844		44.1	0.0100	0.555	0.0600	

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

[2] Water Depths are not calibrated to tidal level

[3]SQL - Sample Quantitation Limit

U - Not Detected

3.0 ANALYTICAL RESULTS

Sediment samples from ECC stations (0-2 cm) were analyzed for total Hg (Method 7471A), %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 November 2017. Data validation and evaluation was completed by Environmental Chemistry Services on 22 January 2018.

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.

APPENDIX D1
LAVACA BAY FINFISH AND SHELLFISH MONITORING REPORT

LAVACA BAY FINFISH AND SHELLFISH MONITORING REPORT 2017

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

February 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

Benchmark	Benchmark Ecological Services, Inc.
Battelle	Pacific Northwest National Laboratory Marine Sciences Laboratory, operated by Battelle
mm	millimeter(s)
DI	Deionized
GPS	Global Positioning System
ID	Identification
OMMP	Operation Maintenance and Monitoring Plan
QA/QC	Quality Assurance/Quality Control
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. The Consent Decree (March 2005) for the Lavaca Bay Superfund 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 2017 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) (Alcoa, 2005a).

1.2 SITE DESCRIPTION

The Alcoa Point Comfort Operations Plant 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 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 OMMP and delineated in the figures contained in this report (Alcoa, 2005a).

2.0 METHODS

Red drum and juvenile blue crab tissue samples for the 2017 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 28 September 2017 and 11 December 2017. Validation and evaluation of the analytical results were conducted by Environmental Chemistry Services, Inc., in Houston, Texas.

2.1 SAMPLE STATIONS

A total of 30 red drum samples were collected from 11 stations inside the Closed Area (Figure 1) and 30 samples were collected from 10 stations in the Adjacent 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 the Adjacent Area (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. 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 will vary (Alcoa, 2005b). The actual numbers of stations sampled for red drum and juvenile blue crab during the 2017 monitoring event are shown for each of the four Closed Area zones on 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 by Zone

Zone	Red Drum Samples	Juvenile Blue Crab Samples
Zone 1	9	3
Zone 2	10	15
Zone 3	5	3
Zone 4	6	9

The distribution of red drum samples ranged from 5 samples in Zone 3 to 10 samples in Zone 2. 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 and samples within each sampling area (Alcoa, 2005b). 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 DOQQ (Point Comfort) Quad
Calhoun County, Texas

Lavaca Bay Finfish and Shellfish Monitoring Report 2017

Closed Area Red Drum Sample Stations and Analytical Results

Prepared for
Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-001
Date: 2/7/2018

Figure 1

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Legend

Red Drum Stations

#.## Total Hg (ug/g wet weight)

Notes

2009 0.5m DOQQ (Point Comfort) Quad
Calhoun County, Texas

Lavaca Bay Finfish and Shellfish Monitoring Report 2017

Adjacent Area Red Drum Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-001

Date: 2/7/2018

Figure 2

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N

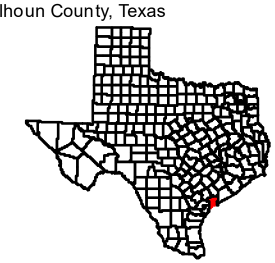
0 1,500 3,000 Feet

Legend

- Juvenile Blue Crab Stations
- #.## Total Hg (ug/g wet weight)
- Zone Boundaries
- Closed Area

Notes

2015 0.5m DOQQ (Point Comfort) Quad
Calhoun County, Texas



Lavaca Bay Finfish and Shellfish Monitoring Report 2017

Closed Area Juvenile Blue Crab Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-001
Date: 2/7/2018

Figure 3

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N

0 0.5 1 Miles

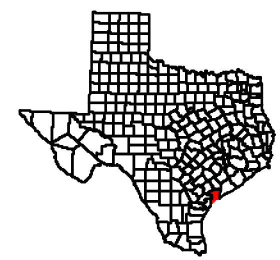
Legend

Juvenile Blue Crab Stations

#.## Total Hg (ug/g wet weight)

Notes

2015 0.5m DOQQ (Point Comfort) Quad
Calhoun County, Texas



Lavaca Bay Finfish and Shellfish Monitoring Report 2017

Adjacent Area Juvenile Blue Crab Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-090-001
Date: 12/21/2017

Figure 4

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2.2 SAMPLE COLLECTION

2.2.1 Red Drum

Red drum were collected from the Closed and Adjacent Areas between 28 September 2017 and 11 December 2017. In the Closed Area 30 red drum tissue samples were collected from 11 sample stations (Figure 1). In the Adjacent Area 30 red drum tissue samples were collected from 10 sample stations (Figure 2). Sampling was conducted from a 24-foot aluminum boat and 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. Multiple nets (1-5) were set at each sample station (Figures 1 and 2) in the evening and the nets were allowed to fish over night. The nets were retrieved the following morning and the fish were removed. Red drum with total lengths between 508 and 711 mm (20 to 28 inches) were removed from the gill nets, 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 and Adjacent Areas between 28 September 2017 and 29 October 2017. In the Closed Area 30 blue crab tissue samples were collected from 10 historical monitoring stations (Figure 3). In the Adjacent Area 30 blue crab tissue samples were collected from 10 sample stations (Figure 4). Sampling was conducted from a 24-foot aluminum boat and 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 every 2 to 72 hours. 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, measured as the distance between the tips of the primary lateral spines of the carapace, were retained. 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, scaled, and rinsed with deionized (DI) water. 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 all fish were scaled.

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. A random sub-sample (approximately 50 g) was removed, weighed, and placed in a pre-cleaned sample container supplied by the analytical laboratory. Fillet weights and sample weights were recorded 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. Chain of Custody forms were completed for all samples collected. Sample containers were shipped to Battelle overnight on the date of processing. A total of eight red drum samples arrived at the laboratory after the overnight shipping period specified in the 2015 RAAER (Alcoa, 2015). All samples arrived with acceptable hold temperatures and were freeze-dried and archived upon arrival. The archived samples were not analyzed and subsequently replaced through continued field sampling.

2.3.2 Juvenile Blue Crab

Blue crabs were processed within 24 hours of collection in the Alcoa Clean Lab 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 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 05 January 2018, and Analytical QA/QC was completed by Environmental Chemistry Services on 22 January 2018. 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 Area 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 Area are presented in Table 5.

Analytical results for both red drum and juvenile blue crab samples were validated 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, 2005a. 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. March 2005. Appendix I.

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, 2015. 2015 Remedial Action Annual Effectiveness Report. Alcoa (Point Comfort)/Lavaca Bay Superfund Site. March 31, 2016.

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
CLO1414	B12b-TF-18627	9/28/2017	7:58	671	555	3167	532.4	57.5	64.7	0.344	-
CLO1414	B12b-TF-18628	9/28/2017	7:58	641	530	3017	472	53.6	81.5	0.173	-
CLO1414	B12b-TF-18629	9/28/2017	7:58	623	510	2557	352.1	52.0	81.8	0.507	-
CLO5818	B12b-TF-18630	10/2/2017	8:06	640	520	2641	376.3	55.2	80.6	1.059	-
CLO6802	B12b-TF-18631	10/2/2017	8:24	709	585	3569	512.7	56.9	77.8	0.278	-
CLO5815	B12b-TF-18634	10/3/2017	7:40	683	570	3320	505.8	55.6	80.2	0.737	-
CLO5802	B12b-TF-18639	10/9/2017	9:35	662	540	2963	480.5	51.5	79.9	0.702	-
CLO5815	B12b-TF-18644	10/12/2017	8:00	573	465	1783	261.2	48.1	80.7	0.213	-
CLO5804	B12b-TF-18647	10/16/2017	10:10	692	575	3326	461.7	56.7	78.7	0.422	-
CLO5815	B12b-TF-18650	10/17/2017	8:00	532	425	1476	229.1	47.5	80.2	0.531	-
CLO6802	B12b-TF-18651	10/17/2017	9:00	621	505	2205	355.9	53.4	79.3	0.227	-
CLO6802	B12b-TF-18652	10/18/2017	8:45	592	490	1878	286.6	50.4	81.3	0.156	-
CLO5803	B12b-TF-18657	10/25/2017	8:16	679	565	3536	447.4	52.2	80.2	0.252	-
CLO5802	B12b-TF-18658	10/30/2017	9:40	583	475	2045	275.8	48.1	80.2	1.270	-
CLO5802	B12b-TF-18659	10/30/2017	9:40	601	490	2102	280.7	57.2	79.4	0.839	-
LVB5508	B12b-TF-18660	10/30/2017	8:50	631	520	2530	379.9	52.7	80.6	0.742	-
CLO5803	B12b-TF-18661	10/30/2017	10:00	693	570	2890	372.8	54.7	81.3	0.198	-
CLO5816	B12b-TF-18662	10/30/2017	7:35	612	505	1937	246.5	47.5	81.6	0.242	-
CLO5816	B12b-TF-18663	10/30/2017	7:35	513	410	1258	160.4	44.4	78.7	0.758	-
LVB5508	B12b-TF-18666	10/31/2017	9:20	574	470	1934	286.3	55.3	78.9	1.144	-
CLO5803	B12b-TF-18667	10/31/2017	9:35	658	540	2864	371.1	50.2	79.1	1.118	-
CLO5804	B12b-TF-18678	11/9/2017	8:15	533	435	1480	205.9	48.7	79.4	1.638	-
CLO5804	B12b-TF-18679	11/9/2017	8:15	549	450	1512	219.8	49.4	78.6	2.073	-
CLO5900	B12b-TF-18683	11/14/2017	8:30	545	440	1412	203.6	49.4	79.8	1.122	-
CLO5900	B12b-TF-18684	11/16/2017	8:30	566	455	1635	234.0	48.9	80.4	1.152	-
CLO5900	B12b-TF-18691	11/21/2017	7:55	569	455	1668	212.0	54.6	77.1	1.416	-
LVB5508	B12b-TF-18694	12/6/2017	8:30	508	400	1191	191.1	36.0	77.6	0.499	-
CLO5818	B12b-TF-18695	12/11/2017	7:50	613	490	2120	295.7	52.2	79.0	0.422	-
CLO5818	B12b-TF-18696	12/11/2017	7:50	650	530	2846	391.4	50.9	79.2	0.524	-
LVB5513	B12b-TF-18697	12/11/2017	9:30	619	505	2676	415.0	49.1	78.1	0.634	-
Average Values				**611**	**499**	**2318**	**333.9**	**51.3**	**79.2**	**0.713**	-

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
LVB6870	B12b-TF-18632	10/3/2017	8:13	672	560	3031	419.8	51.2	79.9	0.459	-
LVB6870	B12b-TF-18633	10/3/2017	8:13	705	580	3712	583.9	55.6	79.6	0.374	-
LVB5839	B12b-TF-18635	10/4/2017	7:13	567	460	1823	297.8	56.2	79.8	0.194	-
LVB5838	B12b-TF-18636	10/9/2017	8:00	645	525	2640	344.8	54.0	79.2	0.201	-
LVB5838	B12b-TF-18637	10/9/2017	8:00	617	500	2330	332.0	57.3	79.1	0.238	-
LVB5838	B12b-TF-18638	10/9/2017	8:00	610	490	2340	349.2	58.3	80.0	0.313	-
LVB6871	B12b-TF-18640	10/10/2017	8:10	709	585	3626	534.8	52	76.9	0.221	-
LVB6871	B12b-TF-18641	10/10/2017	8:10	700	570	3169	463.6	43.2	78.8	0.324	-
LVB5839	B12b-TF-18642	10/12/2017	7:30	645	535	2700	385.7	56.7	81.0	0.274	-
LVB5839	B12b-TF-18643	10/12/2017	7:30	688	570	3249	468.0	53.3	84.3	0.300	-
LVB5841	B12b-TF-18645	10/16/2017	8:00	542	445	1582	240.0	46.4	81.7	0.342	-
LVB5841	B12b-TF-18646	10/16/2017	8:00	668	550	2899	391.2	51.2	78.7	0.241	-
LVB6950	B12b-TF-18648	10/17/2017	8:25	640	520	2931	511.1	54.9	80.1	0.290	-
LVB6950	B12b-TF-18649	10/17/2017	8:25	632	520	2738	413.7	50.9	78.2	0.372	-
LVB6950	B12b-TF-18654	10/24/2017	7:45	673	540	3081	489.0	52.5	78.5	0.200	-
CLO5830	B12b-TF-18655	10/24/2017	8:30	640	510	2573	372.9	50.9	78.4	0.435	-
LVB6870	B12b-TF-18656	10/24/2017	9:12	618	500	2670	382.6	51.7	79.8	0.296	-
LVB6871	B12b-TF-18665	10/31/2017	7:40	679	555	3363	505.6	55.2	79.3	0.291	-
LVB6837	B12b-TF-18668	10/31/2017	10:00	709	590	3370	468.3	55.9	80.0	0.345	-
LVB5841	B12b-TF-18673	11/2/2017	8:20	710	595	2976	359.5	53.6	83.8	0.277	-
CLO5830	B12b-TF-18674	11/2/2017	9:30	644	520	2566	346.7	51.3	80.0	0.301	-
CLO5830	B12b-TF-18675	11/2/2017	9:30	541	445	1682	273.9	52.0	79.6	0.221	-
LVB6837	B12b-TF-18676	11/6/2017	9:50	659	545	2830	440.4	55.0	79.9	0.273	-
LVB6850	B12b-TF-18677	11/8/2017	9:47	642	525	2627	407.4	57.0	80.0	0.313	-
LVB6837	B12b-TF-18680	11/9/2017	7:17	701	580	3590	468.7	52.8	80.0	0.429	-
LVB6850	B12b-TF-18682	11/14/2017	7:00	509	410	1256	182.9	47.2	79.0	0.234	-
LVB6880	B12b-TF-18689	11/21/2017	6:55	640	530	2527	340.2	49.7	79.7	0.380	-
LVB6880	B12b-TF-18690	11/21/2017	6:55	577	470	2021	289.8	57.5	78.7	0.215	-
LVB6850	B12b-TF-18692	11/30/2017	7:05	596	490	1978	298.7	50.9	79.6	0.298	-
LVB6880	B12b-TF-18693	11/30/2017	9:15	528	430	1440	168.5	46.1	78.6	0.239	-
Average Values				**637**	**522**	**2644**	**384.4**	**52.7**	**79.7**	**0.296**	**-**

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
CLO5802	B12b-TS-19123	9/28/17	16:22	45.4	9.2	52.5	72.7	0.190	-
				59.9	20.8				
				56.0	15.3				
				26.5	2.1				
				38.8	5.1				
CLO5802	B12b-TS-19124	10/2/17	10:07	55.2	15.9	84.9	67.9	0.322	-
				61.5	25.4				
				49.9	10.4				
				66.9	24.8				
				45.7	8.4				
LVB5517	B12b-TS-19126	9/28/17	17:00	72.3	15.9	32.3	70.4	0.0999	-
				49.2	7.1				
				26.9	2.1				
				31.8	2.8				
				37.7	4.4				
CLO5815	B12b-TS-19133	9/28/17	16:52	45.5	6.2	20.1	64.6	0.450	-
				39.5	4.0				
				43.7	5.4				
				26.1	2.0				
				29.5	2.5				
CLO5803	B12b-TS-19145	9/28/17	16:35	45.7	9.4	24.8	69.6	0.201	-
				31.7	2.9				
				46.3	8.4				
				33.8	2.8				
				26.8	1.3				
CLO5814	B12b-TS-19147	9/28/17	15:50	66.9	19.3	42.5	67.6	0.0900	-
				39.7	4.8				
				31.2	2.2				
				36.4	3.1				
				57.0	13.1				
CLO5803	B12b-TS-19148	10/1/17	19:07	27.0	1.5	11.7	71.9	0.0821	-
				27.3	1.6				
				36.8	5.2				
				25.3	1.2				
				27.7	2.2				
CLO5802	B12b-TS-19149	10/2/17	10:07	52.1	12.2	77.5	70.5	0.328	-
				70.2	25.5				
				64.1	22.5				
				48.1	10.9				
				39.7	6.4				

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
LVB5517	B12b-TS-19150	9/28/17	17:00	25.7	1.7	44.8	73.1	0.101	-
				30.8	2.5				
				56.5	12.2				
				58.5	11.1				
				61.4	17.3				
LVB5508	B12b-TS-19152	10/4/17	12:09	53.6	11.0	72.9	67.2	0.195	-
				48.3	9.0				
				71.6	31.3				
				54.7	14.3				
				41.9	7.3				
CLO5815	B12b-TS-19156	10/3/17	9:18	41.2	5.5	68.7	68.1	0.267	-
				67.1	19.6				
				61.1	12.3				
				62.1	27.0				
				39.1	4.3				
LVB5517	B12b-TS-19157	10/4/17	11:17	57.1	13.8	54.3	65.0	0.115	-
				31.1	3.0				
				64.1	16.4				
				65.0	17.1				
				32.2	4.0				
CLO5900	B12b-TS-19158	10/4/17	11:50	39.0	5.9	34.1	67.5	0.070	-
				41.1	8.5				
				25.0	1.5				
				37.0	4.6				
				55.0	13.6				
CLO6802	B12b-TS-19159	10/5/17	15:21	38.3	4.2	27.2	66.5	0.0802	-
				33.6	2.4				
				53.4	10.0				
				45.0	6.7				
				31.3	3.9				
LVB5508	B12b-TS-19160	10/4/17	12:09	43.0	5.2	45.6	68.5	0.151	-
				33.0	4.0				
				67.4	25.8				
				32.3	4.3				
				38.0	6.3				
LVB5504	B12b-TS-19162	10/4/17	12:00	35.4	3.4	14.2	68.4	0.0850	-
				30.7	2.3				
				27.0	2.1				
				33.3	3.7				
				34.1	2.7				

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-19163	10/5/17	16:20	26.9	1.6	63.9	69.4	0.177	-
				28.8	2.5				
				73.6	23.7				
				71.3	32.6				
				32.7	3.5				
LVB5504	B12b-TS-19164	10/9/17	11:00	32.3	2.4	7.7	68.3	0.0387	-
				31.3	1.6				
				27.3	1.3				
				26.4	1.2				
				25.2	1.2				
CLO6802	B12b-TS-19165	10/9/17	10:25	35.6	5.0	13.0	67.6	0.0455	-
				28.3	1.7				
				33.2	2.4				
				30.9	2.2				
				28.3	1.7				
CLO5803	B12b-TS-19166	10/5/17	16:00	34.7	3.5	12.1	67.0	0.0843	-
				31.8	2.8				
				27.7	1.5				
				29.4	2.0				
				29.4	2.3				
LVB5513	B12b-TS-19167	10/5/17	15:40	65.2	16.3	49.9	71.4	0.0869	-
				33.9	3.2				
				44.0	6.7				
				47.5	8.4				
				60.4	15.3				
CLO5900	B12b-TS-19168	10/11/17	9:30	26.5	1.4	30.2	66.6	0.173	-
				39.4	4.9				
				56.8	13.0				
				30.6	2.0				
				50.8	8.9				
CLO5900	B12b-TS-19169	10/15/17	17:50	49.8	11.1	30.5	65.9	0.0850	-
				45.3	8.6				
				36.0	3.2				
				34.4	3.1				
				36.8	4.5				
LVB5504	B12b-TS-19170	10/11/17	9:18	39.1	4.1	31.2	67.8	0.0968	-
				27.0	1.3				
				28.4	1.5				
				29.3	1.7				
				67.3	22.6				

