2018 Remedial Action Annual Effectiveness Report

Alcoa (Point Comfort)/Lavaca Bay Superfund Site

March 2019

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/g	micrograms per gram
CAB	Community Advisory Board
CAPA	Chlor-Alkali Process Area
CCND	Calhoun County Navigation District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CD	Consent Decree
CDF	confined disposal facility
DNAPL	dense nonaqueous phase liquid
EE/CA	Engineering Evaluation/Cost Analysis
meHg	methylmercury
mg/kg	milligrams per kilogram
MS3	Mainland Shoreline No. 3
O&M	operations and maintenance
OMMP	Operation, Maintenance and Monitoring Plan
PAH	polycyclic aromatic hydrocarbon
PCO	Point Comfort Operations
ppm	parts per million
RAAER	Remedial Action Annual Effectiveness Report
RAO	remedial action objective
RDR	Remedial Design Report
RI	Remedial Investigation
ROD	Record of Decision
Site	Alcoa (Point Comfort)/Lavaca Bay Superfund Site
SOW	Statement of Work
THg	total mercury
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

1.1 Objective

This 2018 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.

1.2 Consent Decree and Statement of Work Requirements for the RAAER

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

> …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 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 within the boundaries of the operating facility (the Chlor-Alkali Process Area [CAPA] and the Witco Area) required development of remedial action objectives (RAOs) and subsequent remediation. This RAAER presents monitoring information that reflects the effects of both the completed response actions and ongoing activities:

- Stabilization of Dredge Island (completed as a non-time critical removal action prior to USEPA's Record of Decision [ROD] (USEPA 2001));
- 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);
- Dredging of the Witco Channel (performed as part of routine maintenance for Point Comfort operations prior to the ROD);

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

- 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);
- Removal of marsh along the eastern Causeway Cove and Mainland Shoreline No. 3 (MS3) shorelines (completed in 2017, Section 1.3.5); and
- Control of emergent marsh vegetation via herbicide application (ongoing).

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

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

Alcoa submitted revisions for the inspection and maintenance schedule to USEPA on February 25, 2019, via *Updates to Operations, Maintenance, and Monitoring Plans, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. As discussed below, additional activities have been performed in response to the first Five-Year Review Report by USEPA (2011).

1.3.2 Previous Remedial Activities

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

- Develop a plan to perform a focused, additional remedial measure in the area of the Dredge Island Stabilization Project 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; and
  - Vegetation within the stone armor on the exterior side-slopes.

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

On May 23, 2007, USEPA published a notice that an Explanation of Significant Differences had been signed for the Site. The Explanation of Significant Differences (USEPA 2007a) indicated that enhanced natural recovery north of Dredge Island was no longer a necessary component of remedial action for the Site. Alcoa was to continue monitoring mercury levels in fish and marsh sediment on an annual basis and report the results in the annual RAAER. 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 for the Site was signed by USEPA on July 23, 2007 (USEPA 2007b). It documents that all construction activities required by the ROD have been completed.

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

USEPA prepared the Second Five-Year Review Report (USEPA 2016) during the first half of 2016 after reviewing various aspects of the Site Remedy to determine its current and future protectiveness. The

five-year review process included a Site visit at Point Comfort Operations (PCO) on February 10, 2016, during which operating facility 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. A community meeting was hosted by operating facility personnel on March 2, 2016, to provide USEPA an opportunity to describe the five-year regulatory review process and the impacts of facility curtailment on USEPA oversight of the remediation projects.

USEPA published the Second Five-Year Review Report, 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 as needing to be completed to provide sufficient information for USEPA to make a determination of long-term remedy protectiveness:

- Conduct studies to evaluate site-specific marsh conditions where enhanced methylation and uptake can occur. These studies were reported to USEPA in *Final Lavaca Bay Methylation Special Study – Phase 2. Study 4 – Update the Understanding of Methylation Processes and Uptake in the Closed Area – Spring 2016* (Alcoa 2016a).
- Undertake studies to evaluate whether additional uptake pathways cause mercury levels in red drum in the Closed Area to remain elevated. These studies were reported to USEPA in *Final Lavaca Bay Methylation Special Study – Phase 2. Study 4 – Update the Understanding of Methylation Processes and Uptake in the Closed Area – Spring 2016* (Alcoa 2016a).
- Carry out a study to understand sediment and mercury transport from the Witco and Alcoa channels and Witco Cut to the area north of Dredge Island. These studies were reported to USEPA in *Final Report on Lavaca Bay High Resolution Water Column Monitoring Program* (Alcoa 2016b).
- Conduct a high-resolution water column sampling program in the vicinity of the Alcoa and Witco channels and MS3 to evaluate dissolved and particulate mercury levels. These studies were reported to USEPA in *Final Report on Lavaca Bay High Resolution Water Column Monitoring Program* (Alcoa 2016b).
- 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 2017).

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

1.3.5 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. The new CAB met for the first time at PCO on March 2, 2016, and again on November 29, 2016.

Alcoa continued implementation of USEPA's Community Outreach Program by hosting the third CAB meeting. Invitation letters and email messages were sent to CAB members in April 2018, and the meeting was held at PCO on May 10, 2018, with 21 members of the agencies, Alcoa, and the 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, descriptions of the 2016 supplemental studies, descriptions of work completed in 2017, 2017 monitoring results, and future activities. The fourth meeting of the CAB is planned for late spring 2019.

1.4 CAPA Groundwater Extraction and Treatment System

The CAPA groundwater extraction and treatment system began full-scale operation in May 1998. The primary system components are four groundwater extraction wells, an air stripper that removes volatile organic compounds from the groundwater, and a series of carbon vessels that remove mercury. Ancillary piping, filters, pumps, tanks, and other elements comprise the rest of the system. The objective of the groundwater extraction system is to provide hydraulic control of that portion of the dissolved mercury plume that was believed to 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, troubleshooting or during power disruptions 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 2018 in accordance with the CAPA Groundwater RDR and OMMP. The various maintenance activities, operational checks, and sampling requirements are summarized in Table 3-3 of the CAPA Groundwater RDR and OMMP.

The discharge standards for the system effluent are shown in Table 3-1 of the CAPA Groundwater RDR and OMMP. A summary of the CAPA groundwater extraction and treatment system performance for 2018 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. A similar memorandum is distributed annually for review by Site workers.

An inspection and maintenance program was developed for the capped area that consists of quarterly inspections and maintenance, as required. The main components of the inspection are as follows:

- Cap integrity (e.g., signs of vehicular traffic, burrowing, erosion);

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

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

1.6.2 Witco Area Inspections

The containment of DNAPL-containing polycyclic aromatic hydrocarbons (PAHs) and the capping of PAH-impacted soils at the Witco Area were components of the remedy as described in the CD. DNAPL and 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.

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;
- 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 PCO 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 cubic yards) into the Gypsum Placement Areas. In addition, the containment dikes surrounding the Gypsum Placement Areas were raised so that they would not be overtopped during a 100-year storm event (i.e., a storm event that has a probability of occurring once within 100 years). Those activities required increasing 10,700 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 Dredge Island OMMP include inspection of the following primary components:

- The access bridge from the mainland to the northern shore of Dredge Island;
- The 10,500 lineal feet of the Alcoa CDF containment 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 the condition of the structural steel comprising the north decant structure. Access to the structure is currently restricted by barricades and warning tape, and it has not been utilized for decanting events. Decanting of accumulated stormwater from the Dredge Island CDF was conducted from the south decant structure between November 14 and December 27, 2018, to prepare for inspections of both decant structures to determine the scope of repairs, if necessary. Notification to begin decanting was provided to EPA via email on November 13, 2018, and a progress update was sent on December 6, 2018. Sampling and analysis of discharged water was conducted in accordance with the *Witco Channel and Harbor Dredging and MS3 Excavation – Response Action Plan* (Alcoa 2016c). Analytical results will be submitted to USEPA with conclusions from the inspections.

The access bridge was damaged during Hurricane Claudette in 2003 and again during Hurricane Harvey in 2017. Dredge Island inspections have not included detailed inspections of the bridge as it is non-operational and not relevant to the RAOs. 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 OMMP, the sediment monitoring program was designed to evaluate surface sediment mercury concentrations from open water and marsh areas within the Closed Area. The boundaries of the Closed Area are defined in the Texas Department of State Health Services' order against the taking of finfish and shellfish for consumption. The open water sediment sampling protocol has been modified over time to improve its utility.

The CD requires that the open water sediment monitoring program be performed until a mean mercury concentration of less than 0.5 milligrams per kilogram (mg/kg; i.e., parts per million [ppm]) dry weight is measured in the Closed Area in two consecutive years. This occurred in 2004 and 2005 when average concentrations of 0.293 ppm and 0.276 ppm, respectively, were measured in open water surface sediment samples from the Closed Area (Alcoa 2006). Thus, the performance objective of the open water sediment monitoring program established in the CD has been met. However, Alcoa has elected to

continue monitoring the northern half of the open water sediment sampling grid on a voluntary basis as part of its ongoing effort to better understand trends in fish tissue concentrations in the Closed Area of Lavaca Bay. In 2009, Alcoa decided to adjust the open water sediment monitoring from annually to even-numbered years. However, as part of an expanded sampling effort, open water locations in the northern half of the sampling grid (i.e., samples matching the even-year routine sampling) were collected in 2015. In 2016, Alcoa modified the program in the western Causeway Cove and west of Dredge Island by omitting sampling locations that have exhibited consistent recovery. In 2017, Alcoa proposed with USEPA concurrence to collect open water sediment samples within the Causeway Cove to monitor a localized area of elevated mercury concentrations observed during the 2015 and 2016 sampling events. While open water sediment sampling is no longer required on an annual basis, should a need for additional data be identified, Alcoa will schedule a sampling plan to meet the desired goal.

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.

The marsh sediment sampling protocol has also been modified over time to improve its utility. Based on a review of the 2007 supplemental data presented in the Amended 2007 RAAER (Alcoa 2008), measurements of meHg and total organic carbon were added to the analytical suite for the 2008 and subsequent marsh monitoring programs. In 2011, a sampling depth of 0 to 2 centimeters 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. All monitored marshes have met the performance standard, and marsh sediment samples were not collected in 2018.

1.8 Routine Finfish and Shellfish Monitoring

The purpose of the Lavaca Bay Finfish and Shellfish OMMP is to collect and evaluate data to determine whether the remediation goals established in the CD have been met. As discussed in Section 2.5.2, a rigorous statistical approach is used to compare the mercury concentrations of Closed Area and Adjacent Open Area red drum tissue samples and to determine when the remediation goal has been met.

The Lavaca Bay Finfish and Shellfish OMMP provides for the collection of information to assess short-term trends (either increasing, decreasing, or static) in tissue recovery and to qualitatively evaluate remedy effectiveness. The OMMP states that increasing trends, based on multiple annual events, indicate that the sediment remediation efforts are not effective at reducing tissue concentrations and would warrant consideration of additional remedial measures. Decreasing trends,

also based on multiple annual events, indicate that the remedies are having the desired effects, subject to quantitative confirmation by statistical comparison of Closed Area and Adjacent Open Area red drum tissue samples. Static or fluctuating trends indicate that multiple parameters are influencing tissue concentrations, and further monitoring, with possible consideration of additional remedial measures, may be necessary.

During the fall 2018 monitoring event, Alcoa collected, delivered to the laboratory, and had analyzed 30 red drum from 10 sampling stations in the Closed Area and 30 red drum from 10 sampling stations in the Adjacent Open Area (three fish per station [Appendix C1]).

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 2018 annual monitoring event, 30 juvenile blue crab samples were collected from 10 marsh stations in the Adjacent Open Area, and 30 juvenile blue crab samples were collected from 10 marsh stations in the Closed Area (three samples per station; Appendix C1). The 20 stations sampled during the 2018 monitoring event were the same stations as those monitored during 2017.

2 ROUTINE MONITORING RESULTS

2.1 Verification of Site Conditions and Land Use

Conditions and land use within the Site remain consistent with those described in the ROD. The Texas Department of State Health Services' order against the taking of finfish and shellfish within the Closed Area remains current. Alcoa curtailed aluminum refining operations at the facility in 2016, which will not affect its future industrial land use but has reduced marine operations in Lavaca Bay near the facility.

As described in the 2013 RAAER (Alcoa 2014), industrial development projects at and adjacent to the Calhoun Port Authority harbor have been proposed in the past. These projects have included the widening and deepening of the Matagorda Ship Channel and other liquefied natural gas and energy-related projects. On-going discussions of those projects with the various stakeholder entities track the scope and schedule for future dredging activities to occur within the footprint of areas which potentially contain buried sediments with residual mercury contamination associated with the Site.

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 the evaluation of potentiometric surfaces created from water-level data collected from pumping and observation wells located at the CAPA. Concentrations of mercury and volatile organic compounds in system effluent samples were all less than the discharge standards listed in the CAPA Groundwater RDR and OMMP. Therefore, all performance standards were met during 2018.
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. Alcoa continues to evaluate the current CAPA groundwater extraction and treatment system and will provide USEPA with any recommended revisions as they are developed.

2.3 CAPA Offshore Surface Water Sampling

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

2.4 Site Inspections

2.4.1 Dredge Island Inspections

Dredge Island inspections were conducted quarterly throughout 2018, 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. In addition, a surficial soil sampling program was performed in 2018 to assess total mercury (THg) concentrations in those materials that could potentially become airborne during high-wind weather conditions; the sample results indicated very low THg levels and were reported to USEPA in Quarterly Report No. 43 on October 10, 2018.

As discussed in Section 1.6.3, Alcoa continues to evaluate the need for repairs to the Dredge Island decant CDF structures. In 2018, as described in Section 1.6.3, Alcoa performed a decant event in November and December to allow inspections of the structures during 2019.

Alcoa submitted revisions for the inspection and maintenance schedule to USEPA on February 25, 2019, via *Updates to Operations, Maintenance, and Monitoring Plans, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. The proposed frequency will be followed upon receipt of approval of the revisions.

2.4.2 CAPA Soil Cap Inspections

Quarterly inspections were conducted during 2018 as required by the CAPA Soil RDR and OMMP, and inspection records are contained in Appendix B2. Vegetation continues to be controlled to maintain cap integrity.

Alcoa submitted revisions for the inspection and maintenance schedule to USEPA on February 25, 2019, via *Updates to Operations, Maintenance, and Monitoring Plans, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. The proposed frequency will be followed upon receipt of approval of the revisions.