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
CLO5814	B12b-TS-19171	10/12/17	9:55	39.7	5.1	31.2	69.9	0.0637	-
				25.2	1.1				
				48.9	9.0				
				44.1	6.8				
				48.2	9.2				
CLO6802	B12b-TS-19172	10/11/17	10:05	43.8	5.9	23.9	66.8	0.0753	-
				34.6	3.5				
				31.9	2.8				
				50.6	8.8				
				31.0	2.9				
LVB5513	B12b-TS-19174	10/16/17	10:50	32.3	2.8	25.6	65.0	0.0992	-
				55.9	15.1				
				27.7	1.5				
				28.2	2.0				
				37.2	4.2				
CLO5815	B12b-TS-19175	10/16/17	11:20	51.2	8.7	31.7	68.0	0.1453	-
				48.3	7.1				
				36.1	4.5				
				50.5	8.7				
				34.3	2.7				
LVB5513	B12b-TS-19177	10/19/17	9:35	73.0	23.2	32.0	70.3	0.0868	-
				29.4	1.7				
				31.4	2.7				
				35.0	2.7				
				28.6	1.7				
CLO5814	B12b-TS-19180	10/19/17	9:25	28.6	1.8	28.4	58.3	0.0712	-
				31.0	2.6				
				52.0	12.0				
				39.3	5.0				
				44.7	7.0				
Average Values				**41.8**	**7.5**	**37.3**	**67.9**	**0.1367**	**-**

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
LVB6853	B12b-TS-19125	10/2/17	12:06	59.7	17.4	72.5	70.8	0.0569	-
				71.3	28.1				
				58.4	14.9				
				34.9	3.6				
				46.3	8.5				
LVB6850	B12b-TS-19127	9/28/17	13:37	39.4	4.7	24.7	68.0	0.0581	-
				39.7	6.4				
				30.5	2.6				
				32.6	3.4				
				47.2	7.6				
LVB6850	B12b-TS-19128	10/2/17	11:25	38.9	3.9	20.6	69.2	0.0439	-
				38.2	4.7				
				37.4	3.5				
				36.9	4.3				
				38.6	4.2				
LVB6850	B12b-TS-19129	10/2/17	11:25	37.3	4.4	15.9	64.0	0.0611	-
				32.0	2.9				
				29.0	2.3				
				27.2	1.7				
				37.3	4.6				
LVB6870	B12b-TS-19130	9/28/17	15:02	66.8	19.3	62.5	68.2	0.0593	-
				43.0	8.0				
				53.5	10.9				
				32.0	2.6				
				65.0	21.7				
LVB6870	B12b-TS-19131	9/28/17	15:02	35.1	3.8	26.6	70.4	0.0497	-
				48.2	9.8				
				45.1	7.6				
				33.4	3.1				
				27.7	2.3				
LVB6870	B12b-TS-19132	9/28/17	15:02	51.0	7.1	30.5	66.0	0.0455	-
				55.8	10.2				
				39.8	5.7				
				36.3	4.0				
				38.3	3.5				
LVB6837	B12b-TS-19134	9/28/17	17:26	29.8	2.6	16.9	69.4	0.0677	-
				38.0	3.7				
				38.7	4.4				
				29.3	2.0				
				38.4	4.2				

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-19135	10/2/17	11:37	28.0	1.6	16.3	67.8	0.0635	-
				40.7	4.2				
				29.7	2.2				
				41.0	5.6				
				29.7	2.7				
LVB6852	B12b-TS-19136	9/28/17	14:04	25.8	1.7	90.2	67.8	0.144	-
				38.2	5.0				
				69.1	25.6				
				67.5	26.2				
				73.0	31.7				
LVB6880	B12b-TS-19137	9/28/17	13:53	67.6	21.5	60.3	70.2	0.0440	-
				45.9	6.9				
				40.5	5.6				
				64.4	23.3				
				31.0	3.0				
LVB6880	B12b-TS-19138	10/2/17	10:40	29.0	1.9	67.5	66.4	0.0595	-
				67.3	22.8				
				64.0	20.1				
				40.0	5.6				
				58.7	17.1				
LVB6880	B12b-TS-19139	10/2/17	10:40	57.4	13.0	40.5	66.0	0.0451	-
				43.9	8.0				
				27.1	1.5				
				55.2	6.0				
				56.3	12.0				
LVB6871	B12b-TS-19140	9/28/17	15:31	54.5	17.7	78.9	67.0	0.0502	-
				70.4	29.4				
				39.8	5.2				
				61.2	22.3				
				34.7	4.3				
LVB6871	B12b-TS-19141	9/28/17	15:31	28.5	2.3	53.1	69.8	0.0437	-
				67.8	24.7				
				57.6	17.6				
				39.0	5.8				
				32.3	2.7				
LVB6871	B12b-TS-19142	10/1/17	17:41	60.2	18.1	47.0	71.8	0.0344	-
				63.7	19.1				
				33.6	4.0				
				29.4	2.7				
				33.1	3.1				

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
LVB5839	B12b-TS-19143	9/28/17	13:25	40.8	6.0	51.6	64.9	0.0562	-
				40.0	4.5				
				72.9	30.8				
				35.7	4.2				
				39.2	6.1				
LVB5839	B12b-TS-19144	10/2/17	11:50	57.9	13.5	31.0	69.8	0.0454	-
				43.1	6.2				
				42.3	6.2				
				31.7	2.8				
				31.5	2.3				
LVB6837	B12b-TS-19146	10/2/17	11:37	33.1	2.6	14.4	69.5	0.0301	-
				30.8	2.9				
				36.8	4.5				
				28.5	2.3				
				28.8	2.1				
LVB6852	B12b-TS-19151	10/2/17	10:52	73.2	36.4	126.9	67.5	0.101	-
				74.4	34.7				
				68.1	26.5				
				70.9	24.9				
				36.8	4.4				
LVB6853	B12b-TS-19153	10/2/17	12:06	48.3	10.8	60.7	71.9	0.0539	-
				59.4	17.1				
				59.1	16.9				
				55.0	15.0				
				27.3	0.9				
LVB6853	B12b-TS-19154	10/4/17	10:47	70.7	30.8	85.1	68.8	0.450	-
				48.4	8.8				
				57.6	14.6				
				49.1	11.6				
				62.2	19.3				
LVB5839	B12b-TS-19155	10/2/17	11:50	27.2	2.4	12.9	70.4	0.0359	-
				29.1	2.6				
				25.1	1.4				
				37.0	4.6				
				28.1	1.9				
LVB6852	B12b-TS-19161	10/4/17	9:43	32.2	3.8	24.1	70.1	0.0334	-
				25.0	1.8				
				26.2	2.0				
				44.3	9.9				
				38.4	6.6				

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
LVB5838	B12b-TS-19173	10/11/17	11:45	73.2	31.0	54.6	68.3	0.0594	-
				26.1	1.2				
				60.2	16.5				
				39.1	4.4				
				27.4	1.5				
LVB6975	B12b-TS-19176	10/22/17	16:58	25.0	1.0	7.6	64.7	0.0308	-
				28.8	1.7				
				30.5	2.0				
				27.0	1.4				
				26.4	1.5				
LVB5838	B12b-TS-19178	10/17/17	10:20	25.0	1.4	16.0	69.6	0.0120	-
				35.2	3.5				
				39.2	4.2				
				26.1	1.5				
				41.3	5.4				
LVB5838	B12b-TS-19179	10/22/17	17:24	38.7	3.7	16.8	65.8	0.0222	-
				25.4	1.3				
				40.9	4.0				
				40.0	4.8				
				36.5	3.0				
LVB6975	B12b-TS-19181	10/24/17	16:20	56.8	15.2	36.6	68.3	0.0383	-
				54.3	14.3				
				30.2	2.1				
				34.1	2.6				
				37.1	2.4				
CLO5814	B12b-TS-19182	10/24/17	16:20	43.7	5.7	45.8	65.6	0.0328	-
				48.4	10.6				
				73.9	24.1				
				29.5	1.7				
				36.5	3.7				
Average Values				**43.2**	**8.7**	**43.6**	**68.2**	**0.0645**	-

APPENDIX D2
LAVACA BAY RED DRUM GUT CONTENT SURVEY REPORT

LAVACA BAY RED DRUM GUT CONTENT REPORT
2017

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

February 2018

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Attachments

LIST OF ACRONYMS AND ABBREVIATIONS

Benchmark	Benchmark Ecological Services, Inc.
mm	millimeter(s)
GPS	Global Positioning System
ID	Identification
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 2017 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 2017 Annual Monitoring Study were removed, sorted, and identified. Thirty fish were collected and analyzed from Closed Area stations and thirty fish were collected from Adjacent Area stations; this survey consisted of examining the contents of each fish stomach which was analyzed for mercury. Stomach content data associated with the eight red drum which tissue samples that did not arrive at the lab the day after they were caught and processed are not included as part of this report.

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 28 September 2017 and 11 December 2017. Stomach contents collected for this survey were not chemically analyzed.

2.1 SAMPLE STATIONS

Legal-sized red drum were collected from 11 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 2017 (Appendix D1 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 ranged from 3 fish in Zone 1 to 14 fish in Zone 2. 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	10
Zone 3	5
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 11 sample stations. In the Adjacent Area, 30 red drum tissue samples were collected from the 10 sample stations.

A detailed description of the methods for collecting red drum for this survey is provided in the Lavaca Bay Finfish and Shellfish Monitoring Report 2017 (Appendix D1 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, scaled, and 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 2017 (Appendix D1 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 on the gut content data sheet along with species counts (Tables 2 and 3). Representative photos are presented as Attachment 1.

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.

- Assortment of prey items available to red drum is different year to year.
- Juvenile blue crabs were the most abundant prey item observed in Adjacent Area fish in 2017.
- Juvenile blue crab consumption has declined in the Closed Area compared to previous annual observations.
- Three fish were collected from reef stations, 3 from other flats habitat, and 24 from marsh stations in the Adjacent Area.
- Twelve fish were collected from reef stations, 9 fish from other flats habitat, and 9 fish from marsh stations in the Closed Area.
- The most common prey item in fish from Closed Area reefs was hardhead catfish (Figure 1).
- The most common identifiable prey item in fish from Closed Area marshes was small fish (Figure 2).
- The most common identifiable prey item in fish from Closed Area flats was hardhead catfish (Figure 3).
- The most common prey item in fish from Adjacent Area reefs was juvenile blue crabs (Figure 4).
- The most common identifiable prey item in fish from Adjacent Area marshes was juvenile blue crab (Figure 5).
- The most common identifiable prey item in fish from Adjacent Area flats was juvenile blue crab (Figure 6).
- This is the second consecutive Lavaca Bay Gut Content Survey to find hardhead catfish as a major component of the redfish diet. Hardhead catfish were noted as a major prey item in the 2016 Gut Content Survey.

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 - 2017 Closed Area Red Drum Gut Contents

Habitat	Station ID	Sample ID	Gut Content			
			Content	Number	Internal Parasites Present	Gut Content Weight (g)
Other	CLO1414	B12b-TF-18627	Empty Gut	NA	y	NA
	CLO1414	B12b-TF-18628	Empty Gut	NA	-	NA
	CLO1414	B12b-TF-18629	Empty Gut	NA	-	NA
	CLO5802	B12b-TF-18639	Hardhead Catfish	1	-	2.5
	CLO5802	B12b-TF-18658	Unidentified Fish	1	-	23.0
			Hardhead Catfish	1		
	CLO5802	B12b-TF-18659	Mullet	1	-	17.3
			Hardhead Catfish	3		
	LVB5508	B12b-TF-18660	Polychaetes	2	-	12.5
			Mullet	1		
	LVB5508	B12b-TF-18666	Hardhead Catfish	1	y	10.0
	LVB5508	B12b-TF-18694	Empty Gut	NA	-	NA
Reef	CLO5818	B12b-TF-18630	Hardhead Catfish	1	-	32.1
			Stone Crab	1		
	CLO5815	B12b-TF-18634	Unidentified Fish	1	-	2.5
	CLO5815	B12b-TF-18644	Empty Gut	NA	-	NA
	CLO5804	B12b-TF-18647	Empty Gut	NA	-	NA
	CLO5815	B12b-TF-18650	Blue Crab	1	-	8.9
	CLO5816	B12b-TF-18662	Hardhead Catfish	10	-	49.6
	CLO5816	B12b-TF-18663	Hardhead Catfish	7	-	38.4
			Mud Crab	1		
	CLO5804	B12b-TF-18678	Empty Gut	NA	-	NA
	CLO5804	B12b-TF-18679	Empty Gut	NA	-	NA
	CLO5818	B12b-TF-18695	Hardhead Catfish	8	-	51.9
	CLO5818	B12b-TF-18696	Hardhead Catfish	3	-	106.2
			Mullet	1		
	LVB5513	B12b-TF-18697	Pinaeid Shrimp	6	-	21.6
			Mullet	1		
			Unidentified Fish	2		
Marsh	CLO6802	B12b-TF-18631	Empty Gut	NA	-	NA
	CLO6802	B12b-TF-18651	Empty Gut	NA	y	NA
	CLO6802	B12b-TF-18652	Empty Gut	NA	y	NA
	CLO5803	B12b-TF-18657	Empty Gut	NA	-	NA
	CLO5803	B12b-TF-18661	Empty Gut	NA	-	NA
	CLO5803	B12b-TF-18667	Blue Crab	1	-	14.5
			Sand Eel	1		
			Unidentified Fish	5		
	CLO5900	B12b-TF-18683	Empty Gut	NA	-	NA
	CLO5900	B12b-TF-18684	Oyster Shell	1	-	2.5
			Unidentified Fish	1		
	CLO5900	B12b-TF-18691	Free cyst	1	-	7.6
			Unidentified Fish	1		

NA - Gut cavity was empty

y - Yes

Table 3 - 2017 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-18655	Blue Crab	NA	-	32.1
	CLO5830	B12B-TF-18674	Empty Gut	NA	-	NA
	CLO5830	B12B-TF-18675	Empty Gut	NA	-	NA
Reef	LVB5841	B12B-TF-18645	Blue Crab	1	-	21.2
	LVB5841	B12B-TF-18646	Blue Crab	1	-	13.0
			Sand Eel	1		
	LVB5841	B12B-TF-18673	Empty Gut	NA	y	NA
Marsh	LVB6950	B12B-TF-18648	Empty Gut	NA	-	NA
	LVB6950	B12B-TF-18649	Empty Gut	NA	y	NA
	LVB6950	B12B-TF-18654	Spartina vegetation	1	y	15.3
			Oyster Toadfish	1		
			Mullet	1		
	LVB6837	B12B-TF-18668	Unidentified Fish	1	-	5.0
			Blue Crab	1		
	LVB6837	B12B-TF-18676	Empty Gut	NA	-	NA
	LVB6837	B12B-TF-18680	Blue Crab	1	-	2.1
	LVB6880	B12b-TF-18689	Blue Crab	2	-	58.1
	LVB6880	B12B-TF-18690	Blue Crab	2	y	9.1
			Mullet	1		
			Penaeid Shrimp	5		
	LVB6880	B12B-TF-18693	Mullet	1	-	16.8
			Penaeid Shrimp	NA		
	LVB6870	B12B-TF-18632	Blue Crab	NA	-	5.4
	LVB6870	B12B-TF-18633	Empty Gut	NA	-	NA
	LVB5839	B12B-TF-18635	Blue Crab	1	y	7.9
	LVB5838	B12B-TF-18636	Palaemonetes	1	y	2.3
	LVB5838	B12B-TF-18637	Empty Gut	NA	y	NA
	LVB5838	B12B-TF-18638	Empty Gut	NA	-	NA
	LVB6871	B12B-TF-18640	Empty Gut	NA	-	NA
	LVB6871	B12B-TF-18641	Empty Gut	NA	-	NA
	LVB5839	B12B-TF-18642	Empty Gut	NA	y	NA
	LVB5839	B12B-TF-18643	Empty Gut	NA	-	NA
	LVB6870	B12B-TF-18656	Inorganic (lure)	NA	-	23.2
			Pinaeid Shrimp	NA		
	LVB6871	B12B-TF-18665	Mullet	3	y	52.4
			Polychaete	1		
			Pinaeid Shrimp	1		
	LVB6850	B12B-TF-18677	Empty Gut	NA	-	NA
	LVB6850	B12B-TF-18682	Empty Gut	NA	y	NA
	LVB6850	B12B-TF-18692	Blue Crab	1	y	6.8

NA - Gut cavity was empty

y - Yes

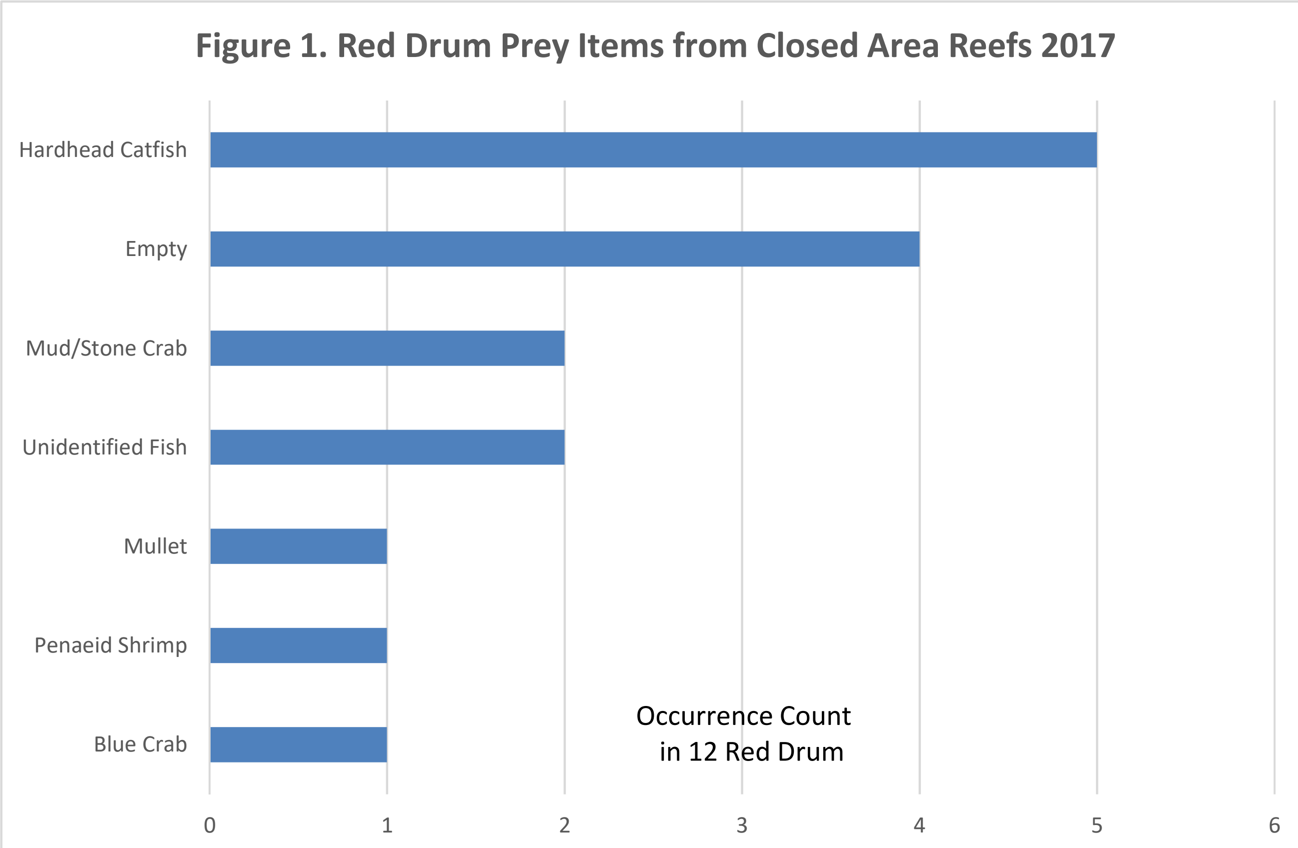


Figure 1. Red Drum Prey Items from Closed Area Reefs 2017
Hardhead Catfish
Empty
Mud/Stone Crab
Unidentified Fish
Mullet
Penaeid Shrimp
Blue Crab
Occurrence Count
in 12 Red Drum
0
1
2
3
4
5
6

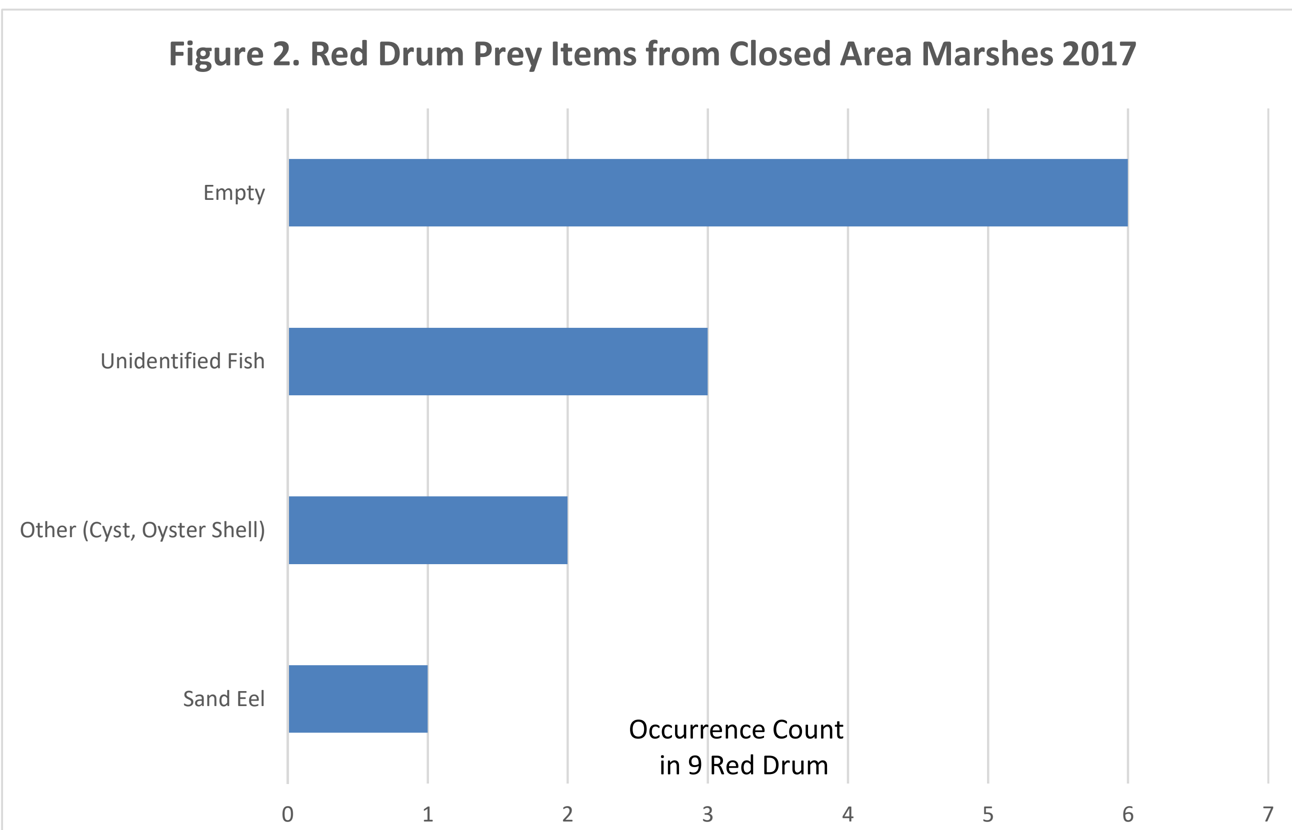


Figure 2. Red Drum Prey Items from Closed Area Marshes 2017
Empty
Unidentified Fish
Other (Cyst, Oyster Shell)
Sand Eel
Occurrence Count
in 9 Red Drum
0
1
2
3
4
5
6
7

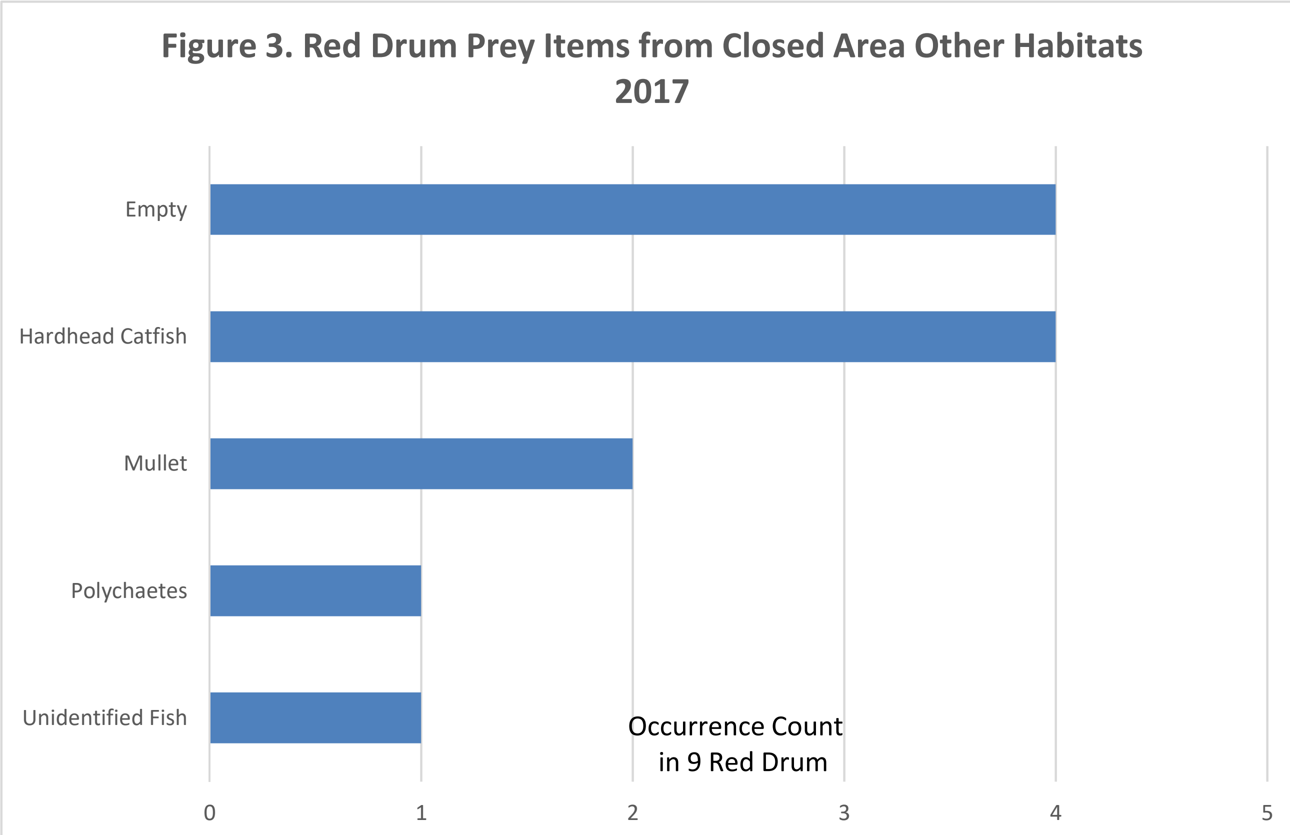


Figure 3. Red Drum Prey Items from Closed Area Other Habitats 2017
Empty
Hardhead Catfish
Mullet
Polychaetes
Unidentified Fish
Occurrence Count in 9 Red Drum
0
1
2
3
4
5

Figure 4. Red Drum Prey Items from Adjacent Area Reefs 2017

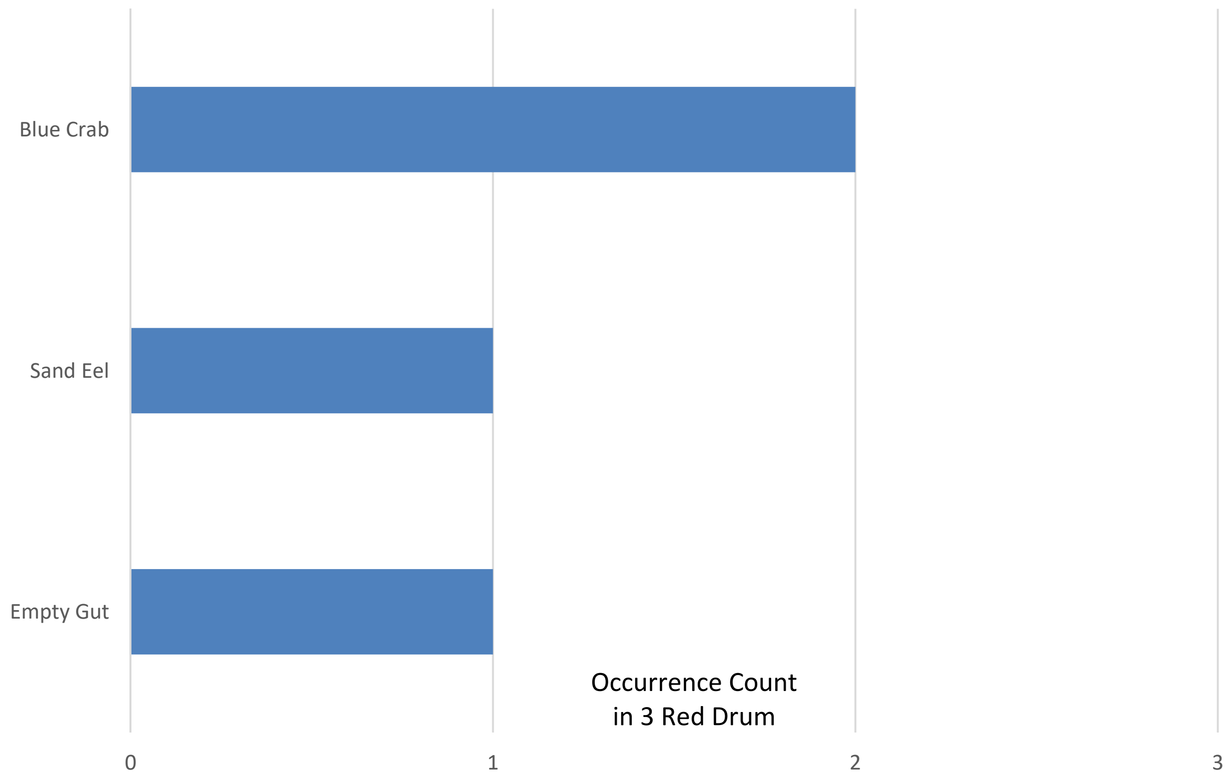
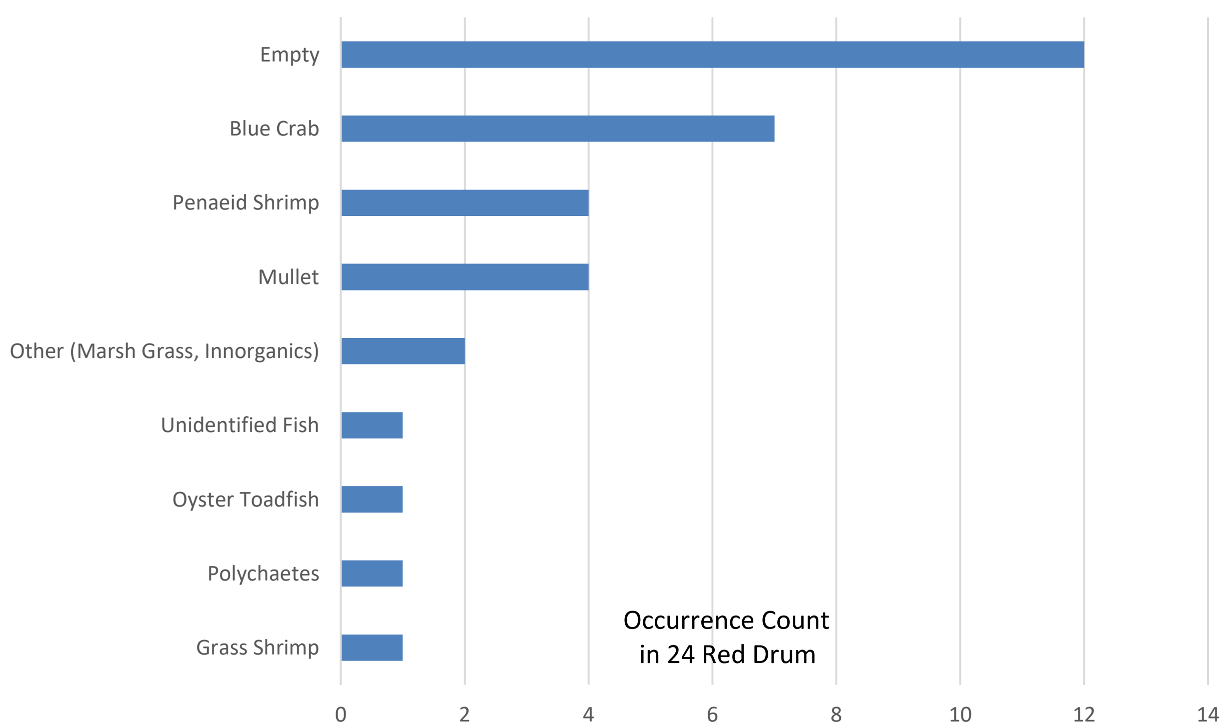


Figure 5. Red Drum Prey Items from Adjacent Area Marshes 2017



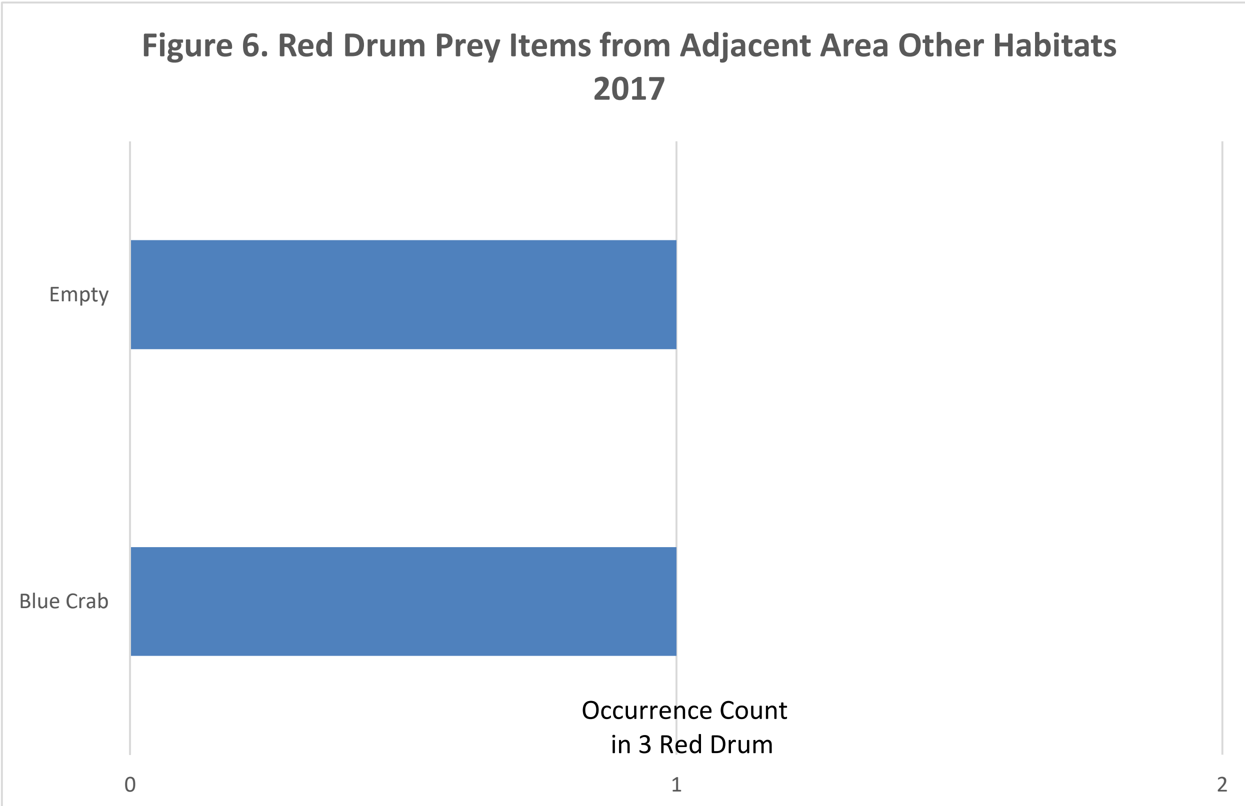


Figure 6. Red Drum Prey Items from Adjacent Area Other Habitats 2017
Empty
Blue Crab
Occurrence Count in 3 Red Drum
0
1
2