2.4.3 Witco Area Inspections

Inspections were conducted at the Witco Area in 2018 as required by the Witco Area Soils RDR and OMMP. Inspection records are contained in Appendix B3.

Conclusions of the 2018 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.

Alcoa submitted revisions for the inspection and maintenance schedule to USEPA on February 25, 2019, via *Updates to Operations, Maintenance, and Monitoring Plans, Alcoa (Point Comfort)/Lavaca Bay Superfund Site*. The proposed frequency will be followed upon receipt of approval of the revisions.

2.5 Routine Finfish and Shellfish Monitoring Results

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

2.5.1 Closed Area Red Drum Trends

Mean mercury concentrations in red drum tissue samples collected during each fall monitoring event since 1996 are provided in Table 2.5-1, and box-and-whisker plots[2] of the data are shown on Figure 2.5-1. 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 2018 sampling station is shown on Figure 2.5-2. The highest concentrations were mostly found in

[2] 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—and the highest and lowest values that fall inside limits defined by 1.5 times the Interquartile Range 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.

Causeway Cove and the western side of Dredge Island. This pattern differs when multiple years are grouped, as shown on Figure 2.5-3 for the period from 2010 to 2018.[3] The geographic pattern observed over multiple years indicates that in prior years the greatest uptake occurred in the Alcoa and Witco channels and Causeway Cove. The distribution of lower concentrations of red drum in 2018 data in these areas suggest that uptake in the Alcoa and Witco channels and Causeway Cove has decreased relative to the historical trends, possibly in response to channel dredging and marsh removal activities performed in 2017. Red drum data from three stations in these areas in 2017 and 2018 indicate decreases in the average red drum concentration at each station and the ratio of the red drum station average to the Adjacent Open Area red drum average (Table 2-5.2). Future monitoring will be required to confirm this trend, as the historical record indicates that interannual variability can be significant in data from specific stations.

Year-to-year variability in mercury concentrations in Closed Area red drum likely reflects the impact of non-sediment-related factors such as food availability, bioenergetics, migration, and intermixing of sub-populations (Figure 2.5-4). However, it is important to note that the data collected for Closed Area red drum has shown a continuous decrease after a peak in 2015. The average Closed Area mercury concentration in red drum has achieved record lows each year since 2016. Prior to 2016, the record low average was 0.76 mg/kg in 2004, and the average over 2004 to 2015 is 1.03 mg/kg. The 2018 average is 0.64 mg/kg.

To provide a perspective on how the Closed Area red drum mercury concentrations at all stations compare to those of the Adjacent Open Area, the 2018 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 2.5-5). The change in this ratio from the 2017 data is also shown on Figure 2.5-5 (three stations, LVB5504, CLO5900, and LVB5513, could not be sampled in both years). Ratios in the range of 2 to 5 have been characteristic of locations in the eastern Closed Area from Causeway Cove south through the Alcoa Channel, but as discussed above, ratios in these areas decreased in 2018. Unlike previous years, the locations on the west side of Dredge Island had ratios in the range of 2 to 5. The ratios for the location south of Dredge Island are similar to the ratios for the Adjacent Open Area. The ratio for station CLO6802 (near the Calhoun County Navigation District (CCND) property) is below the average for the Adjacent Open Area. In summary, the ratios of each Closed Area red drum station average to the Adjacent Open Area average decreased between 2017 and 2018 in all stations except CLO1414, CLO5803, CLO5815, and CLO5818 (Figure 2.5-5).

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

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

In accordance with the methods prescribed in the Lavaca Bay Finfish and Shellfish OMMP, statistical analyses were conducted to determine if the hypothesis that the Closed Area red drum mercury concentrations for 2018 had reached levels statistically indistinguishable from the red drum mercury concentrations in the Adjacent Open Area in 2018. The hypothesis is stated as follows:

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

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

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

- Sample up to 30 red drum from the Adjacent Open Area and 30 red drum from the Closed Area for mercury analysis. Due to logistical constraints, this target number may not be achievable. As long as the total sample sizes from each area are reasonably close to the target, the statistical test can accommodate the variability from the ideal target sample size.
- Evaluate assumptions of normality using normal quantile plots and a Kolmogorov-Smirnov goodness-of-fit test. Evaluate equality of variance using a Bartlett test.
  - Transformations to the data should be made as appropriate. If the data are better fitted to a log-normal distribution, a logarithmic transformation may be appropriate prior to conducting the means testing. Quantile plots and a Kolmogorov-Smirnov goodness-of-fit test will be used to determine whether the untransformed or transformed data are more appropriate for use in the means test.
- If data are normally distributed, conduct a parametric means test (e.g., t-test). If the data are not normally distributed, conduct a 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 2018—30 from the Closed Area and 30 from the Adjacent Open Area (Appendix C1). 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 2.5-6 using arithmetic (left) and log scales (right) for the data. Closed Area results indicate a relatively straight line below 0.35 micrograms per gram (µg/g) THg with a sharper slope at concentrations greater than 0.35 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 ($p = 1.8 \times 10^{-10}$).

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 2.5-3; $p<0.001$). The RAO of having the mean mercury concentrations in the Closed Area and Adjacent Open Area be comparable has not been achieved. The downward trend in concentration of mercury in red drum samples from the Adjacent Open Area over time is making the RAO harder to achieve:

- 2001 to 2003: 0.54 mg/kg
- 2004 to 2014: 0.43 mg/kg
- 2015 to 2018: 0.34 mg/kg

2.5.3 Results of 2018 Gut Content Survey

The 2018 gut content survey provided qualitative information about the biota consumed by red drum and contributed to the assessment of spatial and seasonal trends in the red drum diet. The contents of the stomachs of each red drum were removed, sorted, and identified to the extent possible (including fish not incorporated in mercury tissue analysis due to sample shipment delays).

Legal-sized red drum (508 to 711 millimeters in total length) were collected from established and supplemental sample stations in the Closed Area and Adjacent Open Area and processed by Benchmark Ecological Services, Inc., at the clean laboratory in the Alcoa PCO facility. A detailed description of the

methods for collecting red drum is provided in Appendix C1, and detailed results of the gut content survey are provided in Appendix C2.

Based on the results for 2018, the following observations can be made:

- Penaeid shrimp were the dominant species in the guts of fish collected from Adjacent Open Area marshes.
- Juvenile blue crabs, sand eels, and gulf menhaden were the dominant species in the guts of fish collected from Closed Area reefs.
- Of the three red drum caught in the Closed Area marshes, two guts were empty and one gut contained a grass shrimp.
- Fifteen of 30 red drum collected in the Closed Area and 10 of 30 red drum collected in the Adjacent Open Area had empty guts.

2.5.4 Juvenile Blue Crab Analysis

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

2.5.5 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 2.5-7) show a long-term downward trend, evident in narrowing distributions and declining median and maximum values, with interannual variability. The 2018 Closed Area data exhibit a mean of 0.10 mg/kg, which is about half of the value characteristic of the period from 2006 to 2011, but approximately twice the 2018 mean for the Adjacent Open Area. Annual red drum and blue crab average concentrations are variable and do not demonstrate significant covariation (Table 2.5-1). This is further evidence that factors such as diet, bioenergetics, movement, and intermixing of sub-populations play a significant role in red drum mercury concentrations measured in the Closed Area (Section 2.5-1).

Mercury concentrations in juvenile blue crab exhibit a geographic pattern, as shown on Figure 2.5-8. In 2018, the lowest THg concentration in juvenile blue crabs was found in the eastern and southeastern regions 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 2018 Closed Area blue crab concentrations and the 2018 Adjacent Open Area-wide average provide insight into the geographic pattern between the two areas (Figure 2.5-9). The highest ratio is found at the western side of Dredge Island, similar to the locations with the highest red drum ratios (Figure 2.5-5). In 2018, stations with lower blue crab THg concentrations tended also to be

stations with lower red drum THg concentrations; likewise, the highest average THg concentrations in blue crabs and red drum were measured at the same station (Figure 2.5-10).

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.

2.5.6 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 2.5-11a through 2.5-11d). The former Marsh 19 station, however, experienced a slight increase in mercury tissue concentrations in 2018. Juvenile blue crab concentrations at this station exhibit interannual variability, possibly related to the variable sediment concentrations that were observed in the former Marsh 19 data. Outliers in the mercury concentration of Marsh 19 sediment subsamples were reported in the 2008, 2011, 2014 and 2015 RAAERs (Alcoa 2009, 2012, 2015, and 2016e). When compared to the annual average mercury concentration in the Adjacent Open Area, some juvenile blue crabs are exhibiting mercury concentrations close to the Adjacent Open Area average (e.g., CLO6802), while other blue crabs exhibit a slowly decreasing trend (e.g., LVB5508), or show variability (e.g., CLO5815; Figures 2.5-11a through 2.5-11d). Continued annual sampling will provide greater insight into the long-term benefits of marsh removal and dredging activities.

Juvenile blue crabs can be found on open water sediment, unvegetated shorelines, and in vegetated marshes. Removing marsh vegetation reduces the habitat that supports red drum prey, but not unexpectedly, it does not completely eliminate prey items from those areas.

3 CONCLUSIONS

This section provides conclusions based on comparison of 2018 monitoring data and O&M activities to performance standards, the plans for response actions and continued monitoring in 2019, and a summary of overall remedy effectiveness.

3.1 Comparison to Performance Standards

Assessment of monitoring data and O&M activities during 2018 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 2018 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.
- The mean concentration of mercury measured in Closed Area red drum in 2018 (0.64 mg/kg) represent the lowest mean concentration measured in the CD monitoring program. The 2018 data represent a continuation of the downward trend observed in average concentrations over the last 3 years in Closed Area red drum.
- The mean concentration of mercury measured in the Adjacent Open Area red drum in 2018 is similar to the mean concentrations from prior years.
- At some stations, the mean concentration of mercury measured in juvenile blue crab during 2018 is lower than in 2017 and approaches the Adjacent Open Area average. Other stations exhibit either a slowly decreasing trend in mercury over time or variability in the average mercury concentration in recent years.
- The concentrations of mercury in Closed Area red drum in 2018 remain statistically elevated relative to concentrations of Adjacent Open Area red drum. Restrictions for the Closed Area remain.

3.2 Planned 2019 Response Actions

In 2019, Alcoa will continue to monitor the effects of response actions conducted to date. Alcoa will continue to perform O&M activities in areas where the response actions have occurred.

Public outreach efforts occurred in 2018. These efforts will continue as needed throughout the duration of the project as directed by USEPA. Implementation of institutional controls required by the CD will continue.

3.3 Continued Monitoring

Monitoring activities for 2019 will proceed according to the inspection and maintenance schedule submitted to USEPA on February 25, 2019, via *Updates to Operations, Maintenance, and Monitoring Plans, Alcoa (Point Comfort)/Lavaca Bay Superfund Site* upon receipt of approval from USEPA.

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

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TABLES

Table 2.5-1
Summary of Red Drum and Juvenile Blue Crab Tissue Data 1997-2018

Red Drum Sampling Event	Closed Area		Adjacent Open Area	
	Number of Samples	Mean THg (mg/kg ww)	Number of Samples	Mean THg (mg/kg ww)
4Q 1997	34	1.41	27	0.51
2001 Annual	30	1.33	15	0.49
2002 Annual	22	1.03	8	0.64
2003 Annual	29	1.09	30	0.48
2004 Annual	29	0.76	32	0.47
2005 Annual	30	0.87	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
2018 Annual	30	0.64	30	0.27
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
2018 Annual	30	0.10	30	0.04

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

Table 2.5-2

Changes in Red Drum Mercury at Three Stations in 2017 and 2018

Area	Station ID	Mean THg (mg/kg ww)			Mean THg in Adjacent Open Area (mg/kg ww)		Mean THg/Mean THg in Adjacent Open Area (mg/kg ww)		
		2017	2018	Change	2017	2018	2017	2018	Change
Causeway Cove	CLO5802	0.94	0.73	-0.21	0.30	0.27	3.17	2.75	-0.42
Witco	LVB5508	0.79	0.64	-0.16			2.69	2.40	-0.28
Causeway Reef	CLO5804	1.38	1.02	-0.36			4.65	3.84	-0.82

Notes:

mg/kg ww = milligrams per kilogram wet weight

THg = total mercury

Table 2.5-3
Summary of 2018 Red Drum Tissue Mercury Results

Area	Sample Size	Mean THg (mg/kg ww)[1]	Standard Deviation
Closed	30	0.64	0.408
Adjacent Open	30	0.27	0.082

Notes:

1 = Basic data are presented in Appendix C.