Attachment 1

Representative Photos: Lavaca Bay Gut Content Report 2017

Station ID CLO5802, Sample ID B12b-TF-18639

Station ID CLO5802, Sample ID B12b-TF-18639

Station ID LVB5841, Sample ID B12b-TF-18645

Station ID LVB5841, Sample ID B12b-TF-18646

Station ID CLO5815, Sample ID B12b-TF-18650

Station ID LVB6950, Sample ID B12b-TF-18654

Station ID CLO5830, Sample ID B12b-TF-18655

Station ID LVB6870, Sample ID B12b-TF-18656

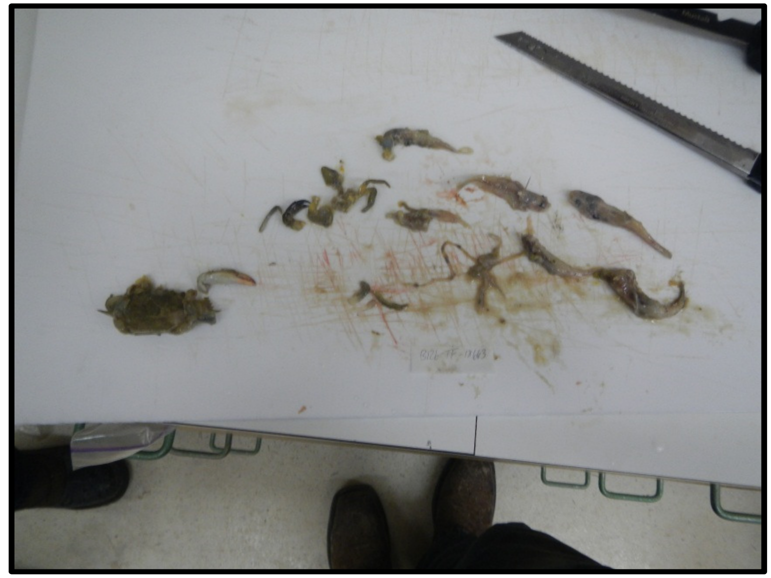
Station ID LVB5803, Sample ID B12b-TF-18657

Station ID CLO5802, Sample ID B12b-TF-18658

Station ID CLO5802, Sample ID B12b-TF-18659

Station ID LVB5508, Sample ID B12b-TF-18660

Station ID CLO5816, Sample ID B12b-TF-18662



Station ID CLO5816, Sample ID B12b-TF-18663

Station ID LVB6871, Sample ID B12b-TF-18665

Station ID LVB5508, Sample ID B12b-TF-18666

Station ID CLO5803, Sample ID B12b-TF-18667

Station ID LVB6837, Sample ID B12b-TF-18668

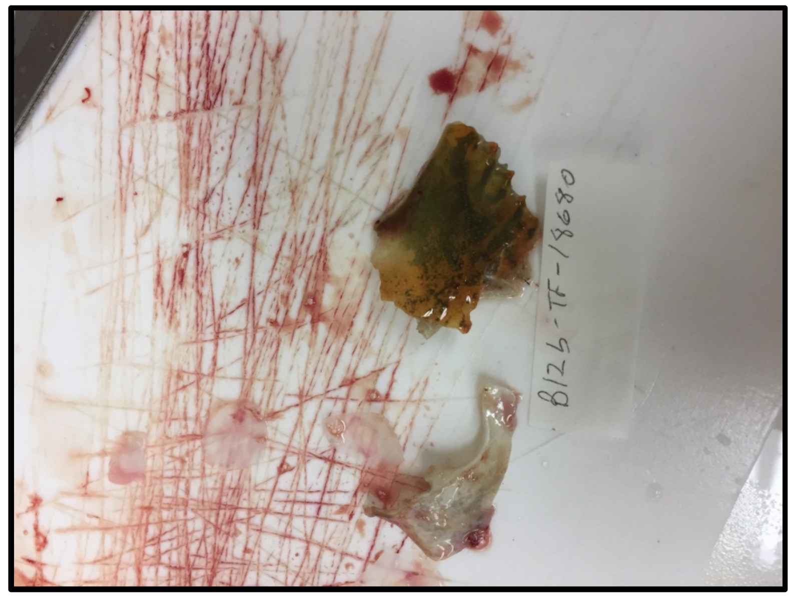
Station ID CLO5900, Sample ID B12b-TF-18684

Station ID LVB6880, Sample ID B12b-TF-18689

Station ID LVB6880, Sample ID B12b-TF-18690

Station ID CLO5900, Sample ID B12b-TF-18691

Station ID LVB6880, Sample ID B12b-TF-18693



Station ID LVB6837, Sample ID B12b-TF-18680

Station ID CLO5818, Sample ID B12b-TF-18695

Station ID CLO5818, Sample ID B12b-TF-18696

Station ID LVB5513, Sample ID B12b-TF-18697

Station ID CLO5818, Sample ID B12b-TF-18630

Station ID CLO5815, Sample ID B12b-TF-18634

Station ID LVB6870, Sample ID B12b-TF-18632

APPENDIX D3
LAVACA BAY SUPPLEMENTAL RED DRUM MONITORING REPORT

SUPPLEMENTAL FINFISH COLLECTION REPORT 2017

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

February 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

Benchmark	Benchmark Ecological Services, Inc.
CPUE	Catch Per Unit Effort
GPS	Global Positioning System

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 requires annual monitoring of finfish and shellfish for total mercury (Alcoa, 2005).

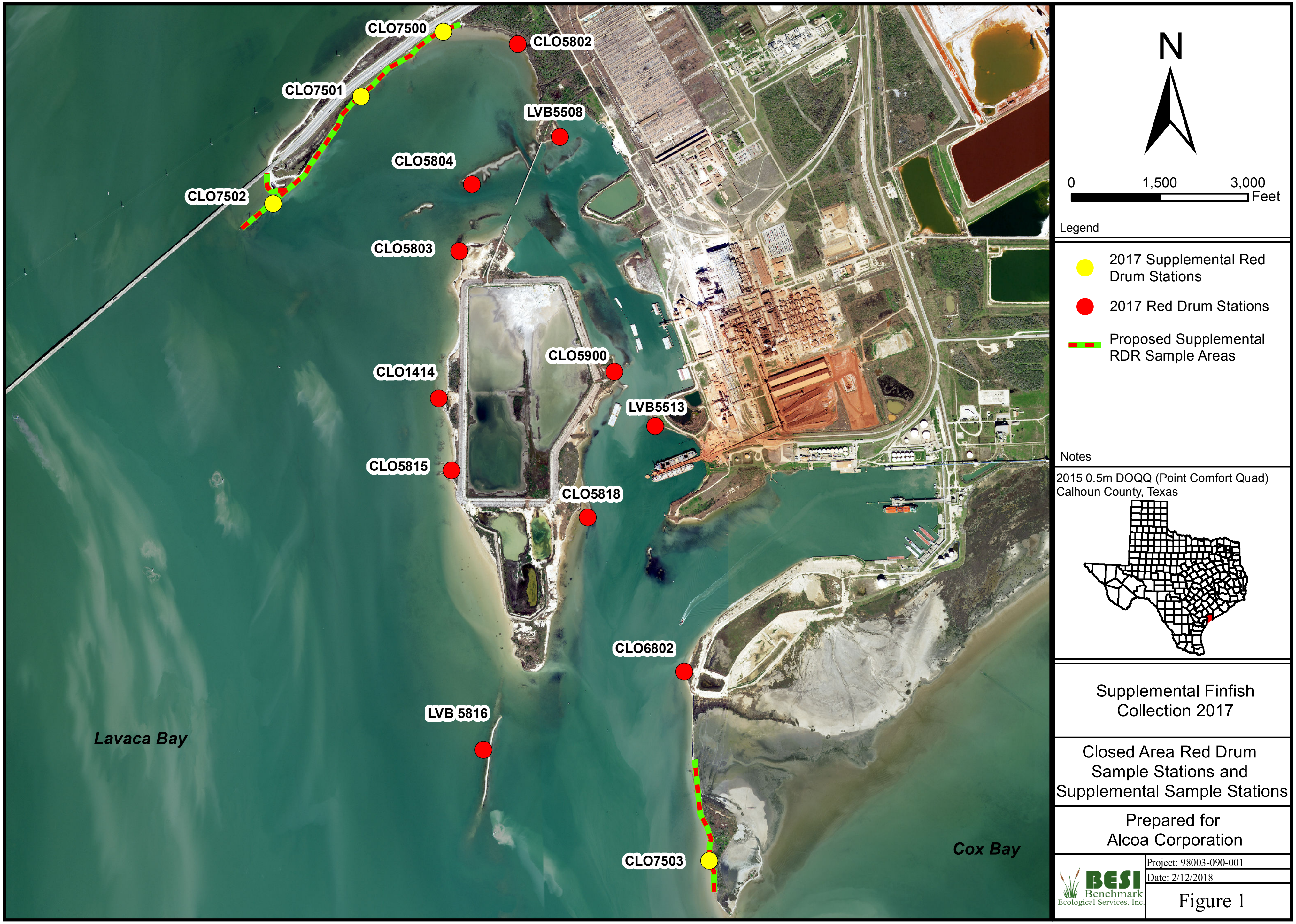
Existing red drum sampling locations, shown in Figure 1, provide adequate spatial representation of the Closed Area. However, two additional areas (Figure 1) within the Closed Area have not previously been routinely sampled and may provide additional information on mercury accumulation trends and red drum habitat preference. In 2017 Benchmark Ecological Services, Inc. (Benchmark) set gill nets at the 4 supplemental stations shown on Figure 1, documented the number of red drum collected, and recorded the length and weight of each red drum captured. Catch Per Unit Effort (CPUE) was calculated for legal-size red drum (509 – 711 mm). CPUE is based on the number of legal-size red drum caught per hour of fishing effort.

1.1 PURPOSE AND SCOPE

The objective of the program is to collect data to evaluate the availability of legal-sized red drum in the areas shown on Figure 1. While conducting the 2017 Annual Tissue Monitoring Event, Benchmark set a single gill net at each supplemental station (Figure 1) overnight during the dates summarized in Table 1. Benchmark measured and weighed each red drum retrieved from the nets the following morning after they were set. Legal-size red drum lengths and weights are summarized in Table 1. All finfish caught during the supplemental study were released. Field data was used to calculate the CPUE and the average number of hours required to catch one legal-sized red drum (Table 2).

1.2 SITE DESCRIPTION

The Alcoa Point Comfort Operations Plant 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 blue crabs for consumption by order of the Texas Department of Health (now Department of State Health Services).



M:\98003\090\001 Tissue\arc\results\Sup Net Figure 1.mxd

Table 1 - Supplemental Station Sampling Dates and Legal-Size Red Drum Data

Station ID	Gill Net Set Date	Gill Net Retrieve Date	Total Length [1] (mm)	Standard Length [1] (mm)	Total Weight [1] (g)
CLO7500	10/17/2017	10/18/2017	NA	NA	NA
	10/25/2017	10/26/2017	NA	NA	NA
	10/31/2017	11/1/2017	NA	NA	NA
	11/6/2017	11/7/2017	NA	NA	NA
	11/13/2017	11/14/2017	NA	NA	NA
CLO7501	10/17/2017	10/18/2017	NA	NA	NA
	10/25/2017	10/26/2017	NA	NA	NA
	10/31/2017	11/1/2017	NA	NA	NA
	11/6/2017	11/7/2017	NA	NA	NA
	11/13/2017	11/14/2017	NA	NA	NA
CLO7502	10/17/2017	10/18/2017	NA	NA	NA
	10/25/2017	10/26/2017	NA	NA	NA
	10/31/2017	11/1/2017	NA	NA	NA
	11/6/2017	11/7/2017	NA	NA	NA
	11/13/2017	11/14/2017	NA	NA	NA
CLO7503	10/18/2017	10/19/2017	574	470	1860
	10/25/2017	10/26/2017	662	550	2830
		10/26/2017	703	581	3820
		10/26/2017	677	563	3120
	10/29/2017	10/30/2017	660	540	3030
		10/30/2017	523	425	1500
		10/30/2017	686	570	3350
		10/30/2017	606	500	2400
		10/30/2017	683	575	3310
	11/5/2017	11/6/2017	678	575	3060
	11/12/2017	11/13/2017	662	550	2930
Average Values			**647**	**536**	**2837**

[1] Lengths and weights of legal size red drum

Table 2 - 2017 Annual Red Drum Monitoring Stations with Supplemental Sample Station CPUE and Effort for Legal-Size Red Drum Collection

Station ID	Total Hours[1]	Total Legal RDR Captured	CPUE	Average Total # of Hours / 1 Legal RDR
CLO1414	14	11	0.7857	1:19
CLO5814	16	4	0.2500	4:05
CLO7503	78	11	0.1410	5:59
LVB5513	16	2	0.1250	8:07
CLO5815	72	5	0.0694	14:20
CLO5900	63	3	0.0476	21:00
CLO6802	91	3	0.0330	30:18
CLO5804	97	3	0.0309	32:11
CLO5803	105	3	0.0286	34:54
CLO5802	122	3	0.0246	40:30
CLO5818	595	9	0.0151	66:09
CLO5816	292	3	0.0103	97:10
LVB5508	524	5	0.0095	104:51

[1] Total number of hours gill nets were set throughout the 2017 fall sample events

Supplemental Sample Station

CPUE = number of legal sized red drum caught per hour of fishing effort.

2.0 METHODS

Red drum were collected from the supplemental sample stations between 17 October 2017 and 13 November 2017. Sampling was conducted from a 24-foot aluminum boat. A Global Positioning System (GPS) was used to determine the locations of all sample stations.

Red drum specimens were collected using gill nets (6 feet x 150 feet) with 6-inch stretch mesh. A single gill net was set at each sample station in the evening, and the nets were allowed to fish overnight. The nets were retrieved the following morning, and all fish were removed. Red drum caught in the nets were weighed, measured, and released back into the bay.

2.1 SAMPLE STATIONS

Gill nets were set at the 4 supplemental sample stations shown on Figure 1. A single net was set at each of the 4 sample stations for a total of 5 separate nights.

2.2 SAMPLE PROCESSING

Red drum caught in the gill nets shown on Figure 1 and summarized Table 1 were weighed and measured before they were released back into the bay.

3.0 RESULTS

While non-target species and under-sized red drum were observed during the survey, only legal-size red drum were counted for CPUE evaluation. The number, weight, and length of legal-size red drum caught at supplemental sample stations are listed in Table 1. No legal-size red drum were caught from sample stations CLO7500, CLO7501, or CLO7502. Eleven legal-size red drum were captured from sample station CLO7503. CPUE and average number of hours to catch red drum for sample station CLO7503 and all other routine monitoring sample stations are compared in Table 2.

4.0 REFERENCES

Alcoa, 2005. 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 2005.

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

Station ID	Easting[1]	Northing[1]	Sample ID	Date	Time	Water Depth[2] (ft)	Total Hg (mg/kg) dry wt	Total Hg SQL[3] (mg/kg)	Total Hg Flag	% M wt%	% M SQL[3] (wt%)	TOC wt%-dry	TOC SQL[3] (wt%-dry)	TOC Flag
STO0201	2748607.84	13432756.43	SMP-SE-19005	11/10/2016	11:00	3.8	0.140	0.00110		55.9	0.0100	0.965	0.0600	
SMP004	2748602.91	13431868.98	SMP-SE-19006	11/10/2016	11:15	3.8	0.165	0.000843		40.5	0.0100	0.279	0.0600	
LVB0902	2747731.01	13432103.13	SMP-SE-19007	11/10/2016	11:30	3.8	0.0971	0.000694		28.0	0.0100	0.159	0.0600	
SMP0007	2747783.63	13431346.15	SMP-SE-19008	11/10/2016	11:40	5.0	0.184	0.000615		22.9	0.0100	ND	0.0600	U
STO0193	2748164.39	13431094.78	SMP-SE-19010	11/10/2016	12:00	4.3	0.441	0.000707		29.6	0.0100	0.18	0.0600	
ECC-017	2747361.87	13430972.27	SMP-SE-19011	11/10/2016	12:10	4.3	0.439	0.000976		50.0	0.0100	0.499	0.0600	
ECC-036	2747545.77	13430781.40	SMP-SE-19012	11/10/2016	12:25	4.3	0.407	0.000983		50.2	0.0100	0.570	0.0600	
ECC-031	2747598.59	13430453.47	SMP-SE-19013	11/10/2016	12:35	4.3	0.527	0.00116		56.8	0.0100	0.665	0.0600	
SMP0009	2748135.89	13430573.43	SMP-SE-19014	11/10/2016	12:50	4.2	0.448	0.000973		51.1	0.0100	0.788	0.0600	
STO0160	2748397.24	13430138.70	SMP-SE-19015	11/10/2016	13:00	4.9	0.211	0.000735		31.8	0.0100	0.195	0.0600	
SMP0014	2748632.06	13430042.69	SMP-SE-19016	11/10/2016	13:15	4.3	0.338	0.00115		58.3	0.0100	0.743	0.0600	
STO0203	2748586.42	13429641.29	SMP-SE-19017	11/10/2016	13:20	3.7	0.458	0.000804		40.7	0.0100	0.512	0.0600	
SUP0016	2748794.75	13428999.24	SMP-SE-19018	11/10/2016	13:30	3.7	0.325	0.000844		44.1	0.0100	0.555	0.0600	

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

[2] Water Depths are not calibrated to tidal level

[3]SQL - Sample Quantitation Limit

J+ - Matrix Spike Percent Recovery exceeded criteria of 85-115%

Table 2 - Marsh Sediment Stations, Sample IDs, and Results

Habitat	Station ID	Sample ID	Date	Total Hg				meHg			TOC	
				% M	(mg/kg) dry wt	SQL[1] (mg/kg)	Flag	% M	(ng/g) dry wt	Flag	% M	(wt%) dry wt
Marsh 15	Marsh-15-9R	SMP-SE-19002	10/24/2017	21.6	0.0437	0.000639		73.3	0.0333	J	21.6	0.141
	Marsh-15-10R	SMP-SE-19004	10/24/2017	24.5	0.121	0.000651		68.3	0.388		24.5	0.138
					0.0824							
Marsh 19	Marsh-19-4R	SMP-SE-19000	10/24/2017	22.5	0.0381	0.000631		68.7	0.0693		22.5	0.147
	Marsh-19-5R	SMP-SE-19001	10/24/2017	27.6	0.0948	0.000682		71.9	0.0888		27.6	0.348
					0.0665							

[1]SQL - Sample Quantitation Limit

J - Analyte detected below quantitation limits.

J+ - Field duplicate pair did not meet criteria of <20% Total Hg relative percent difference.

J++ - Field duplicate pair did not meet criteria of <35% MeHg relative percent difference.

U - Result less than 5 times the method blank average.

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
CLO5802	B12b-TS-19123	9/28/17	16:22	45.4	9.2	52.5	72.7	0.190	-
				59.9	20.8				
				56.0	15.3				
				26.5	2.1				
				38.8	5.1				
CLO5802	B12b-TS-19124	10/2/17	10:07	55.2	15.9	84.9	67.9	0.322	-
				61.5	25.4				
				49.9	10.4				
				66.9	24.8				
				45.7	8.4				
LVB5517	B12b-TS-19126	9/28/17	17:00	72.3	15.9	32.3	70.4	0.0999	-
				49.2	7.1				
				26.9	2.1				
				31.8	2.8				
				37.7	4.4				
CLO5815	B12b-TS-19133	9/28/17	16:52	45.5	6.2	20.1	64.6	0.450	-
				39.5	4.0				
				43.7	5.4				
				26.1	2.0				
				29.5	2.5				
CLO5803	B12b-TS-19145	9/28/17	16:35	45.7	9.4	24.8	69.6	0.201	-
				31.7	2.9				
				46.3	8.4				
				33.8	2.8				
				26.8	1.3				
CLO5814	B12b-TS-19147	9/28/17	15:50	66.9	19.3	42.5	67.6	0.0900	-
				39.7	4.8				
				31.2	2.2				
				36.4	3.1				
				57.0	13.1				
CLO5803	B12b-TS-19148	10/1/17	19:07	27.0	1.5	11.7	71.9	0.0821	-
				27.3	1.6				
				36.8	5.2				
				25.3	1.2				
				27.7	2.2				
CLO5802	B12b-TS-19149	10/2/17	10:07	52.1	12.2	77.5	70.5	0.328	-
				70.2	25.5				
				64.1	22.5				
				48.1	10.9				
				39.7	6.4				

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
LVB5517	B12b-TS-19150	9/28/17	17:00	25.7	1.7	44.8	73.1	0.101	-
				30.8	2.5				
				56.5	12.2				
				58.5	11.1				
				61.4	17.3				
LVB5508	B12b-TS-19152	10/4/17	12:09	53.6	11.0	72.9	67.2	0.195	-
				48.3	9.0				
				71.6	31.3				
				54.7	14.3				
				41.9	7.3				
CLO5815	B12b-TS-19156	10/3/17	9:18	41.2	5.5	68.7	68.1	0.267	-
				67.1	19.6				
				61.1	12.3				
				62.1	27.0				
				39.1	4.3				
LVB5517	B12b-TS-19157	10/4/17	11:17	57.1	13.8	54.3	65.0	0.115	-
				31.1	3.0				
				64.1	16.4				
				65.0	17.1				
				32.2	4.0				
CLO5900	B12b-TS-19158	10/4/17	11:50	39.0	5.9	34.1	67.5	0.070	-
				41.1	8.5				
				25.0	1.5				
				37.0	4.6				
				55.0	13.6				
CLO6802	B12b-TS-19159	10/5/17	15:21	38.3	4.2	27.2	66.5	0.0802	-
				33.6	2.4				
				53.4	10.0				
				45.0	6.7				
				31.3	3.9				
LVB5508	B12b-TS-19160	10/4/17	12:09	43.0	5.2	45.6	68.5	0.151	-
				33.0	4.0				
				67.4	25.8				
				32.3	4.3				
				38.0	6.3				
LVB5504	B12b-TS-19162	10/4/17	12:00	35.4	3.4	14.2	68.4	0.0850	-
				30.7	2.3				
				27.0	2.1				
				33.3	3.7				
				34.1	2.7				

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-19163	10/5/17	16:20	26.9	1.6	63.9	69.4	0.177	-
				28.8	2.5				
				73.6	23.7				
				71.3	32.6				
				32.7	3.5				
LVB5504	B12b-TS-19164	10/9/17	11:00	32.3	2.4	7.7	68.3	0.0387	-
				31.3	1.6				
				27.3	1.3				
				26.4	1.2				
				25.2	1.2				
CLO6802	B12b-TS-19165	10/9/17	10:25	35.6	5.0	13.0	67.6	0.0455	-
				28.3	1.7				
				33.2	2.4				
				30.9	2.2				
				28.3	1.7				
CLO5803	B12b-TS-19166	10/5/17	16:00	34.7	3.5	12.1	67.0	0.0843	-
				31.8	2.8				
				27.7	1.5				
				29.4	2.0				
				29.4	2.3				
LVB5513	B12b-TS-19167	10/5/17	15:40	65.2	16.3	49.9	71.4	0.0869	-
				33.9	3.2				
				44.0	6.7				
				47.5	8.4				
				60.4	15.3				
CLO5900	B12b-TS-19168	10/11/17	9:30	26.5	1.4	30.2	66.6	0.173	-
				39.4	4.9				
				56.8	13.0				
				30.6	2.0				
				50.8	8.9				
CLO5900	B12b-TS-19169	10/15/17	17:50	49.8	11.1	30.5	65.9	0.0850	-
				45.3	8.6				
				36.0	3.2				
				34.4	3.1				
				36.8	4.5				
LVB5504	B12b-TS-19170	10/11/17	9:18	39.1	4.1	31.2	67.8	0.0968	-
				27.0	1.3				
				28.4	1.5				
				29.3	1.7				
				67.3	22.6				

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
CLO5814	B12b-TS-19171	10/12/17	9:55	39.7	5.1	31.2	69.9	0.0637	-
				25.2	1.1				
				48.9	9.0				
				44.1	6.8				
				48.2	9.2				
CLO6802	B12b-TS-19172	10/11/17	10:05	43.8	5.9	23.9	66.8	0.0753	-
				34.6	3.5				
				31.9	2.8				
				50.6	8.8				
				31.0	2.9				
LVB5513	B12b-TS-19174	10/16/17	10:50	32.3	2.8	25.6	65.0	0.0992	-
				55.9	15.1				
				27.7	1.5				
				28.2	2.0				
				37.2	4.2				
CLO5815	B12b-TS-19175	10/16/17	11:20	51.2	8.7	31.7	68.0	0.1453	-
				48.3	7.1				
				36.1	4.5				
				50.5	8.7				
				34.3	2.7				
LVB5513	B12b-TS-19177	10/19/17	9:35	73.0	23.2	32.0	70.3	0.0868	-
				29.4	1.7				
				31.4	2.7				
				35.0	2.7				
				28.6	1.7				
CLO5814	B12b-TS-19180	10/19/17	9:25	28.6	1.8	28.4	58.3	0.0712	-
				31.0	2.6				
				52.0	12.0				
				39.3	5.0				
				44.7	7.0				
Average Values				**41.8**	**7.5**	**37.3**	**67.9**	**0.1367**	**-**

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
LVB6853	B12b-TS-19125	10/2/17	12:06	59.7	17.4	72.5	70.8	0.0569	-
				71.3	28.1				
				58.4	14.9				
				34.9	3.6				
				46.3	8.5				
LVB6850	B12b-TS-19127	9/28/17	13:37	39.4	4.7	24.7	68.0	0.0581	-
				39.7	6.4				
				30.5	2.6				
				32.6	3.4				
				47.2	7.6				
LVB6850	B12b-TS-19128	10/2/17	11:25	38.9	3.9	20.6	69.2	0.0439	-
				38.2	4.7				
				37.4	3.5				
				36.9	4.3				
				38.6	4.2				
LVB6850	B12b-TS-19129	10/2/17	11:25	37.3	4.4	15.9	64.0	0.0611	-
				32.0	2.9				
				29.0	2.3				
				27.2	1.7				
				37.3	4.6				
LVB6870	B12b-TS-19130	9/28/17	15:02	66.8	19.3	62.5	68.2	0.0593	-
				43.0	8.0				
				53.5	10.9				
				32.0	2.6				
				65.0	21.7				
LVB6870	B12b-TS-19131	9/28/17	15:02	35.1	3.8	26.6	70.4	0.0497	-
				48.2	9.8				
				45.1	7.6				
				33.4	3.1				
				27.7	2.3				
LVB6870	B12b-TS-19132	9/28/17	15:02	51.0	7.1	30.5	66.0	0.0455	-
				55.8	10.2				
				39.8	5.7				
				36.3	4.0				
				38.3	3.5				
LVB6837	B12b-TS-19134	9/28/17	17:26	29.8	2.6	16.9	69.4	0.0677	-
				38.0	3.7				
				38.7	4.4				
				29.3	2.0				
				38.4	4.2				

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-19135	10/2/17	11:37	28.0	1.6	16.3	67.8	0.0635	-
				40.7	4.2				
				29.7	2.2				
				41.0	5.6				
				29.7	2.7				
LVB6852	B12b-TS-19136	9/28/17	14:04	25.8	1.7	90.2	67.8	0.144	-
				38.2	5.0				
				69.1	25.6				
				67.5	26.2				
				73.0	31.7				
LVB6880	B12b-TS-19137	9/28/17	13:53	67.6	21.5	60.3	70.2	0.0440	-
				45.9	6.9				
				40.5	5.6				
				64.4	23.3				
				31.0	3.0				
LVB6880	B12b-TS-19138	10/2/17	10:40	29.0	1.9	67.5	66.4	0.0595	-
				67.3	22.8				
				64.0	20.1				
				40.0	5.6				
				58.7	17.1				
LVB6880	B12b-TS-19139	10/2/17	10:40	57.4	13.0	40.5	66.0	0.0451	-
				43.9	8.0				
				27.1	1.5				
				55.2	6.0				
				56.3	12.0				
LVB6871	B12b-TS-19140	9/28/17	15:31	54.5	17.7	78.9	67.0	0.0502	-
				70.4	29.4				
				39.8	5.2				
				61.2	22.3				
				34.7	4.3				
LVB6871	B12b-TS-19141	9/28/17	15:31	28.5	2.3	53.1	69.8	0.0437	-
				67.8	24.7				
				57.6	17.6				
				39.0	5.8				
				32.3	2.7				
LVB6871	B12b-TS-19142	10/1/17	17:41	60.2	18.1	47.0	71.8	0.0344	-
				63.7	19.1				
				33.6	4.0				
				29.4	2.7				
				33.1	3.1				

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
LVB5839	B12b-TS-19143	9/28/17	13:25	40.8	6.0	51.6	64.9	0.0562	-
				40.0	4.5				
				72.9	30.8				
				35.7	4.2				
				39.2	6.1				
LVB5839	B12b-TS-19144	10/2/17	11:50	57.9	13.5	31.0	69.8	0.0454	-
				43.1	6.2				
				42.3	6.2				
				31.7	2.8				
				31.5	2.3				
LVB6837	B12b-TS-19146	10/2/17	11:37	33.1	2.6	14.4	69.5	0.0301	-
				30.8	2.9				
				36.8	4.5				
				28.5	2.3				
				28.8	2.1				
LVB6852	B12b-TS-19151	10/2/17	10:52	73.2	36.4	126.9	67.5	0.101	-
				74.4	34.7				
				68.1	26.5				
				70.9	24.9				
				36.8	4.4				
LVB6853	B12b-TS-19153	10/2/17	12:06	48.3	10.8	60.7	71.9	0.0539	-
				59.4	17.1				
				59.1	16.9				
				55.0	15.0				
				27.3	0.9				
LVB6853	B12b-TS-19154	10/4/17	10:47	70.7	30.8	85.1	68.8	0.450	-
				48.4	8.8				
				57.6	14.6				
				49.1	11.6				
				62.2	19.3				
LVB5839	B12b-TS-19155	10/2/17	11:50	27.2	2.4	12.9	70.4	0.0359	-
				29.1	2.6				
				25.1	1.4				
				37.0	4.6				
				28.1	1.9				
LVB6852	B12b-TS-19161	10/4/17	9:43	32.2	3.8	24.1	70.1	0.0334	-
				25.0	1.8				
				26.2	2.0				
				44.3	9.9				
				38.4	6.6				

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
LVB5838	B12b-TS-19173	10/11/17	11:45	73.2	31.0	54.6	68.3	0.0594	-
				26.1	1.2				
				60.2	16.5				
				39.1	4.4				
				27.4	1.5				
LVB6975	B12b-TS-19176	10/22/17	16:58	25.0	1.0	7.6	64.7	0.0308	-
				28.8	1.7				
				30.5	2.0				
				27.0	1.4				
				26.4	1.5				
LVB5838	B12b-TS-19178	10/17/17	10:20	25.0	1.4	16.0	69.6	0.0120	-
				35.2	3.5				
				39.2	4.2				
				26.1	1.5				
				41.3	5.4				
LVB5838	B12b-TS-19179	10/22/17	17:24	38.7	3.7	16.8	65.8	0.0222	-
				25.4	1.3				
				40.9	4.0				
				40.0	4.8				
				36.5	3.0				
LVB6975	B12b-TS-19181	10/24/17	16:20	56.8	15.2	36.6	68.3	0.0383	-
				54.3	14.3				
				30.2	2.1				
				34.1	2.6				
				37.1	2.4				
CLO5814	B12b-TS-19182	10/24/17	16:20	43.7	5.7	45.8	65.6	0.0328	-
				48.4	10.6				
				73.9	24.1				
				29.5	1.7				
				36.5	3.7				
Average Values				**43.2**	**8.7**	**43.6**	**68.2**	**0.0645**	-

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
CLO5802	B12b-TS-19123	9/28/17	16:22	45.4	9.2	52.5	72.7	0.190	-
				59.9	20.8				
				56.0	15.3				
				26.5	2.1				
				38.8	5.1				
CLO5802	B12b-TS-19124	10/2/17	10:07	55.2	15.9	84.9	67.9	0.322	-
				61.5	25.4				
				49.9	10.4				
				66.9	24.8				
				45.7	8.4				
LVB5517	B12b-TS-19126	9/28/17	17:00	72.3	15.9	32.3	70.4	0.0999	-
				49.2	7.1				
				26.9	2.1				
				31.8	2.8				
				37.7	4.4				
CLO5815	B12b-TS-19133	9/28/17	16:52	45.5	6.2	20.1	64.6	0.450	-
				39.5	4.0				
				43.7	5.4				
				26.1	2.0				
				29.5	2.5				
CLO5803	B12b-TS-19145	9/28/17	16:35	45.7	9.4	24.8	69.6	0.201	-
				31.7	2.9				
				46.3	8.4				
				33.8	2.8				
				26.8	1.3				
CLO5814	B12b-TS-19147	9/28/17	15:50	66.9	19.3	42.5	67.6	0.0900	-
				39.7	4.8				
				31.2	2.2				
				36.4	3.1				
				57.0	13.1				
CLO5803	B12b-TS-19148	10/1/17	19:07	27.0	1.5	11.7	71.9	0.0821	-
				27.3	1.6				
				36.8	5.2				
				25.3	1.2				
				27.7	2.2				
CLO5802	B12b-TS-19149	10/2/17	10:07	52.1	12.2	77.5	70.5	0.328	-
				70.2	25.5				
				64.1	22.5				
				48.1	10.9				
				39.7	6.4				

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
LVB5517	B12b-TS-19150	9/28/17	17:00	25.7	1.7	44.8	73.1	0.101	-
				30.8	2.5				
				56.5	12.2				
				58.5	11.1				
				61.4	17.3				
LVB5508	B12b-TS-19152	10/4/17	12:09	53.6	11.0	72.9	67.2	0.195	-
				48.3	9.0				
				71.6	31.3				
				54.7	14.3				
				41.9	7.3				
CLO5815	B12b-TS-19156	10/3/17	9:18	41.2	5.5	68.7	68.1	0.267	-
				67.1	19.6				
				61.1	12.3				
				62.1	27.0				
				39.1	4.3				
LVB5517	B12b-TS-19157	10/4/17	11:17	57.1	13.8	54.3	65.0	0.115	-
				31.1	3.0				
				64.1	16.4				
				65.0	17.1				
				32.2	4.0				
CLO5900	B12b-TS-19158	10/4/17	11:50	39.0	5.9	34.1	67.5	0.070	-
				41.1	8.5				
				25.0	1.5				
				37.0	4.6				
				55.0	13.6				
CLO6802	B12b-TS-19159	10/5/17	15:21	38.3	4.2	27.2	66.5	0.0802	-
				33.6	2.4				
				53.4	10.0				
				45.0	6.7				
				31.3	3.9				
LVB5508	B12b-TS-19160	10/4/17	12:09	43.0	5.2	45.6	68.5	0.151	-
				33.0	4.0				
				67.4	25.8				
				32.3	4.3				
				38.0	6.3				
LVB5504	B12b-TS-19162	10/4/17	12:00	35.4	3.4	14.2	68.4	0.0850	-
				30.7	2.3				
				27.0	2.1				
				33.3	3.7				
				34.1	2.7				

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-19163	10/5/17	16:20	26.9	1.6	63.9	69.4	0.177	-
				28.8	2.5				
				73.6	23.7				
				71.3	32.6				
				32.7	3.5				
LVB5504	B12b-TS-19164	10/9/17	11:00	32.3	2.4	7.7	68.3	0.0387	-
				31.3	1.6				
				27.3	1.3				
				26.4	1.2				
				25.2	1.2				
CLO6802	B12b-TS-19165	10/9/17	10:25	35.6	5.0	13.0	67.6	0.0455	-
				28.3	1.7				
				33.2	2.4				
				30.9	2.2				
				28.3	1.7				
CLO5803	B12b-TS-19166	10/5/17	16:00	34.7	3.5	12.1	67.0	0.0843	-
				31.8	2.8				
				27.7	1.5				
				29.4	2.0				
				29.4	2.3				
LVB5513	B12b-TS-19167	10/5/17	15:40	65.2	16.3	49.9	71.4	0.0869	-
				33.9	3.2				
				44.0	6.7				
				47.5	8.4				
				60.4	15.3				
CLO5900	B12b-TS-19168	10/11/17	9:30	26.5	1.4	30.2	66.6	0.173	-
				39.4	4.9				
				56.8	13.0				
				30.6	2.0				
				50.8	8.9				
CLO5900	B12b-TS-19169	10/15/17	17:50	49.8	11.1	30.5	65.9	0.0850	-
				45.3	8.6				
				36.0	3.2				
				34.4	3.1				
				36.8	4.5				
LVB5504	B12b-TS-19170	10/11/17	9:18	39.1	4.1	31.2	67.8	0.0968	-
				27.0	1.3				
				28.4	1.5				
				29.3	1.7				
				67.3	22.6				

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
CLO5814	B12b-TS-19171	10/12/17	9:55	39.7	5.1	31.2	69.9	0.0637	-
				25.2	1.1				
				48.9	9.0				
				44.1	6.8				
				48.2	9.2				
CLO6802	B12b-TS-19172	10/11/17	10:05	43.8	5.9	23.9	66.8	0.0753	-
				34.6	3.5				
				31.9	2.8				
				50.6	8.8				
				31.0	2.9				
LVB5513	B12b-TS-19174	10/16/17	10:50	32.3	2.8	25.6	65.0	0.0992	-
				55.9	15.1				
				27.7	1.5				
				28.2	2.0				
				37.2	4.2				
CLO5815	B12b-TS-19175	10/16/17	11:20	51.2	8.7	31.7	68.0	0.1453	-
				48.3	7.1				
				36.1	4.5				
				50.5	8.7				
				34.3	2.7				
LVB5513	B12b-TS-19177	10/19/17	9:35	73.0	23.2	32.0	70.3	0.0868	-
				29.4	1.7				
				31.4	2.7				
				35.0	2.7				
				28.6	1.7				
CLO5814	B12b-TS-19180	10/19/17	9:25	28.6	1.8	28.4	58.3	0.0712	-
				31.0	2.6				
				52.0	12.0				
				39.3	5.0				
				44.7	7.0				
Average Values				**41.8**	**7.5**	**37.3**	**67.9**	**0.1367**	**-**