mg/kg ww = milligrams per kilogram wet weight

THg = total mercury

FIGURES

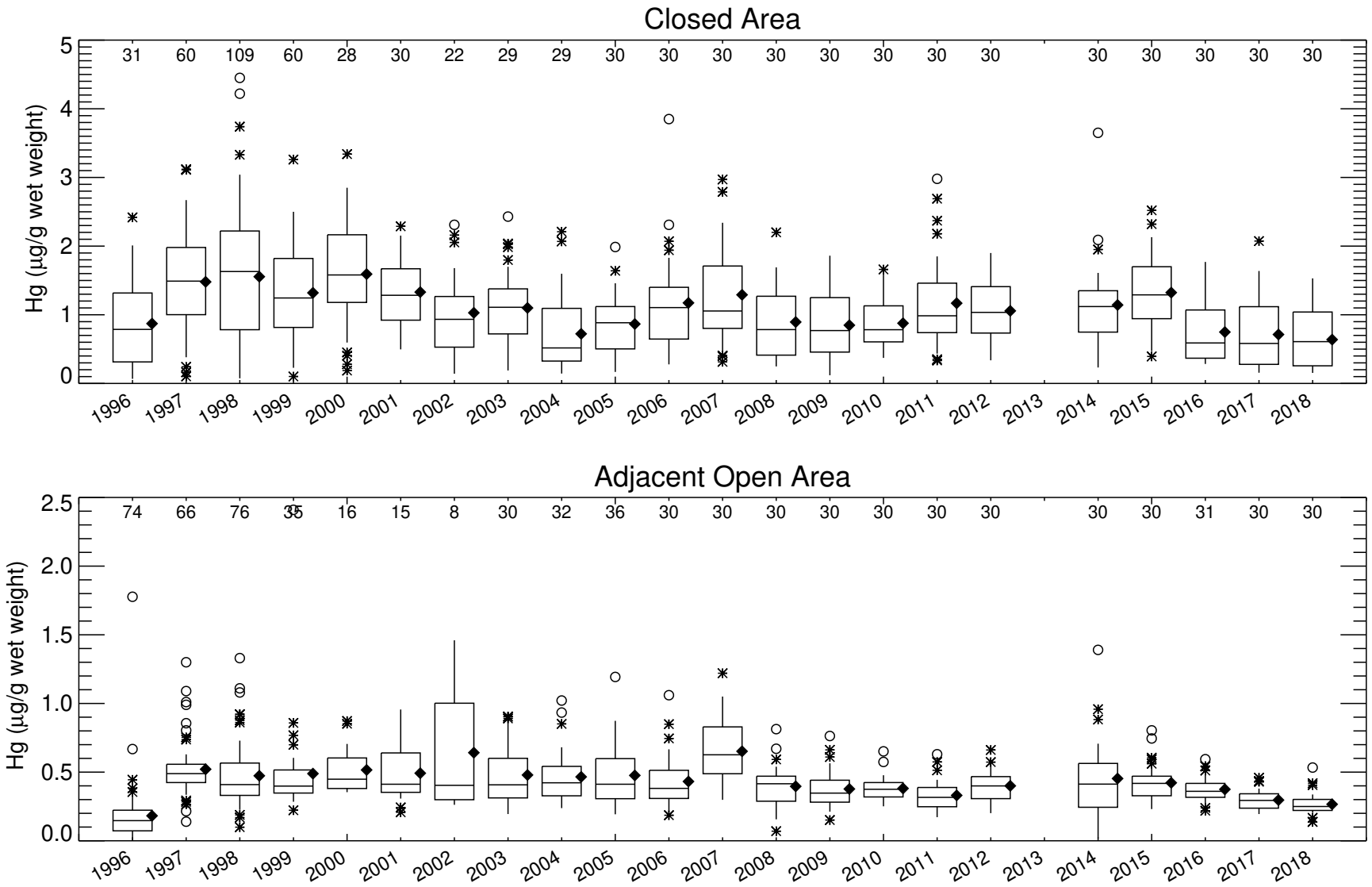

Figure 2.5–1

Lavaca Bay Red Drum Tissue Mercury Concentrations by Year, 1996–2018

Prepared for Alcoa Corporation

ANCHOR QEA

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Red Drum Stations (2018)

0 1,000 2,000 Feet

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

2018 RAAER

Closed Area Average Red Drum Total Hg (2018)

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 03/21/2019

Figure 2.5-2

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Red Drum Stations

0 1,000 2,000 Feet

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

2018 RAAER

Average Red Drum Total Hg 2010-2018

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 03/21/2019

Figure 2.5-3

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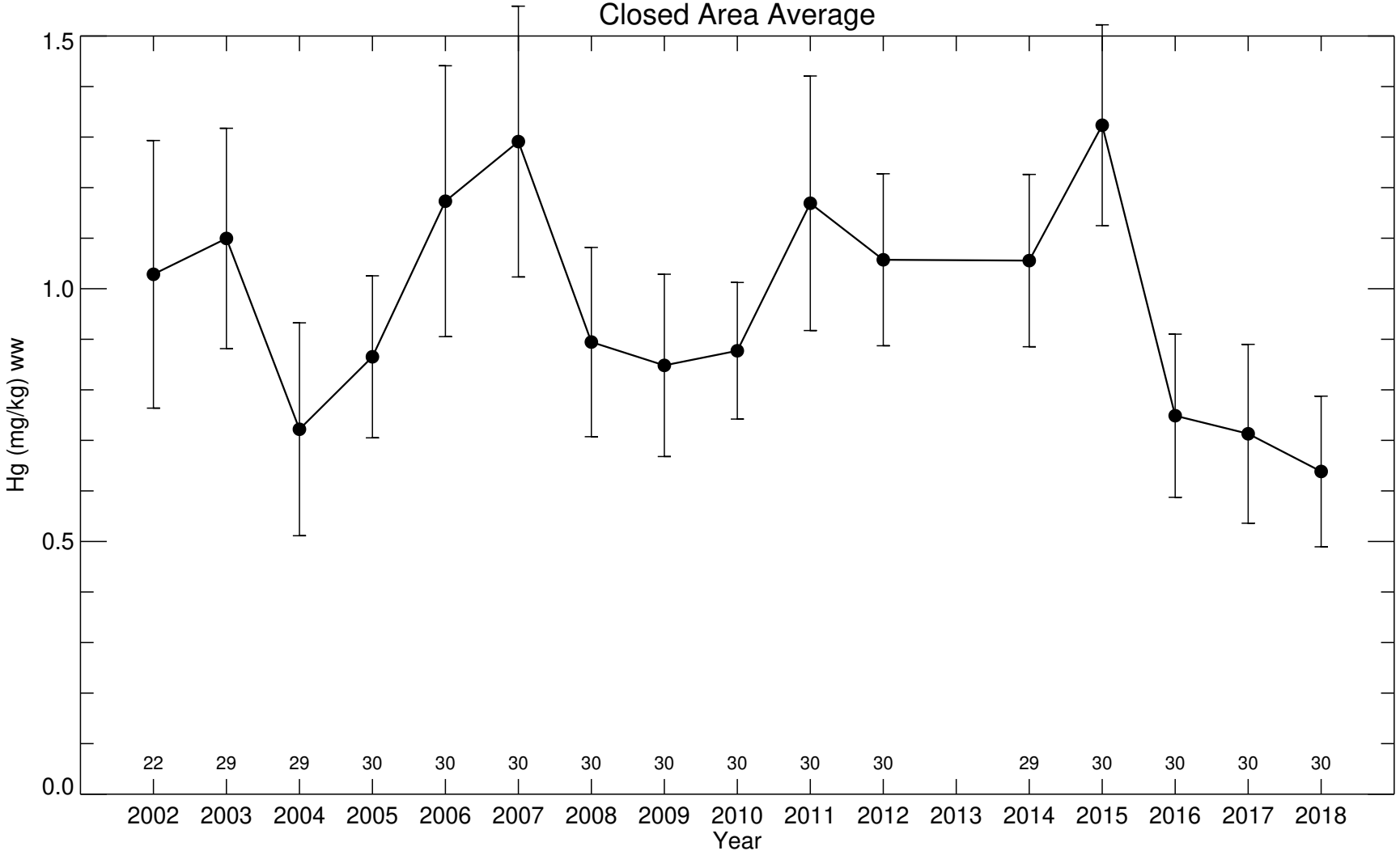

Figure 2.5–4

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

ANCHOR QEA

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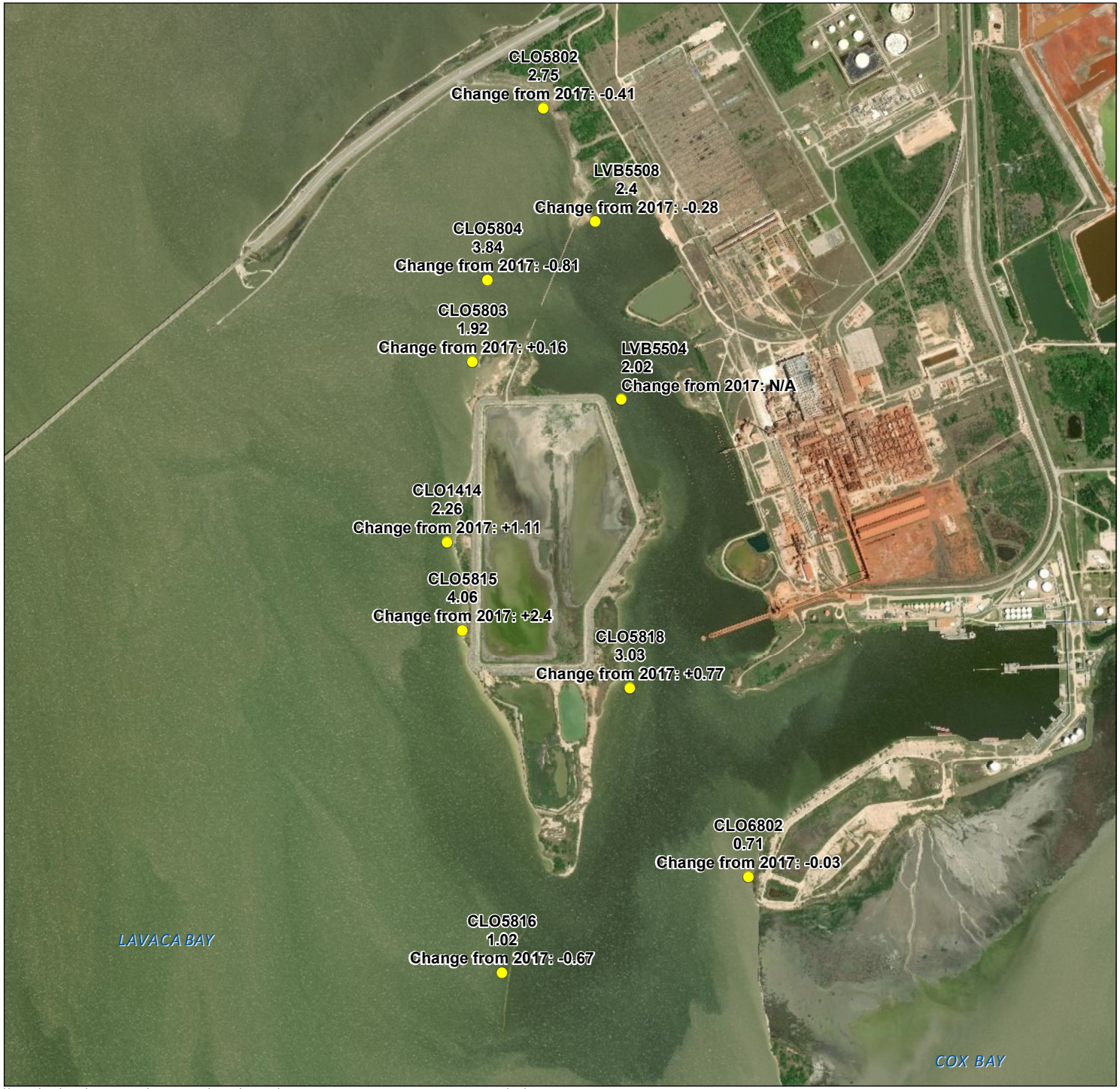

Red Drum Stations

0 1,000 2,000 Feet

NOTES:
Total mercury (Hg) results are shown in ug/g wet weight. LVB5504 was not sampled in 2017 and therefore a change in ratio is not posted.

2018 RAAER

Ratio of Closed Area Red Drum Station 2018 Average to Average in Adjacent Open Area

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 03/21/2019

Figure 2.5-5

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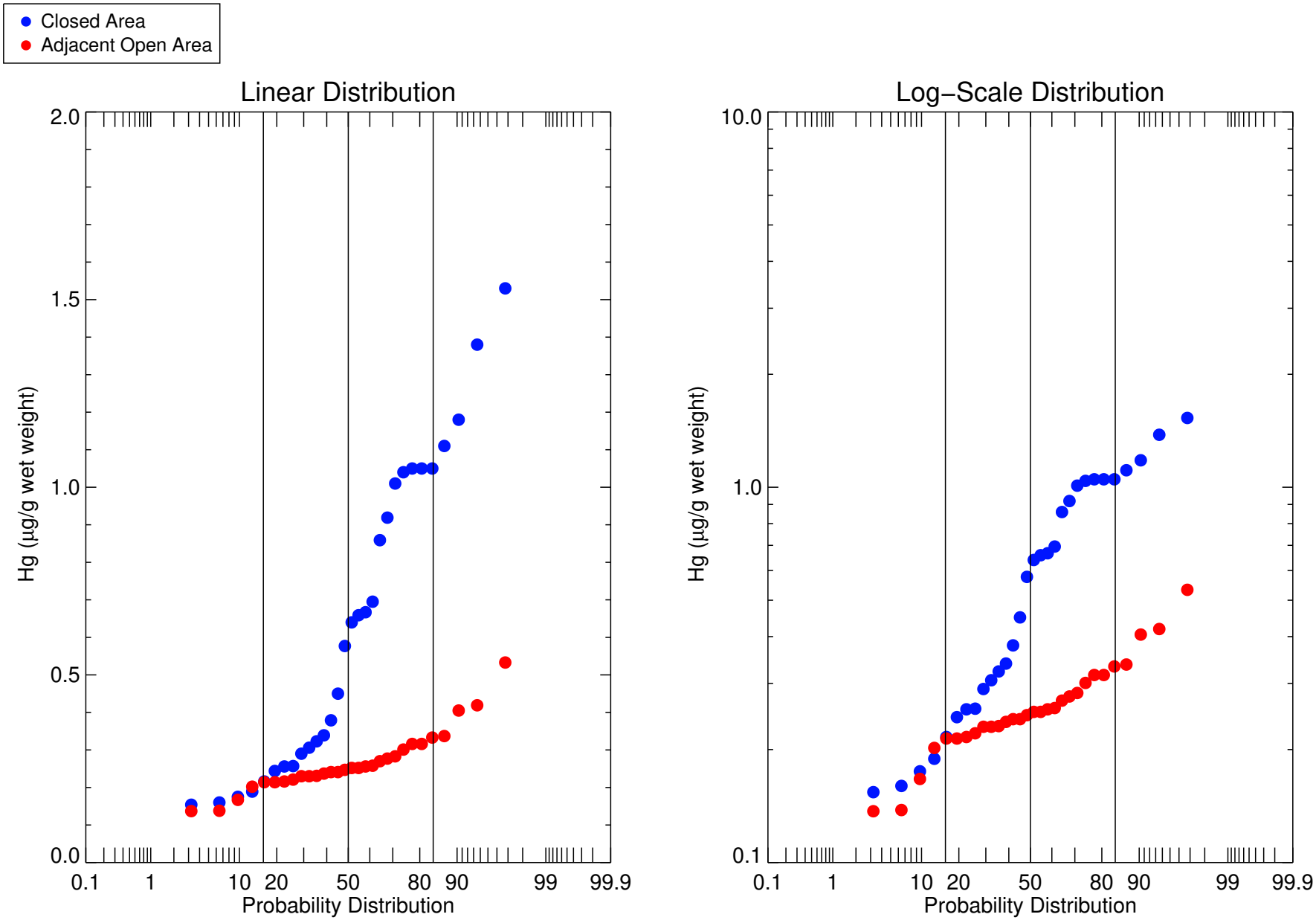

Figure 2.5–6

Lavaca Bay 2018 Red Drum Mercury Distributions

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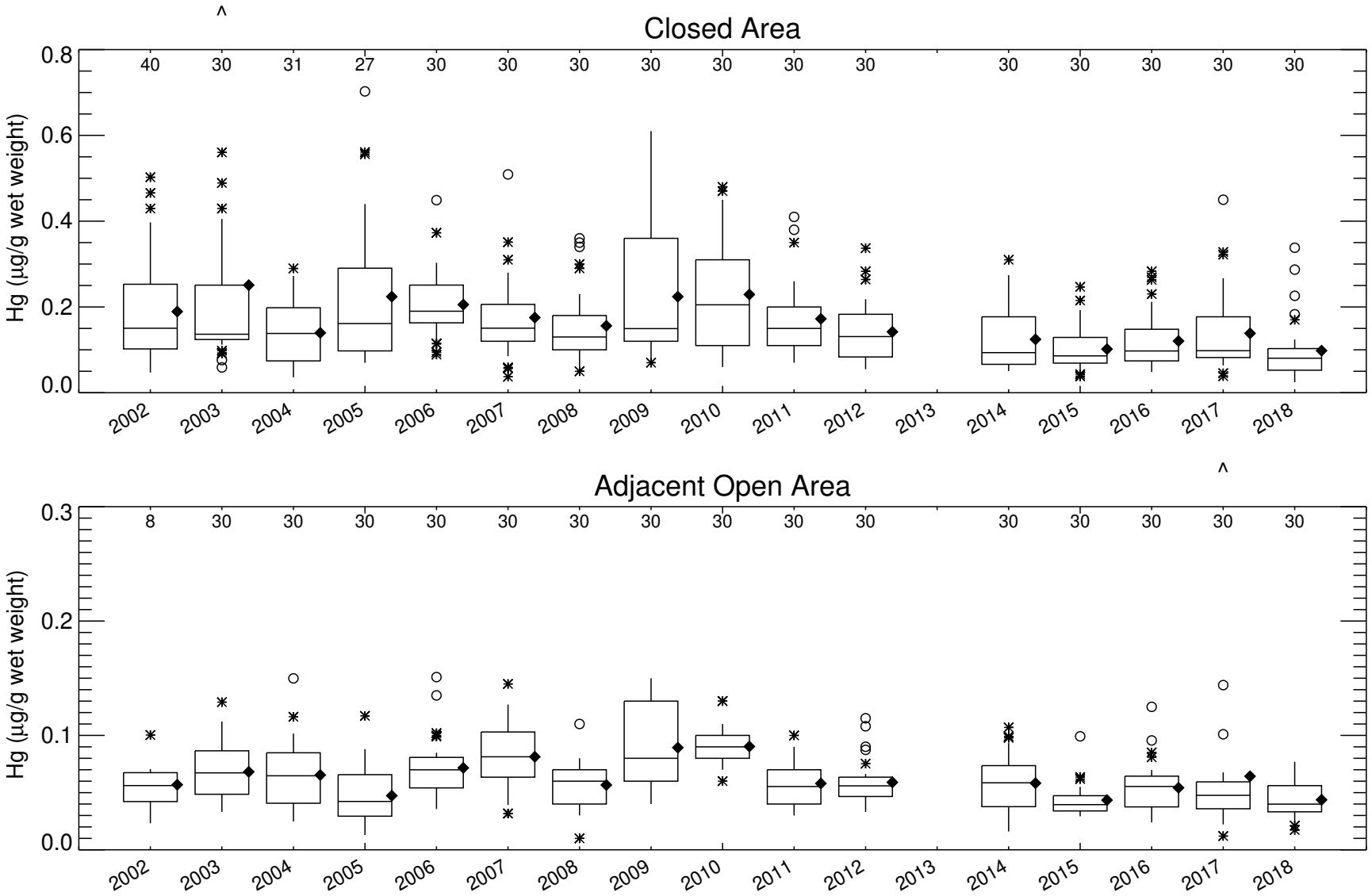

Figure 2.5–7

Lavaca Bay Juvenile Blue Crab Mercury Concentrations by Year, 2002–2018

Prepared for Alcoa Corporation

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Juvenile Blue Crab Stations (2018)

0 1,000 2,000 Feet

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

2018 RAAER

Closed Area Average Juvenile Blue Crab Total Hg (2018)

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 03/21/2019

Figure 2.5-8

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Juvenile Blue Crab Stations

0 1,000 2,000 Feet

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

2018 RAAER

Ratio of Closed Area Juvenile Blue Crab Station 2018 Average to Average in Adjacent Open Area

Prepared for Alcoa Corporation

ANCHOR QEA

Date: 03/21/2019

Figure 2.5-9

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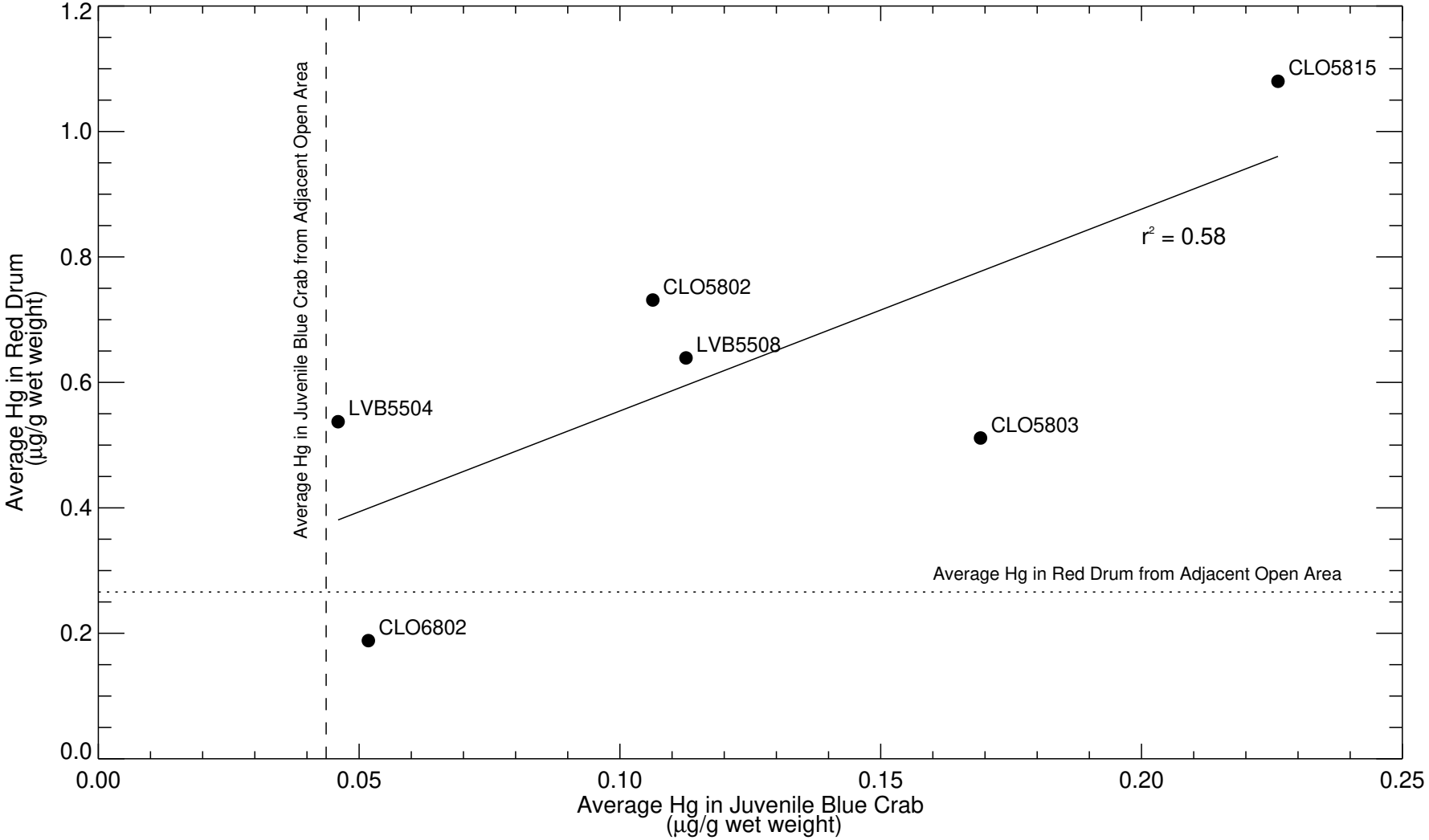

Figure 2.5–10

Comparison of Mercury in Red Drum and Juvenile Blue Crab Collected in Closed Area in 2018

Prepared for Alcoa Corporation

ANCHOR QEA

EC – \\austin2\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Hg_Trends\Red_drum_vs_bluecrab_crossplot.pro
Tue Mar 05 09:42:51 2019

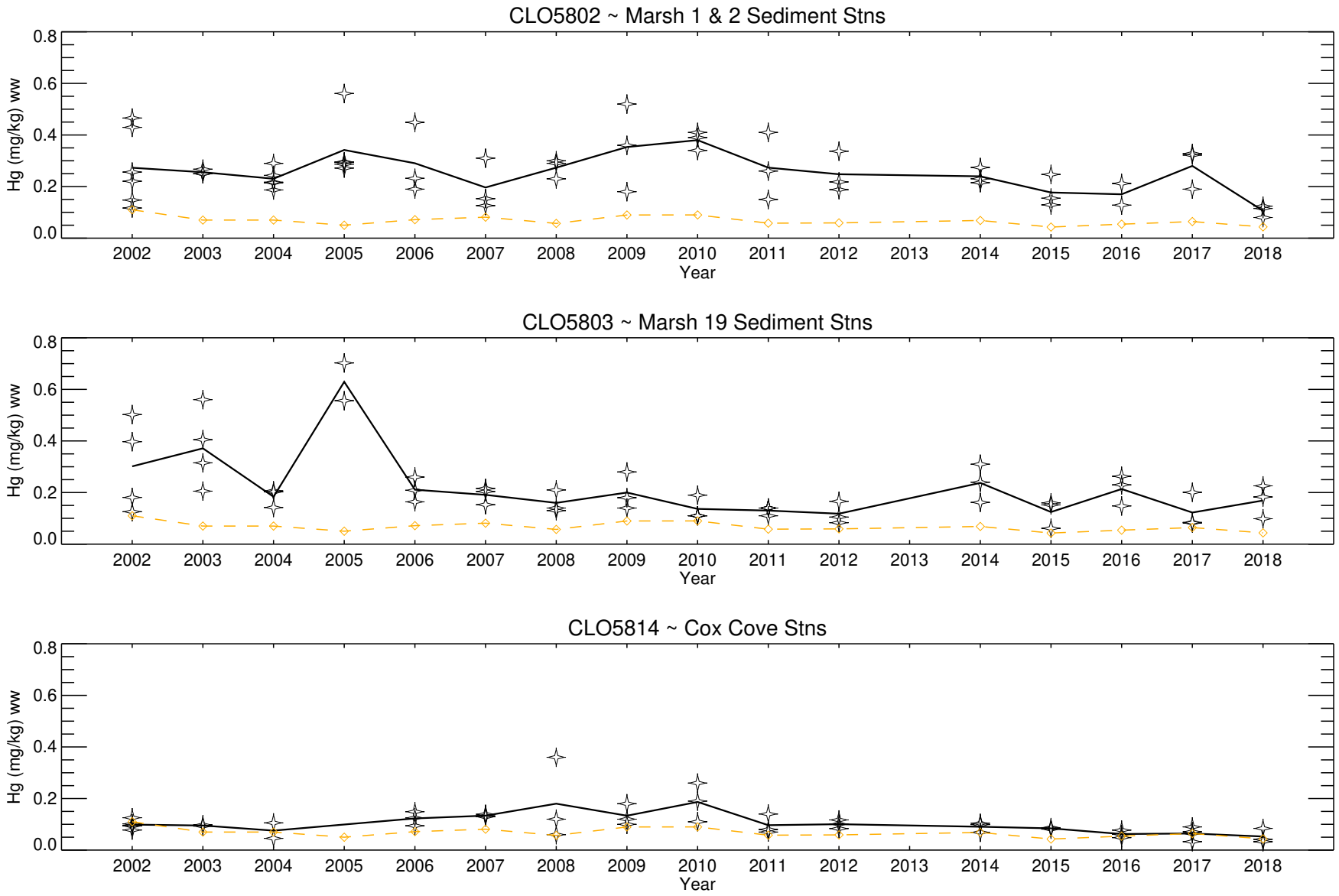

Figure 2.5–11a

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
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Tue Mar 05 11:19:28 2019

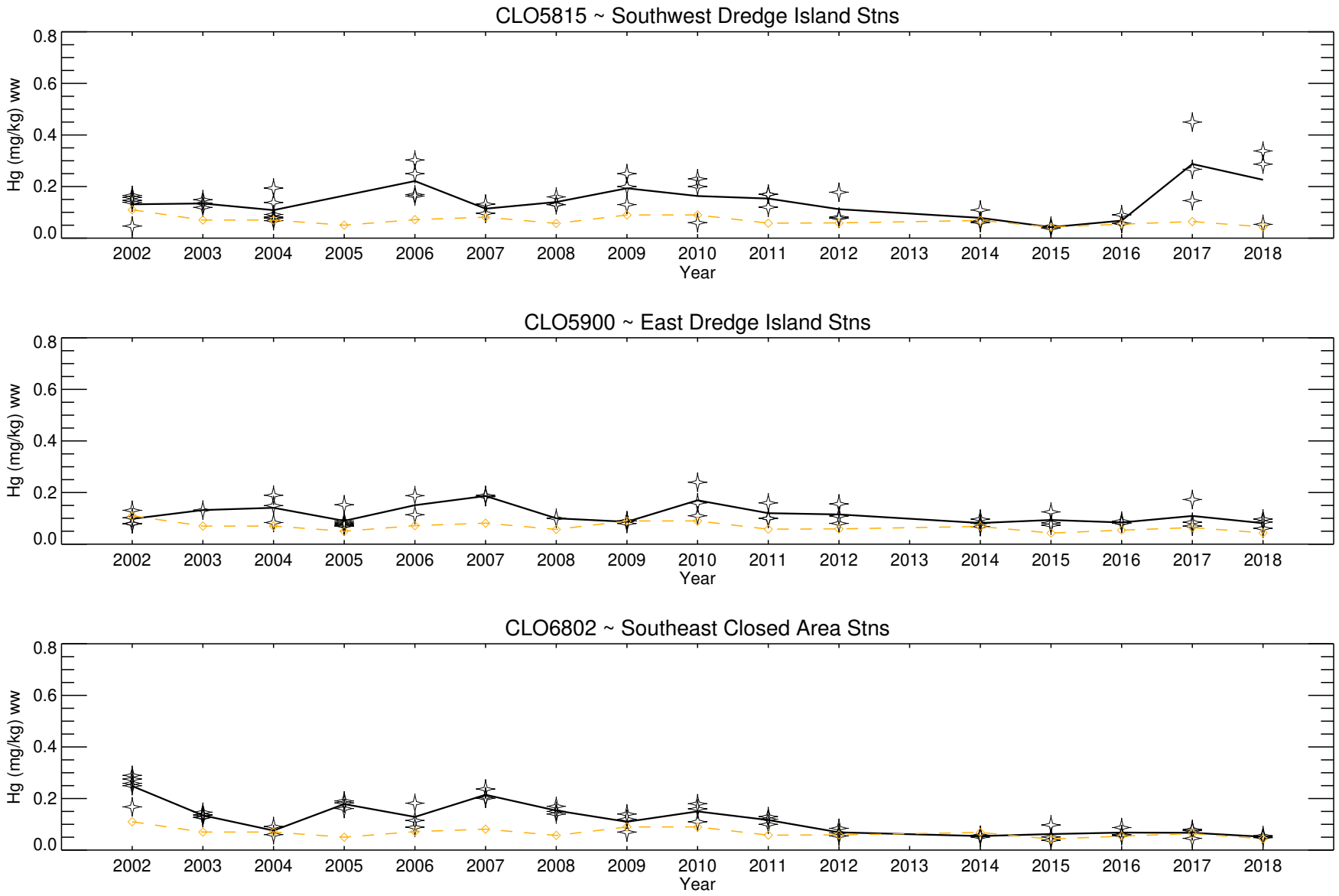

Figure 2.5–11b

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
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Tue Mar 05 11:19:28 2019