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
LVB6853	B12b-TS-19125	10/2/17	12:06	59.7	17.4	72.5	70.8	0.0569	-
				71.3	28.1				
				58.4	14.9				
				34.9	3.6				
				46.3	8.5				
LVB6850	B12b-TS-19127	9/28/17	13:37	39.4	4.7	24.7	68.0	0.0581	-
				39.7	6.4				
				30.5	2.6				
				32.6	3.4				
				47.2	7.6				
LVB6850	B12b-TS-19128	10/2/17	11:25	38.9	3.9	20.6	69.2	0.0439	-
				38.2	4.7				
				37.4	3.5				
				36.9	4.3				
				38.6	4.2				
LVB6850	B12b-TS-19129	10/2/17	11:25	37.3	4.4	15.9	64.0	0.0611	-
				32.0	2.9				
				29.0	2.3				
				27.2	1.7				
				37.3	4.6				
LVB6870	B12b-TS-19130	9/28/17	15:02	66.8	19.3	62.5	68.2	0.0593	-
				43.0	8.0				
				53.5	10.9				
				32.0	2.6				
				65.0	21.7				
LVB6870	B12b-TS-19131	9/28/17	15:02	35.1	3.8	26.6	70.4	0.0497	-
				48.2	9.8				
				45.1	7.6				
				33.4	3.1				
				27.7	2.3				
LVB6870	B12b-TS-19132	9/28/17	15:02	51.0	7.1	30.5	66.0	0.0455	-
				55.8	10.2				
				39.8	5.7				
				36.3	4.0				
				38.3	3.5				
LVB6837	B12b-TS-19134	9/28/17	17:26	29.8	2.6	16.9	69.4	0.0677	-
				38.0	3.7				
				38.7	4.4				
				29.3	2.0				
				38.4	4.2				

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-19135	10/2/17	11:37	28.0	1.6	16.3	67.8	0.0635	-
				40.7	4.2				
				29.7	2.2				
				41.0	5.6				
				29.7	2.7				
LVB6852	B12b-TS-19136	9/28/17	14:04	25.8	1.7	90.2	67.8	0.144	-
				38.2	5.0				
				69.1	25.6				
				67.5	26.2				
				73.0	31.7				
LVB6880	B12b-TS-19137	9/28/17	13:53	67.6	21.5	60.3	70.2	0.0440	-
				45.9	6.9				
				40.5	5.6				
				64.4	23.3				
				31.0	3.0				
LVB6880	B12b-TS-19138	10/2/17	10:40	29.0	1.9	67.5	66.4	0.0595	-
				67.3	22.8				
				64.0	20.1				
				40.0	5.6				
				58.7	17.1				
LVB6880	B12b-TS-19139	10/2/17	10:40	57.4	13.0	40.5	66.0	0.0451	-
				43.9	8.0				
				27.1	1.5				
				55.2	6.0				
				56.3	12.0				
LVB6871	B12b-TS-19140	9/28/17	15:31	54.5	17.7	78.9	67.0	0.0502	-
				70.4	29.4				
				39.8	5.2				
				61.2	22.3				
				34.7	4.3				
LVB6871	B12b-TS-19141	9/28/17	15:31	28.5	2.3	53.1	69.8	0.0437	-
				67.8	24.7				
				57.6	17.6				
				39.0	5.8				
				32.3	2.7				
LVB6871	B12b-TS-19142	10/1/17	17:41	60.2	18.1	47.0	71.8	0.0344	-
				63.7	19.1				
				33.6	4.0				
				29.4	2.7				
				33.1	3.1				

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
LVB5839	B12b-TS-19143	9/28/17	13:25	40.8	6.0	51.6	64.9	0.0562	-
				40.0	4.5				
				72.9	30.8				
				35.7	4.2				
				39.2	6.1				
LVB5839	B12b-TS-19144	10/2/17	11:50	57.9	13.5	31.0	69.8	0.0454	-
				43.1	6.2				
				42.3	6.2				
				31.7	2.8				
				31.5	2.3				
LVB6837	B12b-TS-19146	10/2/17	11:37	33.1	2.6	14.4	69.5	0.0301	-
				30.8	2.9				
				36.8	4.5				
				28.5	2.3				
				28.8	2.1				
LVB6852	B12b-TS-19151	10/2/17	10:52	73.2	36.4	126.9	67.5	0.101	-
				74.4	34.7				
				68.1	26.5				
				70.9	24.9				
				36.8	4.4				
LVB6853	B12b-TS-19153	10/2/17	12:06	48.3	10.8	60.7	71.9	0.0539	-
				59.4	17.1				
				59.1	16.9				
				55.0	15.0				
				27.3	0.9				
LVB6853	B12b-TS-19154	10/4/17	10:47	70.7	30.8	85.1	68.8	0.450	-
				48.4	8.8				
				57.6	14.6				
				49.1	11.6				
				62.2	19.3				
LVB5839	B12b-TS-19155	10/2/17	11:50	27.2	2.4	12.9	70.4	0.0359	-
				29.1	2.6				
				25.1	1.4				
				37.0	4.6				
				28.1	1.9				
LVB6852	B12b-TS-19161	10/4/17	9:43	32.2	3.8	24.1	70.1	0.0334	-
				25.0	1.8				
				26.2	2.0				
				44.3	9.9				
				38.4	6.6				

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
LVB5838	B12b-TS-19173	10/11/17	11:45	73.2	31.0	54.6	68.3	0.0594	-
				26.1	1.2				
				60.2	16.5				
				39.1	4.4				
				27.4	1.5				
LVB6975	B12b-TS-19176	10/22/17	16:58	25.0	1.0	7.6	64.7	0.0308	-
				28.8	1.7				
				30.5	2.0				
				27.0	1.4				
				26.4	1.5				
LVB5838	B12b-TS-19178	10/17/17	10:20	25.0	1.4	16.0	69.6	0.0120	-
				35.2	3.5				
				39.2	4.2				
				26.1	1.5				
				41.3	5.4				
LVB5838	B12b-TS-19179	10/22/17	17:24	38.7	3.7	16.8	65.8	0.0222	-
				25.4	1.3				
				40.9	4.0				
				40.0	4.8				
				36.5	3.0				
LVB6975	B12b-TS-19181	10/24/17	16:20	56.8	15.2	36.6	68.3	0.0383	-
				54.3	14.3				
				30.2	2.1				
				34.1	2.6				
				37.1	2.4				
CLO5814	B12b-TS-19182	10/24/17	16:20	43.7	5.7	45.8	65.6	0.0328	-
				48.4	10.6				
				73.9	24.1				
				29.5	1.7				
				36.5	3.7				
Average Values				**43.2**	**8.7**	**43.6**	**68.2**	**0.0645**	-

Sample ID	Catch ID	Station	Spec.	Area	Org. ID	Width (mm)	Org. Wt. (g)	Composite Wt.	Abnormalities	Date Collected	Time Collected	Remarks	Date Processed	Time Processed	Scribe	Processed By:	Tot. Jar Wt. (g)	Tare Wt. (g)	Sample Tiss. Wt. (g)	flag		
					1	45.4	9.2			09/28/17	16:22											
					2	59.9	20.8			09/28/17	16:22											
B12b-TS-19123		CLO5802	JBC	CLO	3	56	15.3	52.5		09/28/17	16:22						82.2	29.063	53.137		09/28/17	16:22
					4	26.5	2.1			09/28/17	16:22											
					5	38.8	5.1		missing claw	09/28/17	16:22		10/02/17	15:02	rc	rm						
					1	55.2	15.9		leaches	10/02/17	10:07											
					2	61.5	25.4		leaches	10/02/17	10:07											
B12b-TS-19124		CLO5802	JBC	CLO	3	49.9	10.4	84.9		10/02/17	10:07						112.1	29.011	83.089		10/02/17	10:07
					4	66.9	24.8		Missing 2 legs	10/02/17	10:07											
					5	45.7	8.4			10/02/17	10:07		10/02/17	15:07	rc	rm						
					1	72.3	15.9			09/28/17	17:00											
					2	49.15	7.1			09/28/17	17:00											
B12b-TS-19126		LVB5517	JBC	CLO	3	26.9	2.1	32.3		09/28/17	17:00						62.3	29.483	32.817		09/28/17	17:00
					4	31.8	2.8		missing claw	09/28/17	17:00											
					5	37.7	4.4			09/28/17	17:00		10/02/17	15:24	rc	rm						
					1	45.5	6.2			09/28/17	16:52											
					2	39.5	4			10/02/17	9:53											
B12b-TS-19133		CLO5815	JBC	CLO	3	43.7	5.4	20.1		10/02/17	9:53						49.7	29.03	20.67		09/28/17	16:52
					4	26.1	2			10/02/17	9:53											
					5	29.5	2.5		missing claw	10/03/17	9:18		10/03/17	10:33	rc	rm						
					1	45.7	9.4			09/28/17	16:35											
					2	31.7	2.9			09/28/17	16:35											
B12b-TS-19145		CLO5803	JBC	CLO	3	46.3	8.4	24.8		10/01/17	19:07						54.8	29.418	25.382		09/28/17	16:35
					4	33.8	2.8			10/01/17	19:07											
					5	26.8	1.3			10/01/17	19:07		10/03/17	12:15	rc	rm						
					1	66.9	19.3			09/28/17	15:50											
					2	39.7	4.8			10/02/17	9:12											
B12b-TS-19147		CLO5814	JBC	CLO	3	31.2	2.2	42.5		10/02/17	9:12						71.8	28.943	42.857		09/28/17	15:50
					4	36.4	3.1			10/04/17	11:34											
					5	57	13.1			10/04/17	11:34		10/04/17	NR	rc	rm						
					1	27	1.5		soft shell	10/01/17	19:07											
					2	27.3	1.6			10/01/17	19:07											
B12b-TS-19148		CLO5803	JBC	CLO	3	36.8	5.2	11.7		10/04/17	12:21						41.5	29.14	12.36		10/01/17	19:07
					4	25.3	1.2			10/04/17	12:21											
					5	27.7	2.2			10/04/17	12:21		10/04/17	NR	rc	rm						
					1	52.1	12.2			10/02/17	10:07											
					2	70.2	25.5		regrowing claw	10/02/17	10:07											
B12b-TS-19149		CLO5802	JBC	CLO	3	64.1	22.5	77.5	regrowing claw	10/02/17	10:07						106.7	28.895	77.805		10/02/17	10:07
					4	48.1	10.9			10/02/17	10:07											
					5	39.7	6.4			10/04/17	12:30		10/04/17	NR	rc	rm						
					1	25.7	1.7			09/28/17	17:00											
					2	30.8	2.5		regrowing both claws	10/02/17	9:22											
B12b-TS-19150		LVB5517	JBC	CLO	3	56.5	12.2	44.8	soft shell	10/02/17	9:22						74.9	29.588	45.312		09/28/17	17:00
					4	58.5	11.1		no claws	10/04/17	11:17											
					5	61.4	17.3		Regrowing 1 claw, 1 leg	10/04/17	11:17		10/04/17	NR	rc	rm						
					1	53.6	11			10/04/17	12:09											
					2	48.3	9			10/04/17	12:09											
B12b-TS-19152		LVB5508	JBC	CLO	3	71.6	31.3	72.9		10/04/17	12:09						102.3	29.068	73.232		10/04/17	12:09
					4	54.7	14.3			10/04/17	12:09											
					5	41.9	7.3			10/04/17	12:09		10/04/17	NR	rc	rm						
					1	41.2	5.5			10/03/17	9:18											
					2	67.1	19.6			10/04/17	11:06											
B12b-TS-19156		CLO5815	JBC	CLO	3	61.1	12.3	68.7		10/04/17	11:06						86.3	29.327	56.973		10/03/17	9:18
					4	62.1	27			10/04/17	11:06											
					5	39.1	4.3			10/05/17	11:00		10/05/17	14:00	rm	kk						
					1	57.1	13.8			10/04/17	11:17											
					2	31.1	3			10/04/17	11:17											
B12b-TS-19157		LVB5517	JBC	CLO	3	64.1	16.4	54.3		10/05/17	15:11	jar noted with 2 labels					85.7	30.214	55.486		10/04/17	11:17
					4	65	17.1			10/05/17	15:11											
					5	32.2	4			10/09/17	10:15		10/09/17	14:00	rm	kk						
					1	39	5.9			10/04/17	11:50											
					2	41.1	8.5			10/05/17	15:50											
B12b-TS-19158		CLO5900	JBC	CLO	3	25	1.5	34.1		10/05/17	15:50	jar noted with 2 labels					65.3	30.545	34.755		10/04/17	11:50
					4	37	4.6			10/09/17	10:50											
					5	55	13.6			10/09/17	10:50		10/09/17	14:10	rm	kk						
					1	38.3	4.2			10/05/17	15:21											
					2	33.6	2.4			10/05/17	15:21											
B12b-TS-19159		CLO6802	JBC	CLO	3	53.4	10	27.2		10/05/17	15:21						56.5	28.772	27.728		10/05/17	15:21
					4	45	6.7			10/05/17	15:21											
					5	31.3	3.9			10/09/17	10:25		10/09/17	14:20	rm	kk						
					1	43	5.2			10/04/17	12:09											
					2	33	4			10/04/17	12:09											
B12b-TS-19160		LVB5508	JBC	CLO	3	67.4	25.8	45.6		10/04/17	12:09	jar noted with 2 labels					76.3	30.209	46.091		10/04/17	12:09
					4	32.3	4.3			10/05/17	16:20											
					5	38	6.3			10/05/17	16:20		10/09/17	14:30	rm	kk						
					1	35.4	3.4			10/04/17	12:00											
					2	30.7	2.3			10/04/17	12:00											
B12b-TS-19162	Duplicate, MS	LVB5504	JBC	CLO	3	27	2.1	14.2		10/04/17	12:00						43.7	29.013	14.687		10/04/17	12:00
					4	33.3	3.7			10/05/17	16:10											
					5	34.1	2.7			10/09/17	11:00		10/09/17	14:45	rm	kk						
					1	26.9	1.6		missing both claws	10/05/17	16:20											
					2	28.8	2.5			#N/A	16:20											
B12b-TS-19163		LVB5508	JBC	CLO	3	73.6	23.7	63.9	missing left claw	10/09/17	11:09						93.2	28.865	64.335		10/05/17	16:20
					4	71.3	32.6			10/09/17	11:09											
					5	32.7	3.5			10/11/17	9:10		10/11/17	15:40	kk	rm						
					1	32.3	2.4			10/09/17	11:00											
					2	31.3	1.6		missing left claw	10/09/17	11:00											
B12b-TS-19164		LVB5504	JBC	CLO	3	27.3	1.3	7.7		10/09/17	11:00						37.1	28.944	8.156		10/09/17	11:00
					4	26.4	1.2			10/09/17	11:00											
					5	25.2	1.2			10/11/17	9:18		10/11/17	15:50	kk	rm						
					1	35.6	5			10/09/17	10:25											
					2	28.3	1.7		missing left claw	10/09/17	10:25											
B12b-TS-19165		CLO6802	JBC	CLO	3	33.2	2.4	13	missing right claw	10/11/17	10:05						42.8	29.163	13.637		10/09/17	10:25
					4	30.9	2.2			10/11/17	10:05											
					5	28.3	1.7			10/11/17	10:05		10/11/17	15:55	kk	rm						
					1	34.7	3.5			10/05/17	16:00											
					2	31.8	2.8			10/05/17	16:00											
B12b-TS-19166		CLO5803	JBC	CLO	3	27.7	1.5	12.1	missing left claw	10/09/17	9:50						41.8	29.128	12.672		10/05/17	16:00
					4	29.4	2			10/11/17	10:55											
					5	29.4	2.3			10/11/17	10:55		10/11/17	16:20	kk	rm						
					1	65.2	16.3			10/05/17	15:40											
					2	33.9	3.2			10/05/17	15:40											
B12b-TS-19167		LVB5513	JBC	CLO	3	44	6.7	49.9		10/05/17	15:40						81.1	30.822	50.278		10/05/17	15:40
					4	47.5	8.4			10/11/17	9:53											
					5	60.4	15.3		has leaches, regrowing right c	10/11/17	9:53		10/11/17	16:30	kk	rm						
					1	26.5	1.4			10/11/17	9:30											
					2	39.4	4.9			10/11/17	9:30											
B12b-TS-19168		CLO5900	JBC	CLO	3	56.8	13	30.2		10/11/17	9:30						61.6	30.816	30.784		10/11/17	9:30
					4	30.6	2			10/11/17	9:30											
					5	50.8	8.9			10/12/17	10:15		10/12/17	12:00	kk	rm						
					1	49.8	11.1			10/15/17	17:50											
					2	45.3	8.6			10/15/17	17:50											
B12b-TS-19169		CLO5900	JBC	CLO	3	36	3.2	30.5		10/15/17	17:50						60.4	29.488	30.912		10/15/17	17:50
					4	34.4	3.1			10/15/17	17:50											
					5	36.8	4.5			10/15/17	17:50		10/16/17	14:30	kk	rm						
					1	39.1	4.1			10/11/17	9:18											
					2	27	1.3			10/11/17	9:18											
B12b-TS-19170		LVB5504	JBC	CLO	3	28.4	1.5	31.2		10/11/17	9:18						60.9	29.164	31.736		10/11/17	9:18
					4	29.3	1.7			10/12/17	9:00											
					5	67.3	22.6			10/16/17	10:30		10/16/17	14:45	kk	rm						
					1	39.7	5.1			10/12/17	9:55											
					2	25.2	1.1			10/16/17	11:10											
B12b-TS-19171		CLO5814	JBC	CLO	3	48.9	9	31.2		10/16/17	11:10						62.6	30.721	31.879		10/12/17	9:55
					4	44.1	6.8			10/16/17	11:10											
					5	48.2	9.2			10/16/17	11:10		10/16/17	15:00	kk	rm						
					1	43.8	5.9			10/11/17	10:05											
					2	34.6	3.5			10/11/17	10:05											
B12b-TS-19172		CLO6802	JBC	CLO	3	31.9	2.8	23.9		10/11/17	10:05						53.4	29.077	24.323		10/11/17	10:05
					4	50.6	8.8			10/12/17	9:50											
					5	31	2.9			10/16/17	11:00		10/16/17	15:10	kk	rm						
					1	32.3	2.8		regrowing left claw	10/16/17	10:50											
					2	55.9	15.1			10/17/17	9:36											
B12b-TS-19174		LVB5513	JBC	CLO	3	27.7	1.5	25.6		10/18/17	9:40						55.3	29.34	25.96		10/16/17	10:50
					4	28.2	2			10/18/17	9:40											
					5	37.2	4.2			10/18/17	9:40		10/18/17	14:05	kk	rm						
					1	51.2	8.7			10/16/17	11:20											
					2	48.3	7.1			10/16/17	11:20											
B12b-TS-19175	Duplicate, MS	CLO5815	JBC	CLO	3	36.1	4.5	31.7		10/16/17	11:20						60.9	28.693	32.207		10/16/17	11:20
					4	50.5	8.7			10/17/17	7:50											
					5	34.3	2.7		missing left claw	10/19/17	10:00		10/19/17	11:35	kk	rm						
					1	73	23.2			10/19/17	9:35											
					2	29.4	1.7			10/23/17	9:55											
B12b-TS-19177		LVB5513	JBC	CLO	3	31.4	2.7	32		10/23/17	9:55						62.1	29.431	32.669		10/19/17	9:35
					4	35	2.7			10/23/17	9:55											
					5	28.6	1.7			10/23/17	9:55		10/23/17	11:27	rc	rm						
					1	28.6	1.8			10/19/17	9:25											
					2	31	2.6			10/19/17	9:25											
B12b-TS-19180		LVB5814	JBC	CLO	3	52	12	28.4	regrowing claw, broken spine	10/24/17	10:58						57.9	29.056	28.844		10/19/17	9:25
					4	39.3	5			10/25/17	9:25											
					5	44.7	7			10/25/17	9:25		10/25/17	12:37	rc	rm						