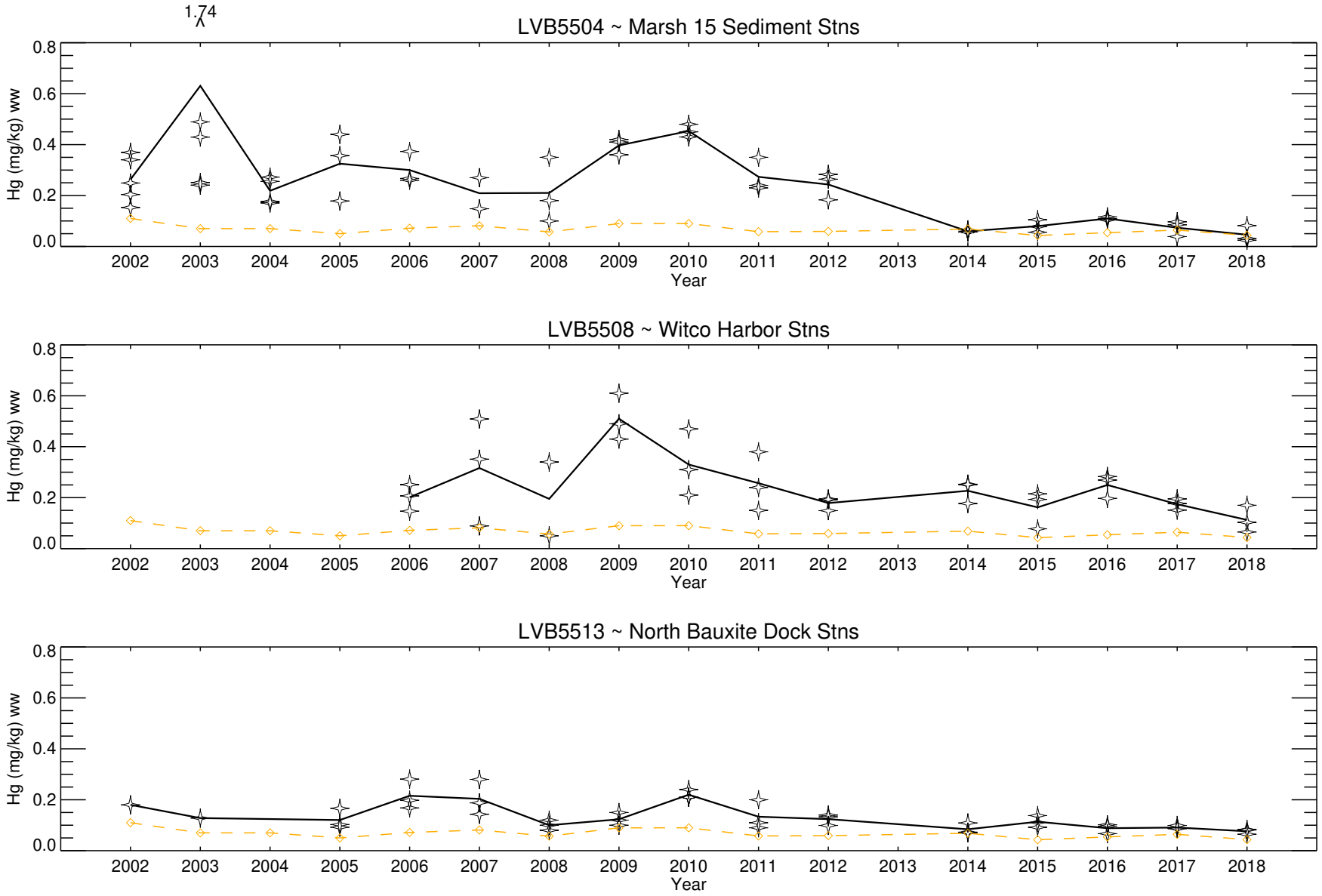

Figure 2.5–11c

Closed Area Blue Crab Mercury Trends by Station

Notes: Average sample concentration plotted as straight line underlying individual sample concentrations.
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EC – \\austin2\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Hg_Trends\bluecrab_temporals_wnewdata.pro
Tue Mar 05 11:19:28 2019

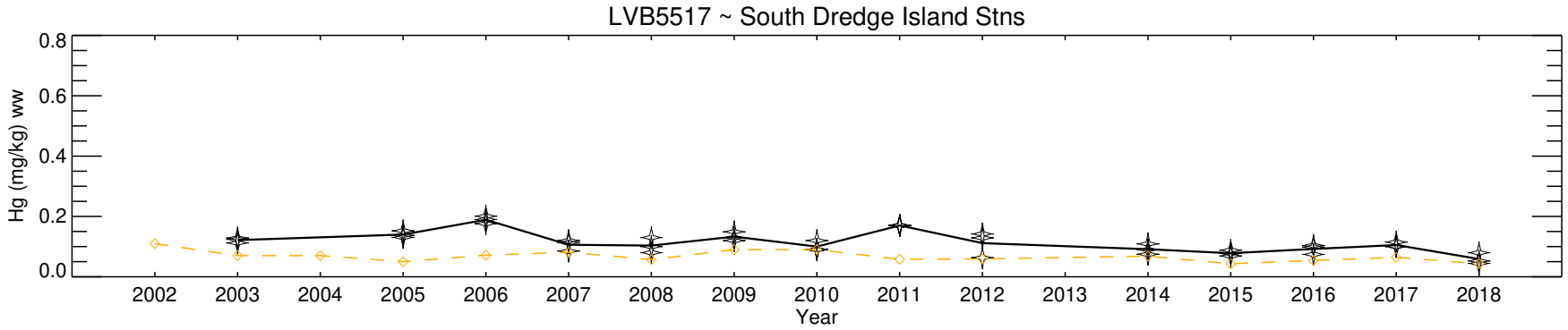

Figure 2.5–11d

Closed Area Blue Crab Mercury Trends by Station

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

ANCHOR QEA

EC – \\austin2\Austin\D_drive\Projects\Alcoa\Lavaca_Bay\Analysis\Hg_Trends\bluecrab_temporals_wnewdata.pro
Tue Mar 05 11:19:28 2019

APPENDIX A
CAPA GROUNDWATER 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	
	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	

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	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			
	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	

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	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	
	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	

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	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	
	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	

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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	2/11/03	<	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	
	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	

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	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	
	2/28/05		0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.98	
	3/7/05		0.00028		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.08	
	3/14/05	B	0.00013		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.05	
	3/21/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.84	
	3/29/05		0.00029		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.15	
	4/5/05		0.00023		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.87	
	4/11/05		0.00033		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.84	
	4/19/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.72	
	4/27/05	B	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.12	
	5/2/05	B	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.14	
	5/9/05		0.00051		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	
	5/16/05	B	0.00026		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.71	
	5/24/05		0.00051		<	0.001		J	0.0002		<	0.005		<	0.001		<	0.001		6.83	
	5/30/05		0.00074		<	0.001		J	0.0002		<	0.005		<	0.001		<	0.001		6.83	
	6/6/05		0.00035		<	0.001		J	0.0004		<	0.005		<	0.001		<	0.001		6.88	
	6/13/05	<	0.0002	B	<	0.001		J	0.0004		<	0.005		<	0.001		<	0.001		7.00	
	6/23/05	<	0.0002		<	0.001		J	0.0003		<	0.005		<	0.001		<	0.001		6.40	

Table 1
CAPA Groundwater Treatment System
Analytical Results
Treatment System Effluent

Sample Tap	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	6/27/05		0.0005		J	0.0002		J	0.0006		<	0.005		<	0.001		<	0.001		7.82	
ST-C	7/7/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.40	Carbon change out 6/29/05
	7/11/05		0.00032		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		8.07	
	7/18/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.82	
	7/25/05		0.00037		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.85	
	8/2/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	8/9/05	B	0.00014		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.36	
	8/15/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.68	
	8/23/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.89	
	8/29/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.80	
	9/6/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.90	
	9/13/05		0.00065		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	9/20/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.59	
	9/30/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.76	
	10/4/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.91	
	10/12/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.68	
	10/17/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	10/25/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.78	
	11/2/05	B	0.00011		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.79	
	11/9/05	B	0.00018		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.56	
	11/14/05		0.0004		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	11/23/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.77	
	11/29/05	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.68	
	12/5/05	<	0.0001		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.55	
	12/16/05	<	0.0001		<	0.001		<	0.001		J	0.0005		<	0.001		<	0.001		6.75	
	12/19/05	<	0.0001		<	0.001		<	0.001		J	0.0002		<	0.001		<	0.001		7.60	
	12/28/05	<	0.0001	Y	<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		7.60	
	1/5/06	B	0.0001		<	0.001		<	0.001		J	0.0002		<	0.001		<	0.001		6.63	
	1/10/06	B	0.0001		<	0.001		<	0.001		J	0.0003		<	0.001		<	0.001		6.68	
	1/17/06		0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.82	
	1/25/06	B	0.00017		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.89	
	1/31/06		0.00024		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.79	
	2/6/06	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.85	
	2/13/06	<	0.0002		<	0.001		<	0.001		<	0.005		<	0.001		<	0.001		6.78	
	2/24/06	J	0.00019		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		6.42	
	2/27/06	<	0.0001		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		7.36	
	3/6/06	<	0.0001		H, <	0.0001		H, <	0.0002		H, <	0.0002		H, <	0.0002		H, <	0.0002		6.75	
	3/13/06		0.00057		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		6.77	
	3/20/06		0.00032		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		7.00	
	3/27/06	<	0.0001		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		6.66	
	4/3/06	J	0.00018		<	0.0002		<	0.0002		<	0.0002		<	0.0002		<	0.0002		7.23	
	4/11/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.86	
	4/18/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.40	
	4/25/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.76	
	5/3/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.30	
	5/11/06		0.00052		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.86	
	5/17/06		0.00038		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.82	
	5/22/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		7.06	
	5/30/06	J	0.00015		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		6.95	
	6/5/06	<	0.00013		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		7.14	
	6/12/06	B	0.00038		<	0.00025		J	0.00026		<	0.00053		<	0.0002		<	0.00032		6.81	
	6/23/06	J	0.00016		<	0.00025		J	0.00039		<	0.00053		<	0.0002		<	0.00032		6.97	
	6/27/06	J	0.00018		<	0.00025		<	0.0002		<	0.00053		<	0.0002		<	0.00032		7.24	
	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	

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	9/6/06	J	0.00017		J	0.00057			0.0022		<	0.00053		<	0.0002		<	0.00032		6.77	
Continued	9/13/06	J	0.00017		J	0.00095			0.0027		<	0.00053		<	0.0002		<	0.00032		6.58	
	9/18/06	<	0.00013			0.001			0.0033		<	0.00053		<	0.0002		<	0.00032		6.94	
	9/26/06	<	0.00013			0.0015			0.0038		<	0.00053		<	0.0002		<	0.00032		6.88	
	10/3/06	<	0.00013			0.0017			0.0037		<	0.00053		<	0.0002		<	0.00032		6.78	
	10/9/06		0.00046			0.0015			0.0031		<	0.00053		<	0.0002		<	0.00032		6.88	
	10/17/06		0.00022		J	0.00084			0.0026		<	0.00053		<	0.0002		<	0.00032		6.58	
	10/24/06		0.00026			0.0013			0.0038		<	0.00053		<	0.0002		<	0.00032		7.06	
	11/2/06		0.00024			0.0016			0.0036		<	0.00053		<	0.0002		<	0.00032		6.67	
	11/8/06	<	0.00013			0.0015			0.004		<	0.00053		<	0.0002		<	0.00032		7.04	
	11/15/06	<	0.00013			0.0014		B	0.0035		<	0.00053		<	0.0002		<	0.00032		6.78	
	11/21/06	<	0.00013			0.0016			0.0031		<	0.00053		<	0.0002		<	0.00032		7.00	
	11/27/06		0.00034			0.0019			0.0039		<	0.00053		<	0.0002		<	0.00032		7.26	
	12/5/06		0.00071			0.0021			0.0034		<	0.00053		<	0.0002		<	0.00032		6.67	
	12/14/06	<	0.00013			0.0027			0.0037		<	0.00053		<	0.0002		<	0.00032		6.93	
	12/20/06		0.00022			0.0032			0.0034		<	0.00053		<	0.0002		<	0.00032		7.08	
	12/27/06		0.00051			0.0029			0.003		<	0.00053		<	0.0002		<	0.00032		7.04	
	1/2/07	<	0.00013			0.0026			0.0026		<	0.00053		<	0.0002		<	0.00032		6.70	
	1/11/07	<	0.00013			0.0029			0.003		<	0.00053		<	0.0002		<	0.00032		6.88	
	1/18/07	J	0.00016			0.0023			0.0022		<	0.00053		<	0.0002		<	0.00032		6.40	
	1/25/07		0.00023			0.0026			0.0025		<	0.00053		<	0.0002		<	0.00032		6.58	
	2/1/07	<	0.00013			0.0023			0.0023		<	0.00053		<	0.0002		<	0.00032		6.63	
	2/8/07		0.00025			0.003			0.0028		<	0.00053		<	0.0002		<	0.00032		6.70	
	2/13/07		0.00023			0.0026			0.0023		<	0.00053		<	0.0002		<	0.00032		6.90	
	2/20/07		0.00035			0.0045			0.0032		<	0.00053		<	0.0002		<	0.00032		6.96	
	3/1/07	<	0.00013			0.0036			0.0029		<	0.00053		<	0.0002		<	0.00032		6.65	
	3/8/07	<	0.00013			0.0039			0.0032		<	0.00053		<	0.0002		<	0.00032		6.58	
	3/16/07	<	0.00013			0.003			0.0027		<	0.00053		<	0.0002		<	0.00032		6.61	
	3/19/07	<	0.00013			0.0034			0.0032		<	0.00053		<	0.0002		<	0.00032		6.56	
	3/27/07	<	0.00013			0.0026			0.0026		<	0.00053		<	0.0002		<	0.00032		6.86	
	4/3/07	<	0.00013			0.0045			0.0031		<	0.00053		<	0.0002		<	0.00032		6.40	
	4/12/07	<	0.00013			0.0036			0.0025		<	0.00053		<	0.0002		<	0.00032		6.36	
	4/19/07	<	0.00013			0.0042			0.0024		<	0.00053		<	0.0002		<	0.00032		6.29	
	4/24/07	J	0.00013			0.005			0.0031		<	0.00053		<	0.0002		<	0.00032		6.30	
	5/1/07	<	0.00013			0.0051			0.0026		<	0.00053		<	0.0002		<	0.00032		6.80	
	5/10/07	<	0.00013			0.0032			0.0025		<	0.00053		<	0.0002		<	0.00032		6.63	
	5/18/07	<	0.00013			0.0032			0.0023		<	0.00053		<	0.0002		<	0.00032		6.50	
	5/25/07	B	0.00033			0.0038			0.0029		<	0.00053		<	0.0002		<	0.00032		5.49	
	5/31/07	B	0.00073			0.0047			0.0022		<	0.00053		<	0.0002		<	0.00032		6.51	
	6/6/07		0.00031			0.0039			0.0021		<	0.00053		<	0.0002		<	0.00032		6.32	
	6/15/07		0.00038			0.0058			0.0022		<	0.00053		<	0.0002		<	0.00032		6.19	
	6/21/07		0.00038			0.0066			0.0024		<	0.00053		<	0.0002		<	0.00032		6.90	
	6/25/07	<	0.00013			0.0056			0.0025		<	0.00053		<	0.0002		<	0.00032		6.87	
	7/6/07		0.00027			0.0053			0.0019		<	0.00053		<	0.0002		<	0.00032		6.88	
	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	

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	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	
	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	

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	12/31/08		0.00022		<	0.00025		<	0.0002		<	0.002		<	0.0002		<	0.00032		6.84	
Continued	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	
	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	

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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	3/2/10	J	0.000145			0.038			0.0083		U	0.0005		U	0.0006		U	0.0005		7.03	
Continued	3/10/10	J	0.00016			0.044			0.009		U	0.0005		U	0.0006		U	0.0005		6.39	
ST-A	3/17/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.14	Carbon change out
	3/22/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.46	
	3/31/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.03	
	4/6/10	J	0.000084		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.20	
	4/12/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.63	
	4/22/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.44	
	4/28/10	J	0.000083		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.87	
	5/4/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.62	
	5/10/10	J	0.000081		U	0.0005		J	0.00078		U	0.0005		U	0.0006		U	0.0005		6.75	
	5/20/10	U	0.000042		U	0.0005		J	0.0014		J	0.00077		U	0.0006		U	0.0005		6.58	
	5/24/10	J	0.000149		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.76	
	6/2/10	U	0.000042		U	0.0005		J	0.0017		U	0.0005		U	0.0006		U	0.0005		7.02	
	6/7/10	J	0.000066		J	0.0043		J	0.0019		U	0.0005		U	0.0006		U	0.0005		7.00	
	6/14/10	J	0.000088		J	0.0011		J	0.0021		U	0.0005		U	0.0006		U	0.0005		7.28	
	6/23/10	J	0.000159		J	0.0025		J	0.0032		U	0.0005		U	0.0006		U	0.0005		6.71	
	7/1/10	U	0.000042		J	0.0032		J	0.0044		U	0.0005		U	0.0006		U	0.0005		6.51	
	7/6/10	J	0.000049			0.066		J	0.0042		U	0.0005		U	0.0006		U	0.0005		6.48	
	7/12/10	U	0.000042			0.0061			0.0055		U	0.0005		U	0.0006		U	0.0005		6.99	
	7/22/10	J	0.000092			0.0084			0.007		U	0.0005		U	0.0006		U	0.0005		7.64	
	7/26/10	J	0.000069			0.0085			0.0071		U	0.0005		U	0.0006		U	0.0005		7.61	
	8/2/10	J	0.000069			0.015			0.0076		U	0.0005		U	0.0006		U	0.0005		7.40	
	8/12/10	U	0.000042			0.012			0.0081		U	0.0005		U	0.0006		U	0.0005		6.39	
	8/18/10	J	0.000078			0.016			0.0082		U	0.0005		U	0.0006		U	0.0005		6.51	
	8/23/10	J	0.00008			0.021			0.0096		U	0.0005		U	0.0006		U	0.0005		6.79	
	8/30/10	J	0.000075			0.02			0.0096		U	0.0005		U	0.0006		U	0.0005		6.85	
	9/8/10	U	0.000042			0.021			0.0092		U	0.0005		U	0.0006		U	0.0005		6.34	Carbon change out 9/10/10
ST-C	9/14/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.53	
	9/20/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		J	0.0011		U	0.0005		7.37	
	9/27/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.12	
	10/4/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.15	
	10/12/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.13	
	10/18/10		0.000439		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.18	
	10/28/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.86	
	11/4/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.62	
	11/8/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.15	
	11/15/10	J	0.000048		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.43	
	11/23/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.33	
	11/29/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.96	
	12/6/10	J	0.000043		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.11	
	12/14/10	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.83	
	12/21/10	J	0.000075		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.88	
	12/28/10	J	0.000061		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		4.78	
	1/3/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.16	
	1/13/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.86	
	1/17/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.78	
	1/24/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.53	
	1/31/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.51	
	2/7/11	J	0.000058		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		6.58	
	2/14/11	J	0.000052		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.63	
	2/24/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.79	
	3/1/11	J	0.000057		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.36	
	3/11/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.80	
	3/18/11	J	0.000060		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.66	
	3/25/11	J	0.000054		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.10	
	4/1/11	J	0.000084		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.22	
	4/6/11	J	0.000055		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.44	
	4/13/11	U	0.000042		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.36	
	4/19/11	J	0.000055		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.07	
	4/25/11	J	0.000076		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		8.04	
	5/3/11	J	0.000049		U	0.0005		U	0.0005		U	0.0005		U	0.0006		U	0.0005		7.18	

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		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	5/13/11	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	
	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	

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	7/20/12	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	
	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

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	9/26/13	J	0.000053		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.77	
	10/1/13	U	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.61	
	10/7/13	U	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.67	
	10/17/13	U	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.43	
	10/25/13	J	0.000076		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.56	
	10/31/13	J	0.000059		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.39	
	11/7/13	J	0.000095		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.48	
	11/15/13	J	0.000105		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.44	
	11/18/13	J	0.00006		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.42	
	11/25/13	J	0.000057		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.39	
	12/5/13	J	0.000069		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.40	
	12/13/13	J	0.00004		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.43	
	12/17/13	J	0.000054		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.44	
	12/23/13	J	0.000052		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.41	
	1/3/14	J	0.000123		U	0.001		U	0.001		U	0.001		U	0.001		U	0.001		6.36	
	1/9/14	J	0.000111		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.26	
	1/16/14	J	0.000075		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.29	
	1/23/14	J	0.000081		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.41	
	1/26/14	J	0.00006		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.43	
	2/7/14	J	0.000064		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.40	
	2/10/14	J	0.000066		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	2/18/14	J	0.000047		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.36	
	2/24/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	3/4/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.44	
	3/10/14	J	0.000042		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.37	
	3/20/14	J	0.000044		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	3/24/14	J	0.000062		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.35	
	4/3/14	J	0.000048		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.25	
	4/10/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.25	
	4/17/14	J	0.000081		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.34	
	4/23/14	J	0.000086		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.22	
	4/29/14	J	0.000042		U	0.0005		U	0.0002		U	0.0004		U	0.0003		U	0.0002		6.25	
	5/7/14	J	0.000084		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.25	
	5/13/14	J	0.000058		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.28	
	5/22/14	J	0.000097		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.32	
	5/27/14	U	0.00004		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.27	
	6/6/14	J	0.000047		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.24	
	6/11/14	J	0.000067		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.20	
	6/19/14	J	0.000083		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.14	
	6/23/14	J	0.000097		U	0.0006		U	0.0006		U	0.001		U	0.0006		U	0.0005		6.36	
	6/30/14	J	0.000127		U	0.0006		J	0.0008		U	0.001		U	0.0006		U	0.0005		6.46	
	7/9/14	J	0.000055		U	0.0006		J	0.0008		U	0.001		U	0.0006		U	0.0005		6.27	
	7/15/14	J	0.000126		U	0.0006		J	0.0010		U	0.001		U	0.0006		U	0.0005		6.25	
	7/21/14	J	0.000095		U	0.0006		J	0.0011		U	0.001		U	0.0006		U	0.0005		6.91	
	7/29/14	U	0.000040		U	0.0006		J	0.0010		U	0.001		U	0.0006		U	0.0005		6.93	
	8/4/14	U	0.000040		U	0.0006		J	0.0014		U	0.001		U	0.0006		U	0.0005		7.07	
	8/15/14	J	0.000063		U	0.0006		J	0.0021		U	0.001		U	0.0006		U	0.0005		7.10	
	8/18/14	J	0.000097		J	0.00067		J	0.0026		U	0.001		U	0.0006		U	0.0005		7.21	
	8/25/14	J	0.000074		U	0.0006		J	0.0020		U	0.001		U	0.0006		U	0.0005		7.11	
	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	

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	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			pH probe not working properly
	3/10/15	J	0.000132			0.011		J	0.0030		U	0.0010		U	0.00060		U	0.00050		6.47	
	3/18/15	J	0.0000760			0.012		J	0.0038		U	0.0010		U	0.00060		U	0.00050		6.34	
	3/26/15	J	0.0000670			0.012		J	0.0035		U	0.0010		U	0.00060		U	0.00050		6.60	
	4/3/15	J	0.0000970			0.013		J	0.0036		U	0.0010		U	0.00060		U	0.00050		6.62	
	4/6/15	J	0.0001380			0.013		J	0.0036		U	0.0010		U	0.00060		U	0.00050		6.55	
	4/14/15	J	0.0000400			0.012		J	0.0026		U	0.0010		U	0.00060		U	0.00050		6.37	
	4/22/15	J	0.0000840			0.015		J	0.0029		U	0.0010		U	0.00060		U	0.00050		6.53	
	4/28/15	J	0.000153			0.012		J	0.0026		U	0.0010		U	0.00060		U	0.00050		6.64	
	5/7/15	J	0.000150			0.014		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.72	
	5/13/15	J	0.000113			0.011		J	0.0023		U	0.0010		U	0.00060		U	0.00050		6.51	
	5/21/15	J	0.000104			0.011		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.67	
	5/27/15	J	0.000126			0.011		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.47	
	6/5/15	J	0.000126			0.016		J	0.0025		U	0.0010		U	0.00060		U	0.00050		6.62	
	6/12/15	J	0.0000880			0.015		J	0.0024		U	0.0010		U	0.00060		U	0.00050		7.25	
	6/19/15	J	0.000132			0.016		J	0.0023		U	0.0010		U	0.00060		U	0.00050		7.46	
	6/24/15	J	0.000155			0.017		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.82	
	7/2/15	J	0.0001440			0.015		J	0.0021		U	0.0010		U	0.00060		U	0.00050		6.67	
	7/6/15	J	0.000163		U	0.00060		J	0.0022		U	0.0010		U	0.00060		U	0.00050		6.80	
	7/15/15	J	0.0000480			0.013		J	0.0024		U	0.0010		U	0.00060		U	0.00050			
	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	

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	2/9/16	J	0.000195			0.025		J	0.0015		U	0.0010		U	0.00060		U	0.00050		6.49	
	2/16/16	J	0.000183			0.022		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.41	
	2/25/16		0.000236			0.023		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.59	
	3/3/16	J	0.000183			0.021		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.91	
	3/11/16	J	0.000177			0.021		J	0.0015		U	0.0010		U	0.00060		U	0.00050		6.35	
	3/18/16	J	0.000155			0.025		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.39	
	3/21/16	J	0.000119			0.018		J	0.00092		U	0.0010		U	0.00060		U	0.00050		6.18	
	3/31/16	J	0.000130			0.024		J	0.0015		U	0.0010		U	0.00060		U	0.00050		8.38	
	4/8/16	J	0.000108			0.025		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.59	
	4/14/16	J	0.0000860			0.020		J	0.0006		U	0.0010		U	0.00060		U	0.00050		6.17	
	4/21/16	J	0.000179			0.022		J	0.0013		U	0.0010		U	0.00060		U	0.00050		6.32	
	4/28/16	J	0.000180			0.024		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.89	
	5/3/16		0.000209			0.019		J	0.0014		U	0.0010		U	0.00060		U	0.00050		6.33	
	5/9/16	J	0.000161			0.022		U	0.0006		U	0.0010		U	0.00060		U	0.00050		7.41	
	5/18/16	J	0.000184			0.017		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.43	
	5/23/16	J	0.000189			0.019		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.35	
	6/3/16	J	0.000147			0.021		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.61	
	6/10/16		0.000228			0.020		J	0.0011		U	0.0010		U	0.00060		U	0.00050		6.54	
	6/14/16	J	0.000139			0.023		J	0.0015		U	0.0010		U	0.00060		U	0.00050		7.14	
ST-A	6/24/16	J	0.0000870		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.36	Carbon change out 6/17/16
	6/30/16	J	0.0000860		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.34	
	7/8/16	J	0.0001100		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.98	
	7/15/16	J	0.0000870		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.29	
	7/18/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.35	
	7/26/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.21	
	8/4/16	J	0.0000670		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.00	Issues noted with pH meter
	8/8/16	J	0.0000660		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.38	
	8/16/16	J	0.0000620		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.21	
	8/23/16	J	0.0000600		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.14	
	9/1/16	J	0.0000700		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.47	
	9/9/16	U	0.0000400		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.41	
	9/16/16	J	0.0000760		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.57	
	9/20/16	J	0.0000450		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.21	
	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	