					1	59.7	17.4		missing claw	10/02/17	12:06											
					2	71.25	28.1			10/02/17	12:06											
B12b-TS-19125		LVB6853	JBC	ADJ	3	58.4	14.9	72.5		10/02/17	12:06						101.8	28.807	72.993		10/02/17	12:06
					4	34.9	3.6		missing claw	10/02/17	12:06											
					5	46.3	8.5			10/02/17	12:06		10/02/17	15:17	rc	rm						
B12b-TS-19127	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19128	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19129	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19130	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19131	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19132	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19134	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19135	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
B12b-TS-19136	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
					4	67.5	26.2			10/02/17	10:52											
					5	73	31.7			10/02/17	10:52		10/03/17	11:13	rc	rm						
					1	67.6	21.5			09/28/17	13:53											
					2	45.9	6.9			09/28/17	13:53											
B12b-TS-19137		LVB6880	JBC	ADJ	3	40.5	5.6	60.3		09/28/17	13:53						90.1	29.242	60.858		09/28/17	13:53
					4	64.4	23.3			10/02/17	10:40											
					5	31	3			10/02/17	10:40		10/03/17	11:18	rc	rm						
					1	29	1.9			10/02/17	10:40											
					2	67.3	22.8			10/02/17	10:40											
B12b-TS-19138		LVB6880	JBC	ADJ	3	64	20.1	67.5	regrowing claw	10/02/17	10:40						97.1	29.002	68.098		10/02/17	10:40
					4	40	5.6			10/02/17	10:40											
					5	58.7	17.1			10/02/17	10:40		10/03/17	11:26	rc	rm						
					1	57.4	13			10/02/17	10:40											
					2	43.9	8			10/02/17	10:40											
B12b-TS-19139		LVB6880	JBC	ADJ	3	27.1	1.5	40.5		10/02/17	10:40						71	29.335	41.665		10/02/17	10:40
					4	55.2	6			10/02/17	10:40											
					5	56.3	12			10/02/17	10:40		10/03/17	11:40	rc	rm						
					1	54.5	17.7			09/28/17	15:31											
					2	70.4	29.4			09/28/17	15:31											
B12b-TS-19140		LVB6871	JBC	ADJ	3	39.8	5.2	78.9		09/28/17	15:31						108.5	28.874	79.626		09/28/17	15:31
					4	61.2	22.3			09/28/17	15:31											
					5	34.7	4.3			09/28/17	15:31		10/03/17	11:45	rc	rm						
					1	28.5	2.3			09/28/17	15:31											
					2	67.8	24.7			10/01/17	17:41											
B12b-TS-19141		LVB6871	JBC	ADJ	3	57.6	17.6	53.1		10/01/17	17:41						82.9	29.266	53.634		09/28/17	15:31
					4	39	5.8			10/01/17	17:41											
					5	32.3	2.7			10/01/17	17:41		10/03/17	11:51	rc	rm						
					1	60.2	18.1			10/01/17	17:41											
					2	63.7	19.1			10/01/17	17:41											
B12b-TS-19142	Duplicate, MS	LVB6871	JBC	ADJ	3	33.6	4	47		10/01/17	17:41						76.5	28.944	47.556		10/01/17	17:41
					4	29.4	2.7			10/01/17	17:41											
					5	33.1	3.1			10/01/17	17:41		10/03/17	11:58	rc	rm						
					1	40.8	6			09/28/17	13:25											
					2	40	4.5		missing claw	09/28/17	13:25											
B12b-TS-19143		LVB5839	JBC	ADJ	3	72.9	30.8	51.6		10/02/17	11:50						81.2	28.954	52.246		09/28/17	13:25
					4	35.7	4.2			10/02/17	11:50											
					5	39.2	6.1		leaches	10/02/17	11:50		10/03/17	12:05	rc	rm						
					1	57.9	13.5			10/02/17	11:50											
					2	43.1	6.2			10/02/17	11:50											
B12b-TS-19144		LVB5839	JBC	ADJ	3	42.3	6.2	31		10/02/17	11:50						60.5	28.915	31.585		10/02/17	11:50
					4	31.7	2.8			10/02/17	11:50											
					5	31.5	2.3			10/02/17	11:50		10/03/17	12:09	rc	rm						
					1	33.1	2.6			10/02/17	11:37											
					2	30.8	2.9			10/02/17	11:37											
B12b-TS-19146		LVB6837	JBC	ADJ	3	36.8	4.5	14.4		10/04/17	12:39						44	28.819	15.181		10/02/17	11:37
					4	28.5	2.3			10/04/17	12:39											
					5	28.8	2.1			10/04/17	12:39		10/04/17	NR	rc	rm						
					1	73.2	36.4			10/02/17	10:52						101	29.336	71.664			
					2	74.4	34.7			10/02/17	10:52											
B12b-TS-19151		LVB6852	JBC	ADJ	3	68.1	26.5	126.9		10/02/17	10:52										10/02/17	10:52
					4	70.9	24.9			10/02/17	10:52						84	28.979	55.021			
					5	36.8	4.4		missing claw	10/04/17	9:43		10/04/17	NR	rc	rm						
					1	48.3	10.8			10/02/17	12:06											
					2	59.4	17.1			10/02/17	12:06											
B12b-TS-19153		LVB6853	JBC	ADJ	3	59.1	16.9	60.7		10/02/17	12:06						90.6	29.369	61.231		10/02/17	12:06
					4	55	15			10/04/17	10:47											
					5	27.3	0.9			10/04/17	10:47		10/04/17	NR	rc	rm						
					1	70.7	30.8			10/04/17	10:47											
					2	48.4	8.8			10/04/17	10:47											
B12b-TS-19154		LVB6853	JBC	ADJ	3	57.6	14.6	85.1		10/04/17	10:47						114.9	29.276	85.624		10/04/17	10:47
					4	49.1	11.6			10/04/17	10:47											
					5	62.2	19.3			10/04/17	10:47		10/04/17	NR	rc	rm						
					1	27.2	2.4			10/02/17	11:50											
					2	29.1	2.6			10/04/17	12:49											
B12b-TS-19155		LVB5839	JBC	ADJ	3	25.1	1.4	12.9		10/04/17	12:49						42.4	29.04	13.36		10/02/17	11:50
					4	37	4.6			10/05/17	11:20											
					5	28.1	1.9			10/05/17	11:20		10/05/17	13:50	rm	kk						
					1	32.2	3.8			10/04/17	9:43											
					2	25	1.8			10/04/17	9:43											
B12b-TS-19161		LVB6852	JBC	ADJ	3	26.2	2	24.1		10/04/17	9:43						55.5	30.62	24.88		10/04/17	9:43
					4	44.3	9.9			10/08/17	17:30											
					5	38.4	6.6			10/08/17	17:30		10/09/17	14:37	rm	kk						
					1	73.2	31			10/11/17	11:45											
					2	26.1	1.2			10/12/17	10:30											
B12b-TS-19173		LVB5838	JBC	ADJ	3	60.2	16.5	54.6	regrowing right claw	10/16/17	8:15						86.1	30.847	55.253		10/11/17	11:45
					4	39.1	4.4			10/17/17	10:20											
					5	27.4	1.5			10/17/17	10:20		10/17/17	15:40	kk	rm						
					1	25.01	1			10/22/17	16:58											
					2	28.8	1.7			10/22/17	16:58											
B12b-TS-19176		LVB6975	JBC	ADJ	3	30.5	2	7.6		10/22/17	16:58						36.9	28.737	8.163		10/22/17	16:58
					4	27	1.4			10/22/17	16:58											
					5	26.4	1.5			10/22/17	16:58		10/23/17	11:17	rc	rm						
					1	25.01	1.4		missing claw	10/17/17	10:20											
					2	35.2	3.5			10/18/17	11:05											
B12b-TS-19178		LVB5838	JBC	ADJ	3	39.2	4.2	16	Missing 2 claws and 2 legs	10/19/17	10:15						46.7	30.193	16.507		10/17/17	10:20
					4	26.1	1.5			10/19/17	10:15											
					5	41.3	5.4			10/22/17	17:24		10/23/17	11:32	rc	rm						
					1	38.7	3.7			10/22/17	17:24											
					2	25.35	1.3		missing claw and 3 legs	10/22/17	17:24											
B12b-TS-19179		LVB5838	JBC	ADJ	3	40.9	4	16.8		10/22/17	17:24						46.1	28.758	17.342		10/22/17	17:24
					4	40	4.8			10/22/17	17:24											
					5	36.5	3			10/22/17	17:24		10/23/17	11:42	rc	rm						
					1	56.8	15.2			10/24/17	16:20											
					2	54.3	14.3			10/24/17	16:20											
B12b-TS-19181		LVB6975	JBC	ADJ	3	30.2	2.1	36.6	missing claw	10/24/17	16:20						65.9	28.633	37.267		10/24/17	16:20
					4	34.1	2.6			10/24/17	16:20											
					5	37.1	2.4		Missing 2 claws	10/24/17	16:20		10/25/17	12:51	rc	rm						
					1	43.7	5.7			10/24/17	16:20											
					2	48.4	10.6			10/26/17	10:00											
B12b-TS-19182		LVB6975	JBC	ADJ	3	73.9	24.1	45.8		10/26/17	10:00						75.8	29.532	46.268		10/24/17	16:20
					4	29.5	1.7			10/26/17	10:00											
					5	36.5	3.7			10/29/17	16:10		10/30/17	14:20	kk	rm						

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
LVB6870	B12b-TF-18632	10/3/2017	8:13	672	560	3031	419.8	51.2	79.9	0.459	-
LVB6870	B12b-TF-18633	10/3/2017	8:13	705	580	3712	583.9	55.6	79.6	0.374	-
LVB5839	B12b-TF-18635	10/4/2017	7:13	567	460	1823	297.8	56.2	79.8	0.194	-
LVB5838	B12b-TF-18636	10/9/2017	8:00	645	525	2640	344.8	54.0	79.2	0.201	-
LVB5838	B12b-TF-18637	10/9/2017	8:00	617	500	2330	332.0	57.3	79.1	0.238	-
LVB5838	B12b-TF-18638	10/9/2017	8:00	610	490	2340	349.2	58.3	80.0	0.313	-
LVB6871	B12b-TF-18640	10/10/2017	8:10	709	585	3626	534.8	52	76.9	0.221	-
LVB6871	B12b-TF-18641	10/10/2017	8:10	700	570	3169	463.6	43.2	78.8	0.324	-
LVB5839	B12b-TF-18642	10/12/2017	7:30	645	535	2700	385.7	56.7	81.0	0.274	-
LVB5839	B12b-TF-18643	10/12/2017	7:30	688	570	3249	468.0	53.3	84.3	0.300	-
LVB5841	B12b-TF-18645	10/16/2017	8:00	542	445	1582	240.0	46.4	81.7	0.342	-
LVB5841	B12b-TF-18646	10/16/2017	8:00	668	550	2899	391.2	51.2	78.7	0.241	-
LVB6950	B12b-TF-18648	10/17/2017	8:25	640	520	2931	511.1	54.9	80.1	0.290	-
LVB6950	B12b-TF-18649	10/17/2017	8:25	632	520	2738	413.7	50.9	78.2	0.372	-
LVB6950	B12b-TF-18654	10/24/2017	7:45	673	540	3081	489.0	52.5	78.5	0.200	-
CLO5830	B12b-TF-18655	10/24/2017	8:30	640	510	2573	372.9	50.9	78.4	0.435	-
LVB6870	B12b-TF-18656	10/24/2017	9:12	618	500	2670	382.6	51.7	79.8	0.296	-
LVB6871	B12b-TF-18665	10/31/2017	7:40	679	555	3363	505.6	55.2	79.3	0.291	-
LVB6837	B12b-TF-18668	10/31/2017	10:00	709	590	3370	468.3	55.9	80.0	0.345	-
LVB5841	B12b-TF-18673	11/2/2017	8:20	710	595	2976	359.5	53.6	83.8	0.277	-
CLO5830	B12b-TF-18674	11/2/2017	9:30	644	520	2566	346.7	51.3	80.0	0.301	-
CLO5830	B12b-TF-18675	11/2/2017	9:30	541	445	1682	273.9	52.0	79.6	0.221	-
LVB6837	B12b-TF-18676	11/6/2017	9:50	659	545	2830	440.4	55.0	79.9	0.273	-
LVB6850	B12b-TF-18677	11/8/2017	9:47	642	525	2627	407.4	57.0	80.0	0.313	-
LVB6837	B12b-TF-18680	11/9/2017	7:17	701	580	3590	468.7	52.8	80.0	0.429	-
LVB6850	B12b-TF-18682	11/14/2017	7:00	509	410	1256	182.9	47.2	79.0	0.234	-
LVB6880	B12b-TF-18689	11/21/2017	6:55	640	530	2527	340.2	49.7	79.7	0.380	-
LVB6880	B12b-TF-18690	11/21/2017	6:55	577	470	2021	289.8	57.5	78.7	0.215	-
LVB6850	B12b-TF-18692	11/30/2017	7:05	596	490	1978	298.7	50.9	79.6	0.298	-
LVB6880	B12b-TF-18693	11/30/2017	9:15	528	430	1440	168.5	46.1	78.6	0.239	-
Average Values				**637**	**522**	**2644**	**384.4**	**52.7**	**79.7**	**0.296**	**-**

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
CLO1414	B12b-TF-18627	9/28/2017	7:58	671	555	3167	532.4	57.5	64.7	0.344	-
CLO1414	B12b-TF-18628	9/28/2017	7:58	641	530	3017	472	53.6	81.5	0.173	-
CLO1414	B12b-TF-18629	9/28/2017	7:58	623	510	2557	352.1	52.0	81.8	0.507	-
CLO5818	B12b-TF-18630	10/2/2017	8:06	640	520	2641	376.3	55.2	80.6	1.059	-
CLO6802	B12b-TF-18631	10/2/2017	8:24	709	585	3569	512.7	56.9	77.8	0.278	-
CLO5815	B12b-TF-18634	10/3/2017	7:40	683	570	3320	505.8	55.6	80.2	0.737	-
CLO5802	B12b-TF-18639	10/9/2017	9:35	662	540	2963	480.5	51.5	79.9	0.702	-
CLO5815	B12b-TF-18644	10/12/2017	8:00	573	465	1783	261.2	48.1	80.7	0.213	-
CLO5804	B12b-TF-18647	10/16/2017	10:10	692	575	3326	461.7	56.7	78.7	0.422	-
CLO5815	B12b-TF-18650	10/17/2017	8:00	532	425	1476	229.1	47.5	80.2	0.531	-
CLO6802	B12b-TF-18651	10/17/2017	9:00	621	505	2205	355.9	53.4	79.3	0.227	-
CLO6802	B12b-TF-18652	10/18/2017	8:45	592	490	1878	286.6	50.4	81.3	0.156	-
CLO5803	B12b-TF-18657	10/25/2017	8:16	679	565	3536	447.4	52.2	80.2	0.252	-
CLO5802	B12b-TF-18658	10/30/2017	9:40	583	475	2045	275.8	48.1	80.2	1.270	-
CLO5802	B12b-TF-18659	10/30/2017	9:40	601	490	2102	280.7	57.2	79.4	0.839	-
LVB5508	B12b-TF-18660	10/30/2017	8:50	631	520	2530	379.9	52.7	80.6	0.742	-
CLO5803	B12b-TF-18661	10/30/2017	10:00	693	570	2890	372.8	54.7	81.3	0.198	-
CLO5816	B12b-TF-18662	10/30/2017	7:35	612	505	1937	246.5	47.5	81.6	0.242	-
CLO5816	B12b-TF-18663	10/30/2017	7:35	513	410	1258	160.4	44.4	78.7	0.758	-
LVB5508	B12b-TF-18666	10/31/2017	9:20	574	470	1934	286.3	55.3	78.9	1.144	-
CLO5803	B12b-TF-18667	10/31/2017	9:35	658	540	2864	371.1	50.2	79.1	1.118	-
CLO5804	B12b-TF-18678	11/9/2017	8:15	533	435	1480	205.9	48.7	79.4	1.638	-
CLO5804	B12b-TF-18679	11/9/2017	8:15	549	450	1512	219.8	49.4	78.6	2.073	-
CLO5900	B12b-TF-18683	11/14/2017	8:30	545	440	1412	203.6	49.4	79.8	1.122	-
CLO5900	B12b-TF-18684	11/16/2017	8:30	566	455	1635	234.0	48.9	80.4	1.152	-
CLO5900	B12b-TF-18691	11/21/2017	7:55	569	455	1668	212.0	54.6	77.1	1.416	-
LVB5508	B12b-TF-18694	12/6/2017	8:30	508	400	1191	191.1	36.0	77.6	0.499	-
CLO5818	B12b-TF-18695	12/11/2017	7:50	613	490	2120	295.7	52.2	79.0	0.422	-
CLO5818	B12b-TF-18696	12/11/2017	7:50	650	530	2846	391.4	50.9	79.2	0.524	-
LVB5513	B12b-TF-18697	12/11/2017	9:30	619	505	2676	415.0	49.1	78.1	0.634	-
Average Values				**611**	**499**	**2318**	**333.9**	**51.3**	**79.2**	**0.713**	-