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	4/19/17	J	0.0000810			0.120			0.0160		U	0.0010		U	0.00060		U	0.00050		6.88	
	4/28/17	J	0.0000720			0.180			0.0250		U	0.0010		U	0.00060		U	0.00050		6.97	
	5/3/17	J	0.0000700			0.200			0.0270		U	0.0010		U	0.00060		U	0.00050		6.96	
ST-B	5/12/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.43	Carbon change out 5/11/17
	5/19/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	5/26/17	U	0.0000300		J	0.00073		J	0.00064		U	0.0010		U	0.00060		U	0.00050		7.22	
	5/31/17	U	0.0000300		J	0.0019		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.02	
	6/7/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.16	
	6/15/17		0.000284		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	6/21/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.62	
	6/29/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.39	
	7/5/17	J	0.0000320		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.02	
	7/14/17	J	0.0000420		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.98	
	7/19/17	J	0.0000530		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.49	
	7/25/17	J	0.0000390		J	0.0025		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.26	
	8/3/17	J	0.0000690		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.28	
	8/10/17	J	0.0000760		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.26	
	8/17/17	J	0.000117		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.54	
	8/24/17	J	0.0000500		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.77	
	8/31/17	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.77	
	9/8/17	J	0.0000670		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.71	
	9/12/17	J	0.000111		J	0.0021		J	0.00063		U	0.0010		U	0.00060		U	0.00050		6.63	
	9/12/17	J	0.0000900																		Additional EPA Sampling
	9/22/17	J	0.0000850		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.35	
	9/29/17	J	0.000100			0.0059		J	0.0010		U	0.0010		U	0.00060		U	0.00050		6.77	
	10/4/17	J	0.000150			0.0080		J	0.0012		U	0.0010		U	0.00060		U	0.00050		6.93	
	10/13/17	J	0.000136			0.011		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.63	
	10/19/17		0.000205			0.016		J	0.0017		U	0.0010		U	0.00060		U	0.00050		6.67	
	10/25/17		0.000244			0.017		J	0.0016		U	0.0010		U	0.00060		U	0.00050		6.45	
	11/2/17		0.000272			0.022		J	0.0019		U	0.0010		U	0.00060		U	0.00050		6.63	
	11/10/17	J	0.000103			0.022		J	0.0021		U	0.0010		U	0.00060		U	0.00050		7.17	
	11/14/17	J	0.000121			0.027		J	0.0021		U	0.0010		U	0.00060		U	0.00050		6.81	
	11/22/17		0.000266			0.032		J	0.0023		U	0.0010		U	0.00060		U	0.00050		7.04	
	11/29/17		0.000192			0.028		J	0.0022		U	0.0010		U	0.00060		U	0.00050		6.44	
	12/7/17	J	0.000119			0.035		J	0.0023		U	0.0010		U	0.00060		U	0.00050		6.78	
	12/14/17	J	0.000141			0.045		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.59	
	12/19/17	J	0.0000890			0.054		J	0.0027		U	0.0010		U	0.00060		U	0.00050		6.55	
	12/28/17		0.000221			0.053		J	0.0027		U	0.0010		U	0.00060		U	0.00050		7.34	
	1/3/18	J	0.000138			0.053		J	0.0019		U	0.0010		U	0.00060		U	0.00050		7.60	
ST-C	1/12/18	J	0.0000600		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		8.21	Carbon change out 1/10/18
	1/18/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		8.51	Issues noted with pH meter
	1/26/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.33	
	2/1/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.61	
	2/9/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.41	
	2/16/18	J	0.0000820		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.20	
	2/21/18	J	0.0000650		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.89	
	3/2/18	J	0.0000440		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.30	
	3/8/18	J	0.0000710		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.53	
	3/16/18	J	0.0000630		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.27	
	3/22/18	J	0.0000510		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.57	
	3/30/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.32	
	4/5/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.71	
	4/12/18	J	0.0001140		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.39	
	4/19/18	J	0.0001260		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.33	
	4/26/18	J	0.0001730		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.53	
	5/3/18		0.0002410		J	0.00370		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.64	
	5/9/18		0.0003610		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.57	
	5/16/18	J	0.0000840		J	0.00330		J	0.00110		U	0.0010		U	0.00060		U	0.00050		6.17	
	5/22/18	J	0.0001290		J	0.00360		J	0.00110		U	0.0010		U	0.00060		U	0.00050		6.47	
	6/1/18		0.0002180			0.00700		J	0.00190		U	0.0010		U	0.00060		U	0.00050		6.32	
	6/8/18	J	0.0001530			0.01000		J	0.00290		U	0.0010		U	0.00060		U	0.00050		7.07	
	6/15/18	J	0.0000700		U	0.00060		J	0.00240		U	0.0010		U	0.00060		U	0.00050		7.65	

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	6/21/18	J	0.0000970			0.01200		J	0.00230		U	0.0010		U	0.00060		U	0.00050		7.25	
	6/29/18	J	0.0000370			0.01400		J	0.00260		U	0.0010		U	0.00060		U	0.00050		6.51	
	7/5/18	J	0.0001660			0.01600		J	0.00310		U	0.0010		J	0.00120		U	0.00050		6.48	
	7/12/18	J	0.0000520			0.09800		J	0.00240		U	0.0010		U	0.00060		U	0.00050		6.53	
	7/18/18		0.0004510			0.01300		J	0.00300		U	0.0010		U	0.00060		U	0.00050		6.38	
	7/26/18	J	0.0001090			0.03900			0.00650		U	0.0010		U	0.00060		U	0.00050		5.98	
	8/2/18	J	0.0001950			0.03900			0.00710		U	0.0010		U	0.00060		U	0.00050		6.63	
	8/10/18		0.0005070			0.03700			0.00790		U	0.0010		U	0.00060		U	0.00050		6.20	
	8/16/18	J	0.0001960			0.05500			0.00910		U	0.0010		U	0.00060		U	0.00050		6.19	
ST-A	8/23/18		0.0002500		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.80	Carbon change out 8/17/2018
	8/31/18		0.0002360		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.10	
	9/7/18		0.0002370		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.37	
	9/11/18		0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.43	
	9/21/18	J	0.0000660		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.52	
	9/28/18	J	0.0000520		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.58	
	10/5/18	U	0.0000300		J	0.00098		U	0.00060		U	0.0010		U	0.00060		U	0.00050		6.73	
	10/11/18	J	0.0000460		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.02	
	10/16/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.31	
	10/25/18	J	0.0000380		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.67	
	11/2/18	U	0.0000300		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.22	
	11/8/18	U	0.0000300		U	0.00060		J	0.00061		U	0.0010		U	0.00060		U	0.00050		7.31	
	11/16/18	J	0.0000790		U	0.00060		J	0.0011		U	0.0010		U	0.00060		U	0.00050		6.82	
	11/20/18	J	0.0000430		U	0.00060		J	0.0017		U	0.0010		U	0.00060		U	0.00050		6.96	
	11/29/18	U	0.0000300		J	0.0014		J	0.0019		U	0.0010		U	0.00060		U	0.00050		6.74	
	12/7/18	J	0.0000360		J	0.0025		J	0.0024		U	0.0010		U	0.00060		U	0.00050		6.80	
	12/13/18	J	0.0000470		J	0.0013		J	0.0014		U	0.0010		U	0.00060		U	0.00050		6.59	
	12/19/18	J	0.0000370		J	0.0048		J	0.0025		U	0.0010		U	0.00060		U	0.00050		7.71	
	12/26/18	J	0.0000370			0.0051		J	0.0037		U	0.0010		U	0.00060		U	0.00050		7.51	

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.

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	
	9/11/18		0.587			28			0.420		U	0.005			0.092		J	0.009		6.64	
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			
	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	

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	9/28/12		0.02040			9.8			0.36		U	0.0100		J	0.019		U	0.0100		6.71	
	9/26/13		0.00702			1.8			0.25		U	0.0010			0.020			0.0053		6.70	
	9/5/14		0.00722			1.8			0.18		U	0.0050		J	0.0079		J	0.0050		6.49	
	9/29/15		0.0367			5.1			0.34		U	0.010		J	0.019		J	0.0057		6.76	
	9/9/16		0.0103			3.1			0.32		U	0.0050		J	0.014		J	0.0059		6.71	
	9/29/17		0.0362			3.8			0.40		U	0.010		J	0.019		J	0.0061		6.75	
	9/11/18		0.0284			4.5			0.26		U	0.001			0.019			0.0064		6.38	
CAO52B	5/18/98		5.800			49.0			1.80		<	0.5000			1.400		<	0.500			
	5/29/98		0.300			64.0			2.50		<	0.2000			1.800			0.092	J		
	6/24/98		0.230																		
	7/1/98		0.320			66.0			2.20		<	0.2000			1.500			0.076	J		
	7/28/98		0.240			72.0			1.60		<	0.1000			1.000			0.051			
	8/25/98		0.270			207			1.80		<	0.2000			1.200			0.062	J		
	4/28/99		0.250			34.0			1.40		<	0.1000			0.400			0.020	J		
	6/30/99		0.090			23.0			0.90		<	0.0400			0.400			0.016	J		
	10/20/99		0.870			55.1			2.30			0.0290			0.480			0.025	J		
	2/2/00		0.047			12.0			0.70			0.0013	J		0.150			0.008			
	9/27/00		0.044			25.0			1.10		<	1.0000		<	0.200		<	0.200			
	1/10/01		0.060			16.0			0.60		<	0.5000		<	0.100		<	0.100			
	5/30/01		0.031			21.0			0.80		<	0.5000			0.100		<	0.100			
	10/22/01		0.036			21.0			0.60		<	1.0000		<	0.200		<	0.200			
	3/25/02		0.024			22.0			0.60		<	1.0000		<	0.200		<	0.200			
	8/12/02		0.025			22.0			0.50		<	0.5000			0.100		<	0.100			
	1/3/03		0.025			16.0			0.60		<	0.5000			0.100		<	0.100			
	5/19/03		0.025			17.0			0.50		<	0.5000			0.100		<	0.100			
	10/6/03		0.023			18.0			0.50		<	0.5000			0.100		<	0.100			
	2/23/04		0.025			18.0			0.50		<	0.5000			0.100		<	0.100			
	7/13/04		0.018			19.0			0.40		<	0.5000			0.200		<	0.100			
	11/29/04		0.020			17.0			0.40		<	0.5000			0.100		<	0.100			
	5/16/05		0.020			12.0			0.39		<	0.5000		J	0.077		<	0.100			
	5/3/06		0.016			10.0			0.38		J,B	0.1100		J	0.079		<	0.032			
	9/20/07		0.025			13.0			0.40		<	0.0800			0.140		<	0.026			
	10/13/08		0.014			8.0			0.29		<	0.1600		J	0.056		<	0.025			
	7/9/09		0.013			10.0			0.27		<	0.0005			0.074		J	0.003			
	7/6/10		0.007			8.8			0.26		U	0.0005			0.098		J	0.003			
	7/22/11		0.006			9.9			0.30		U	0.0320		J	0.079		U	0.028		6.83	
	9/28/12		0.005			8.7			0.24		U	0.0200		J	0.070		U	0.020		6.89	
	9/26/13		0.003			8.7			0.20		U	0.0100			0.064		U	0.010		6.93	
	9/5/14		0.004			8.3			0.18		U	0.0100			0.054		U	0.005		6.76	
	9/29/15		0.00410			5.6			0.20		U	0.010			0.068		U	0.0050		7.08	
	9/9/16		0.00256			5.1			0.21		U	0.010			0.061		U	0.0050		6.92	
	9/29/17		0.00203			3.0			0.22		U	0.010			0.074		U	0.0050		7.00	
	9/11/18		0.00150			4.1			0.23		U	0.001			0.072		J	0.0037		6.78	
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			
	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			

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	11/29/04		0.310			40.0			1.60		<	1.0000			0.600		<	0.200			
	5/16/05		0.259			36.0			1.60		J	0.0420			0.520		J	0.064			
	5/3/06		0.140			28.0			1.70		J,B	0.1500			0.410		<	0.064			
	9/20/07		0.250			26.0			1.20		<	0.2000			0.380		J	0.076			
	10/13/08		0.140			21.0			1.10		<	0.4000			0.350		<	0.063			
	7/9/09		0.141			20.0			1.00		J	0.0036			0.310			0.039			
	7/6/10		0.123			20.0			1.20		J	0.0034			0.450			0.051			
	7/22/11		0.102			15.0			0.89		U	0.0320			0.310		J	0.031		6.77	
	9/28/12		0.085			14.0			0.77		U	0.0250			0.250		J	0.029		6.86	
	9/26/13		0.0837			14.0			0.82		U	0.0100			0.300		J	0.030		7.09	
	9/5/14		0.174			16.0			0.64		U	0.0100			0.280		J	0.036		6.67	
	9/29/15		0.172			16.0			0.83		U	0.050			0.30		J	0.045		6.96	
	9/9/16		0.0975			14.0			1.10		U	0.010			0.30		J	0.041		6.77	
	9/29/17		0.123			13.0			1.20		U	0.010			0.51			0.073		6.81	
	9/11/18		0.160			11.0			0.85		U	0.050			0.31			0.050		6.69	

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	
	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	

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	3/14/17		0.129		J	0.0010		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.72	
	9/29/17		0.132		J	0.0012		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.79	
	3/8/18		0.159		U	0.00060		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.54	
	9/11/18		0.222		J	0.0023		U	0.00060		U	0.0010		U	0.00060		U	0.00050		7.29	