Sample ID	Catch ID	Station	Area	Org. ID	Spec.	Tot. Length (mm)	Std. Length (mm)	Tot. Wt. (g)	Tiss. Wt. (g)	Sample Wt. (g)	Date Collected	Time Collected	Remarks	Date Processed	Time Processed	Scribe	Processed By:	Tot. Jar Wt. (g)	Tare Wt. (g)	Sample Tiss. Wt. (g)
B12b-TF-18632	LVB6870100217	LVB6870	ADJ	2	RDR	672	560	3031.1	419.8	51.2	10/03/17	8:13		10/03/17	12:32	RC	RM	80.4	28.821	#REF!
B12b-TF-18633	LVB6870100217	LVB6870	ADJ	1	RDR	705	580	3712.4	583.9	55.6	10/03/17	8:13		10/03/17	12:43	RC	RM	85.1	28.884	56.216
B12b-TF-18635	LVB5839100417	LVB5839	ADJ	1	RDR	567	460	1823.1	297.8	56.2	10/04/17	7:13		10/04/17	16:04	RC	RM	85.6	28.744	56.856
B12b-TF-18636	LVB5838100917	LVB5838	ADJ	3	RDR	645	525	2640	344.8	54	10/09/17	8:00		10/09/17	15:15	KK	RM	83.9	29.217	54.683
B12b-TF-18637	LVB5838100917	LVB5838	ADJ	1	RDR	617	500	2330	332	57.3	10/09/17	8:00		10/09/17	15:30	KK	RM	86.8	28.789	58.011
B12b-TF-18638	LVB5838100917	LVB5838	ADJ	2	RDR	610	490	2340	349.2	58.3	10/09/17	8:00		10/09/17	15:40	KK	RM	88.5	29.533	58.967
B12b-TF-18640	LVB6871101017	LVB6871	ADJ	1	RDR	709	585	3626	534.8	52	10/10/17	8:10	Bruised flesh in fillet, not in sample portion	10/10/17	15:20	KK	RM	81.8	29.051	52.749
B12b-TF-18641	LVB6871101017	LVB6871	ADJ	2	RDR	700	570	3169	463.6	43.2	10/10/17	8:10		10/10/17	15:30	KK	RM	72.6	28.751	43.849
B12b-TF-18642	LVB5839101217	LVB5839	ADJ	1	RDR	645	535	2700	385.7	56.7	10/12/17	7:30		10/12/17	12:20	KK	RM	86.5	29.162	57.338
B12b-TF-18643	LVB5839101217	LVB5839	ADJ	2	RDR	688	570	3249	468	53.3	10/12/17	7:30		10/12/17	12:30	KK	RM	83.2	29.325	53.875
B12b-TF-18645	LVB5841101617	LVB5841	ADJ	1	RDR	542	445	1582	240	46.4	10/16/17	8:00		10/16/17	15:15	KK	RM	75.9	28.97	46.93
B12b-TF-18646	LVB5841101617	LVB5841	ADJ	2	RDR	668	550	2899	391.2	51.2	10/16/17	8:00	Duplicate, MS/MSD	10/16/17	15:15	KK	RM	81	29.278	51.722
B12b-TF-18648	LVB6950101717	LVB6950	ADJ	1	RDR	640	520	2931	511.1	54.9	10/17/17	8:25		10/17/17	15:00	KK	RM	84.2	28.689	55.511
B12b-TF-18649	LVB6950101717	LVB6950	ADJ	2	RDR	632	520	2738	413.7	50.9	10/17/17	8:25		10/17/17	15:10	KK	RM	81	29.434	51.566
B12b-TF-18654	LVB6950102317	LVB6950	ADJ	1	RDR	673	540	3081	489	52.5	10/24/17	7:45		10/24/17	13:25	RC	RM	81.9	28.91	52.99
B12b-TF-18655	CLO5830102317	CLO5830	ADJ	1	RDR	640	510	2573	372.9	50.9	10/24/17	8:30		10/24/17	13:32	RC	RM	80.4	28.968	51.432
B12b-TF-18656	LVB6870102317	LVB6870	ADJ	1	RDR	618	500	2670	382.6	51.7	10/24/17	9:12		10/24/17	13:41	RC	RM	81.2	28.852	52.348
B12b-TF-18665	LVB6871103117	LVB6871	ADJ	1	RDR	679	555	3363	505.6	55.2	10/31/17	7:40		10/31/17	11:30	KK	RM	85.4	29.517	55.883
B12b-TF-18668	LVB6837103117	LVB6837	ADJ	1	RDR	709	590	3370	468.3	55.9	10/31/17	10:00		10/31/17	12:05	KK	RM	85.9	29.402	56.498
B12b-TF-18673	LVB5841110217	LVB5841	ADJ	1	RDR	710	595	2976	359.5	53.6	11/02/17	8:20	Notably small girth	11/02/17	11:50	KK	RM	83.4	29.154	54.246
B12b-TF-18674	CLO5830112017	CLO5830	ADJ	1	RDR	644	520	2566	346.7	51.3	11/02/17	9:30		11/02/17	12:05	KK	RM	80.9	28.946	51.954
B12b-TF-18675	CLO5830110217	CLO5830	ADJ	2	RDR	541	445	1682	273.9	52	11/02/17	9:30		11/02/17	0:15	KK	RM	81.6	29.031	52.569
B12b-TF-18676	LVB6837110517	CLO6837	ADJ	1	RDR	659	545	2830	440.4	55	11/06/17	9:50		11/06/17	10:39	RC	RM	84.2	28.697	55.503
B12b-TF-18677	LVB6850110717	LVB6850	ADJ	1	RDR	642	525	2627	407.4	57	11/08/17	9:47		11/08/17	12:25	RC	RM	86.8	29.222	57.578
B12b-TF-18680	LVB6837110817	LVB6837	ADJ	1	RDR	701	580	3590	468.7	52.8	11/09/17	7:17		11/09/17	9:47	RC	RM	82.1	28.742	53.358
B12b-TF-18682	LVB6850111417	LVB6850	ADJ	1	RDR	509	410	1256	182.9	47.2	11/14/17	7:00		11/14/17	10:10	KK	RM	76.5	28.732	47.768
B12b-TF-18689	LVB6880112117	LVB6880	ADJ	1	RDR	640	530	2527	340.2	49.7	11/21/17	6:55		11/21/17	9:33	RC	RM	79.5	29.222	50.278
B12b-TF-18690	LVB6880112117	LVB6880	ADJ	2	RDR	577	470	2021	289.8	57.5	11/21/17	6:55		11/21/17	9:49	RC	RM	87.2	29.09	58.11
B12b-TF-18692	LVB6850112917	LVB6850	ADJ	1	RDR	596	490	1978	298.7	50.9	11/30/17	7:05		11/30/17	10:45	KK	RM	81.8	30.172	51.628
B12b-TF-18693	LVB6880112917	LVB6880	ADJ	1	RDR	528	430	1440	168.5	46.1	11/30/17	9:15		11/30/17	11:00	KK	RM	76.2	29.375	46.825
B12b-TF-18627	CLO1414092717	CLO1414	CLO	1	RDR	671	555	3167.4	532.4	57.5	09/28/17	7:58		09/28/17	10:49	RC	RM	87.1	29.353	57.747
B12b-TF-18628	CLO1414092717	CLO1414	CLO	2	RDR	641	530	3016.6	472	53.6	09/28/17	7:58		09/28/17	10:49	RC	RM	82.5	28.882	53.618
B12b-TF-18629	CLO1414092717	CLO1414	CLO	3	RDR	623	510	2556.7	352.1	52	09/28/17	7:58		09/28/17	10:49	RC	RM	81	28.681	52.319
B12b-TF-18630	CLO5818100117	CLO5818	CLO	1	RDR	640	520	2641	376.3	55.2	10/02/17	8:06		10/02/17	14:22	RC	RM	84.9	29.156	55.744
B12b-TF-18631	CLO6802100117	CLO6802	CLO	1	RDR	709	585	3568.7	512.7	56.9	10/02/17	8:24		10/02/17	14:15	RC	RM	86.8	29.373	57.427
B12b-TF-18634	CLO5815100217	CLO5815	CLO	1	RDR	683	570	3320	505.8	55.6	10/03/17	7:40		10/03/17	12:49	RC	RM	85.7	29.494	56.206
B12b-TF-18639	CLO5802100917	CLO5802	CLO	1	RDR	662	540	2963	480.5	51.5	10/09/17	9:35		10/09/17	15:45	KK	RM	81.1	29.178	51.922
B12b-TF-18644	CLO5815101217	CLO5815	CLO	1	RDR	573	465	1783	261.2	48.1	10/12/17	8:00		10/12/17	12:45	KK	RM	77.6	28.777	48.823
B12b-TF-18647	CLO5804101617	CLO5804	CLO	1	RDR	692	575	3326	461.7	56.7	10/16/17	10:10		10/16/17	15:45	KK	RM	86.5	29.027	57.473
B12b-TF-18650	CLO5815101717	CLO5815	CLO	1	RDR	532	425	1476	229.1	47.5	10/17/17	8:00		10/17/17	15:15	KK	RM	77.4	29.474	47.926
B12b-TF-18651	CLO6802101717	CLO6802	CLO	1	RDR	621	505	2205	355.9	53.4	10/17/17	9:00		10/17/17	15:25	KK	RM	83.1	29.013	54.087
B12b-TF-18652	CLO6802101817	CLO6802	CLO	1	RDR	592	490	1878	286.6	50.4	10/18/17	8:45		10/18/17	14:20	KK	RM	80.1	29.23	50.87
B12b-TF-18657	LVB5803102417	LVB5803	CLO	1	RDR	679	565	3536	447.4	52.2	10/25/17	8:16		10/01/17	12:56	RC	RM	81.6	28.811	52.789
B12b-TF-18658	CLO5802103017	CLO5802	CLO	1	RDR	583	475	2045	275.8	48.1	10/30/17	9:40		10/30/17	15:05	KK	RM	77.6	28.939	48.661
B12b-TF-18659	CLO5802103017	CLO5802	CLO	2	RDR	601	490	2102	280.7	57.2	10/30/17	9:40		10/30/17	15:20	KK	RM	87.2	29.489	57.711
B12b-TF-18660	LVB5508103017	LVB5508	CLO	1	RDR	631	520	2530	379.9	52.7	10/30/17	8:50		10/30/17	15:30	KK	RM	82.7	29.274	53.426
B12b-TF-18661	CLO5803103017	CLO5803	CLO	1	RDR	693	570	2890	372.8	54.7	10/30/17	10:00		10/30/17	15:40	KK	RM	84.6	29.359	55.241
B12b-TF-18662	CLO5816103017	CLO5816	CLO	1	RDR	612	505	1937	246.5	47.5	10/30/17	7:35		10/30/17	15:45	KK	RM	77.2	29.097	48.103
B12b-TF-18663	CLO5816103017	CLO5816	CLO	2	RDR	513	410	1258	160.4	44.4	10/30/17	7:35		10/30/17	15:50	KK	RM	74.2	29.165	45.035
B12b-TF-18666	LVB5508103117	LVB5508	CLO	1	RDR	574	470	1934	286.3	55.3	10/31/17	9:20	Duplicate, MS/MSD	10/31/17	11:45	KK	RM	85	29.074	55.926
B12b-TF-18667	CLO5803103117	CLO5803	CLO	1	RDR	658	540	2864	371.1	50.2	10/31/17	9:35		10/31/17	11:55	KK	RM	79.9	29.117	50.783
B12b-TF-18678	CLO5804110817	CLO5804	CLO	1	RDR	533	435	1480	205.9	48.7	11/09/17	8:15		11/09/17	9:28	RC	RM	78.2	28.851	49.349
B12b-TF-18679	CLO5804110817	CLO5804	CLO	2	RDR	549	450	1512	219.8	49.4	11/09/17	8:15		11/09/17	9:35	RC	RM	79	29.1	49.9
B12b-TF-18683	CLO5900111417	CLO5900	CLO	1	RDR	545	440	1412	203.6	49.4	11/14/17	8:30		11/14/17	10:20	KK	RM	79.5	29.418	50.082
B12b-TF-18684	CLO5900111517	CLO5900	CLO	1	RDR	566	455	1635	234	48.9	11/16/17	8:30		11/16/17	9:45	KK	RM	78.2	28.72	49.48
B12b-TF-18691	CLO5900112117	CLO5900	CLO	1	RDR	569	455	1668	212	54.6	11/21/17	7:55		11/12/17	9:59	RC	RM	84.2	29.034	55.166
B12b-TF-18694	LVB5508120517	LVB5508	CLO	1	RDR	503	400	1191	191.1	36	12/06/17	8:30		12/06/17	11:00	KK	RM	66.6	29.915	36.685
B12b-TF-18695	CLO5818121017	CLO5818	CLO	1	RDR	613	490	2120	295.7	52.2	12/11/17	7:50		12/11/17	12:00	KK	RM	82.3	29.446	52.854
B12b-TF-18696	CLO5818121017	CLO5818	CLO	2	RDR	650	530	2846	391.4	50.9	12/11/17	7:50		12/11/17	12:15	KK	RM	80.6	29.056	51.544
B12b-TF-18697	LVB5513121017	LVB5513	CLO	1	RDR	619	505	2676	415	49.1	12/11/17	9:30	Duplicate, MS/MSD	12/11/17	12:30	KK	RM	79.5	29.702	49.798

Table 3 - 2017 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-18655	Blue Crab	NA	-	32.1
	CLO5830	B12B-TF-18674	Empty Gut	NA	-	NA
	CLO5830	B12B-TF-18675	Empty Gut	NA	-	NA
Reef	LVB5841	B12B-TF-18645	Blue Crab	1	-	21.2
	LVB5841	B12B-TF-18646	Blue Crab	1	-	13.0
			Sand Eel	1		
	LVB5841	B12B-TF-18673	Empty Gut	NA	y	NA
Marsh	LVB6950	B12B-TF-18648	Empty Gut	NA	-	NA
	LVB6950	B12B-TF-18649	Empty Gut	NA	y	NA
	LVB6950	B12B-TF-18654	Spartina vegetation	1	y	15.3
			Oyster Toadfish	1		
			Mullet	1		
	LVB6837	B12B-TF-18668	Unidentified Fish	1	-	5.0
			Blue Crab	1		
	LVB6837	B12B-TF-18676	Empty Gut	NA	-	NA
	LVB6837	B12B-TF-18680	Blue Crab	1	-	2.1
	LVB6880	B12b-TF-18689	Blue Crab	2	-	58.1
	LVB6880	B12B-TF-18690	Blue Crab	2	y	9.1
			Mullet	1		
			Penaeid Shrimp	5		
	LVB6880	B12B-TF-18693	Mullet	1	-	16.8
			Penaeid Shrimp	NA		
	LVB6870	B12B-TF-18632	Blue Crab	NA	-	5.4
	LVB6870	B12B-TF-18633	Empty Gut	NA	-	NA
	LVB5839	B12B-TF-18635	Blue Crab	1	y	7.9
	LVB5838	B12B-TF-18636	Palaemonetes	1	y	2.3
	LVB5838	B12B-TF-18637	Empty Gut	NA	y	NA
	LVB5838	B12B-TF-18638	Empty Gut	NA	-	NA
	LVB6871	B12B-TF-18640	Empty Gut	NA	-	NA
	LVB6871	B12B-TF-18641	Empty Gut	NA	-	NA
	LVB5839	B12B-TF-18642	Empty Gut	NA	y	NA
	LVB5839	B12B-TF-18643	Empty Gut	NA	-	NA
	LVB6870	B12B-TF-18656	Inorganic (lure)	NA	-	23.2
			Pinaeid Shrimp	NA		
	LVB6871	B12B-TF-18665	Mullet	3	y	52.4
			Polychaete	1		
			Pinaeid Shrimp	1		
	LVB6850	B12B-TF-18677	Empty Gut	NA	-	NA
	LVB6850	B12B-TF-18682	Empty Gut	NA	y	NA
	LVB6850	B12B-TF-18692	Blue Crab	1	y	6.8

NA - Gut cavity was empty

y - Yes

Table 2 - 2017 Closed Area Red Drum Gut Contents

Habitat	Station ID	Sample ID	Gut Content			
			Content	Number	Internal Parasites Present	Gut Content Weight (g)
Other	CLO1414	B12b-TF-18627	Empty Gut	NA	y	NA
	CLO1414	B12b-TF-18628	Empty Gut	NA	-	NA
	CLO1414	B12b-TF-18629	Empty Gut	NA	-	NA
	CLO5802	B12b-TF-18639	Hardhead Catfish	1	-	2.5
	CLO5802	B12b-TF-18658	Unidentified Fish	1	-	23.0
			Hardhead Catfish	1		
	CLO5802	B12b-TF-18659	Mullet	1	-	17.3
			Hardhead Catfish	3		
	LVB5508	B12b-TF-18660	Polychaetes	2	-	12.5
			Mullet	1		
	LVB5508	B12b-TF-18666	Hardhead Catfish	1	y	10.0
	LVB5508	B12b-TF-18694	Empty Gut	NA	-	NA
Reef	CLO5818	B12b-TF-18630	Hardhead Catfish	1	-	32.1
			Stone Crab	1		
	CLO5815	B12b-TF-18634	Unidentified Fish	1	-	2.5
	CLO5815	B12b-TF-18644	Empty Gut	NA	-	NA
	CLO5804	B12b-TF-18647	Empty Gut	NA	-	NA
	CLO5815	B12b-TF-18650	Blue Crab	1	-	8.9
	CLO5816	B12b-TF-18662	Hardhead Catfish	10	-	49.6
	CLO5816	B12b-TF-18663	Hardhead Catfish	7	-	38.4
			Mud Crab	1		
	CLO5804	B12b-TF-18678	Empty Gut	NA	-	NA
	CLO5804	B12b-TF-18679	Empty Gut	NA	-	NA
	CLO5818	B12b-TF-18695	Hardhead Catfish	8	-	51.9
	CLO5818	B12b-TF-18696	Hardhead Catfish	3	-	106.2
			Mullet	1		
	LVB5513	B12b-TF-18697	Pinaeid Shrimp	6	-	21.6
			Mullet	1		
			Unidentified Fish	2		
Marsh	CLO6802	B12b-TF-18631	Empty Gut	NA	-	NA
	CLO6802	B12b-TF-18651	Empty Gut	NA	y	NA
	CLO6802	B12b-TF-18652	Empty Gut	NA	y	NA
	CLO5803	B12b-TF-18657	Empty Gut	NA	-	NA
	CLO5803	B12b-TF-18661	Empty Gut	NA	-	NA
	CLO5803	B12b-TF-18667	Blue Crab	1	-	14.5
			Sand Eel	1		
			Unidentified Fish	5		
	CLO5900	B12b-TF-18683	Empty Gut	NA	-	NA
	CLO5900	B12b-TF-18684	Oyster Shell	1	-	2.5
			Unidentified Fish	1		
	CLO5900	B12b-TF-18691	Free cyst	1	-	7.6
			Unidentified Fish	1		

NA - Gut cavity was empty

y - Yes

Explanation for revision.txt

3-27-2018

We discovered that the pdf versions of the site location maps in Appendix B-2 and B-3 had issues with the text wherein letters in words turned into boxes.
The printed versions of the report do not contain the error, however the digitial version burned to disk and shipped with the report binders did.

An amended version of the RAAER pdf, with corrected map legends was generated and is included on this disk.