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

Table 4
CAPA Groundwater Treatment System
Recovery Well Pumping Data

Year	Month	CA050B	CA051B	CA052B	CA0U23B	Total Influent
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
1998	June	94,940	120,650	44,346	59,007	318,943
	July	94,464	143,035	46,670	103,993	388,162
	August	82,659	123,384	0	86,436	292,479
	September	52,560	168,124	27,020	13,602	261,306
	October	148,429	106,740	0	45,082	300,251
	November	84,170	70,057	0	90,008	244,235
	December	134,556	143,925	0	140,915	419,396
	TOTAL	**691,778**	**875,915**	**118,036**	**539,043**	**2,224,772**
1999	January	56,244	58,568	38,400	57,835	211,047
	February	43,480	41,230	14,454	66,873	166,037
	March	32,402	52,900	17,521	57,332	160,155
	April	86,908	73,850	25,635	89,265	275,658
	May	52,110	43,020	30,810	53,470	179,410
	June	51,070	50,110	32,000	52,310	185,490
	July	94,520	137,330	70,210	98,850	400,910
	August	60,300	91,700	62,790	63,870	278,660
	September	54,440	84,460	55,250	61,830	255,980
	October	59,750	118,130	65,400	82,860	326,140
	November	61,620	84,320	63,950	67,910	277,800
	December	33,170	41,080	38,180	37,680	150,110
	TOTAL	**686,014**	**876,698**	**514,600**	**790,085**	**2,867,397**
	CUMULATIVE TOTAL, ALL WELLS					**5,092,169**
2000	January	63,290	84,390	71,800	77,950	297,430
	February	77,580	96,090	84,360	79,630	337,660
	March	79,810	101,600	81,090	70,760	333,260
	April	58,820	75,800	63,660	56,470	254,750
	May	90,340	67,330	76,340	74,720	308,730
	June	94,060	111,140	73,990	83,730	362,920
	July	88,230	65,640	46,950	67,490	268,310
	August	60,300	91,700	62,790	63,870	278,660
	September	37,980	84,460	55,250	61,830	239,520
	October	103,210	67,430	77,250	96,270	344,160
	November	102,960	71,210	91,510	93,480	359,160
	December	90,830	2,450	76,480	41,210	210,970
	TOTAL	**947,410**	**919,240**	**861,470**	**867,410**	**3,595,530**
	CUMULATIVE TOTAL, ALL WELLS					**8,687,699**
2001	January	106,250	57,650	83,430	88,310	335,640
	February	65,070	29,070	75,050	100,330	269,520
	March	69,460	62,430	65,310	86,790	283,990
	April	71,520	57,640	52,830	63,090	245,080
	May	120,620	79,750	81,700	52,480	334,550
	June	61,820	56,160	89,260	47,550	254,790
	July	52,500	61,180	74,640	66,440	254,760
	August	69,270	72,300	118,580	81,120	341,270
	September	44,410	49,250	77,680	77,570	248,910
	October	107,030	33,520	66,620	47,870	255,040
	November	59,710	16,210	53,650	48,180	177,750
	December	81,500	81,500	71,100	60,800	294,900
	TOTAL	**909,160**	**656,660**	**909,850**	**820,530**	**3,296,200**
	CUMULATIVE TOTAL, ALL WELLS					**11,983,899**
2002	January	98,390	36,800	95,520	61,250	291,960
	February	74,600	28,450	72,020	52,110	227,180
	March	42,770	58,080	55,110	54,960	210,920
	April	84,520	85,820	75,770	82,670	328,780
	May	50,210	49,080	68,130	70,820	238,240
	June	83,990	77,020	64,090	73,860	298,960
	July	103,700	91,110	123,550	89,760	408,120
	August	79,220	75,700	80,840	73,170	308,930
	September	68,450	67,680	65,470	57,150	258,750
	October	83,260	83,700	83,860	86,470	337,290
	November	47,870	49,790	71,700	70,480	239,840
	December	83,500	74,330	67,720	82,790	308,340
	TOTAL	**900,480**	**777,560**	**923,780**	**855,490**	**3,457,310**
	CUMULATIVE TOTAL, ALL WELLS					**15,441,209**
2003	January	84,500	58,060	51,490	73,880	267,930
	February	49,680	48,730	52,040	23,230	173,680
	March	110,080	110,650	62,330	75,600	358,660
	April	83,350	64,460	73,230	60	221,100
	May	56,140	67,810	66,560	36,000	226,510
	June	80,680	89,200	62,490	35,640	268,010
	July	91,660	93,820	96,350	39,310	321,140
	August	64,540	77,480	94,940	29,610	266,570
	September	94,950	104,220	127,540	49,560	376,270
	October	36,780	83,190	100,920	68,590	289,480
	November	231,100	38,770	88,930	58,910	417,710
	December	110,190	27,090	108,400	24,090	269,770
	TOTAL	**1,093,650**	**863,480**	**985,220**	**514,480**	**3,456,830**
	CUMULATIVE TOTAL, ALL WELLS					**18,898,039**
2004	January	129,290	55,140	128,330	4,280	317,040
	February	97,630	59,860	58,300	35,060	250,850
	March	118,330	82,990	104,600	80,830	386,750
	April	76,220	51,410	52,430	61,080	241,140
	May	46,090	57,900	43,250	44,740	191,980
	June	66,830	62,810	64,390	49,780	243,810
	July	65,080	47,690	60,780	44,380	217,930
	August	67,980	79,900	61,700	45,780	255,360
	September	16,150	98,950	71,040	51,720	237,860
	October	15,930	42,940	69,920	50,340	179,130
	November	103,390	93,870	93,770	54,780	345,810
	December	64,540	77,000	76,890	56,320	274,750
	TOTAL	**867,460**	**810,460**	**885,400**	**579,090**	**3,142,410**

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	**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**
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

Table 4
CAPA Groundwater Treatment System
Recovery Well Pumping Data

Year	Month	CA050B	CA051B	CA052B	CA0U23B	Total Influent
		(gal)[1]	(gal)	(gal)	(gal)	(gal)
2011 Cont.	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**
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

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 Cont.	October	97,840	87,050	89,040	68,920	342,850
	November	101,450	111,410	101,900	80,320	395,080
	December	78,400	73,510	77,410	60,910	290,230
	TOTAL	**1,115,280**	**1,128,940**	**1,056,070**	**771,870**	**4,072,160**
	CUMULATIVE TOTAL, ALL WELLS					**70,743,740**
2018	January	133,160	122,790	124,370	98,750	479,070
	February	105,050	76,480	73,140	59,570	314,240
	March	71,650	73,520	72,990	56,620	274,780
	April	91,610	83,230	79,590	66,150	320,580
	May	97,940	81,330	74,980	62,670	316,920
	June	22,890	112,170	67,930	68,900	271,890
	July	0	97,440	80,480	59,930	237,850
	August	68,660	88,700	103,230	41,330	301,920
	September	125,850	81,780	101,480	53,180	362,290
	October	117,450	69,710	61,020	30,320	278,500
	November	101,340	71,210	85,160	47,460	305,170
	December	118,390	79,790	106,310	48,770	353,260
	TOTAL	**1,053,990**	**1,038,150**	**1,030,680**	**693,650**	**3,816,470**
	CUMULATIVE TOTAL, ALL WELLS					**74,560,210**

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 Cont.	September	58,700		0.590		0.289	73,050		0.081		0.049	51,800		0.016		0.007	12,340		0.140		0.014	0.36
	October	81,650		1.600		1.090	115,960		0.130		0.126	88,890		0.025		0.019	18,300		0.250		0.038	1.27
	November	17,440		1.600		0.233	77,710		0.130		0.084	80,430		0.025		0.017	50		0.250		0.000	0.33
	December	39,410		1.600		0.526	83,380		0.130		0.090	101,580		0.025		0.021	30,440		0.250		0.064	0.70
	TOTAL	**641,810**				**4.33**	**906,970**				**0.73**	**622,590**				**0.10**	**380,410**				**0.49**	**5.65**
	CUMULATIVE TOTAL	***8,769,642***				***81.78***	**8,363,343**				***15.26***	***7,709,986***				***3.69***	***6,410,578***				***33.77***	***134.50***
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

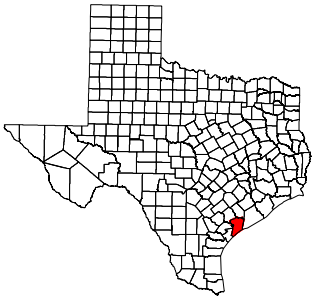
Year	Month	CA050B					CA051B					CA052B					CA0U23B					Mercury Removed, All Wells
		Cumulative Flow	Mercury				Cumulative Flow	Mercury				Cumulative Flow	Mercury				Cumulative Flow	Mercury				
		(gal)[1]	Q	(mg/L)[2,3]	Flag	(lbs)[4]	(gal)	Q	(mg/L)	Flag	(lbs)	(gal)	Q	(mg/L)	Flag	(lbs)	(gal)	Q	(mg/L)	Flag	(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***
2018	January	133,160		0.332		0.369	122,790		0.036		0.037	124,370		0.002		0.002	98,750		0.123		0.101	0.51
	February	105,050		0.332		0.291	76,480		0.036		0.023	73,140		0.002		0.001	59,570		0.123		0.061	0.38
	March	71,650		0.332		0.199	73,520		0.036		0.022	72,990		0.002		0.001	56,620		0.123		0.058	0.28
	April	91,610		0.332		0.254	83,230		0.036		0.025	79,590		0.002		0.001	66,150		0.123		0.068	0.35
	May	97,940		0.332		0.271	81,330		0.036		0.025	74,980		0.002		0.001	62,670		0.123		0.064	0.36
	June	22,890		0.332		0.063	112,170		0.036		0.034	67,930		0.002		0.001	68,900		0.123		0.071	0.17
	July	0		0.332		0.000	97,440		0.036		0.029	80,480		0.002		0.001	59,930		0.123		0.062	0.09
	August	68,660		0.332		0.190	88,700		0.036		0.027	103,230		0.002		0.002	41,330		0.123		0.042	0.26
	September	125,850		0.587		0.617	81,780		0.028		0.019	101,480		0.002		0.001	53,180		0.160		0.071	0.71
	October	117,450		0.587		0.575	69,710		0.028		0.017	61,020		0.002		0.001	30,320		0.160		0.040	0.63
	November	101,340		0.587		0.496	71,210		0.028		0.017	85,160		0.002		0.001	47,460		0.160		0.063	0.58
	December	118,390		0.587		0.580	79,790		0.028		0.019	106,310		0.002		0.001	48,770		0.160		0.065	0.67
	TOTAL	**1,053,990**				**3.91**	**1,038,150**				**0.29**	**1,030,680**				**0.02**	**693,650**				**0.77**	**4.98**
	CUMULATIVE TOTAL	***20,946,162***				***133.55***	***19,649,794***				***18.82***	***19,888,136***				***4.39***	***14,076,118***				***42.00***	***198.76***

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

SOURCE:
Aerial image from Lanmon Aerial Photography Inc, dated 9/9/17.



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).

2018 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (3/8/2018)

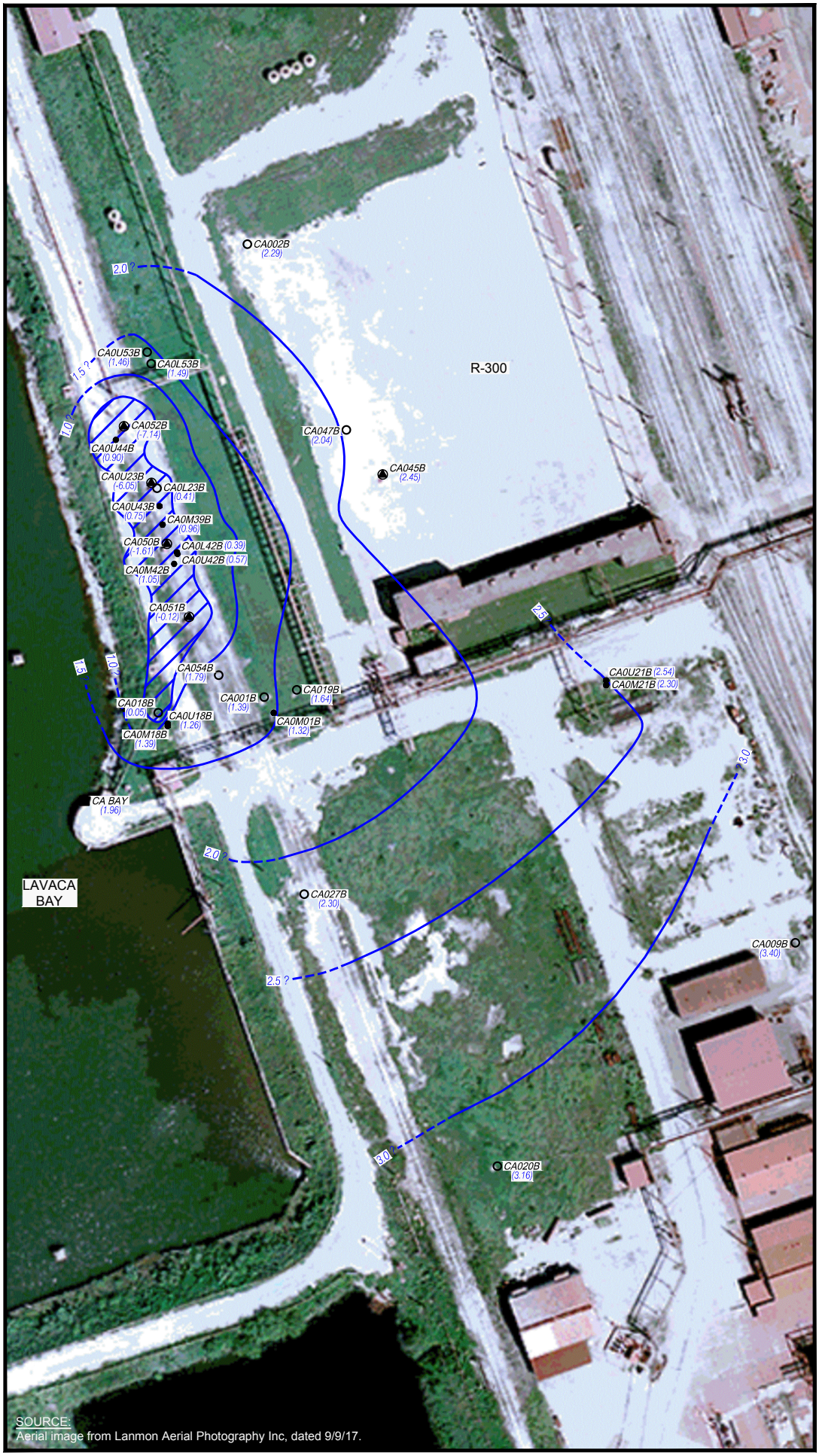
GOLDER

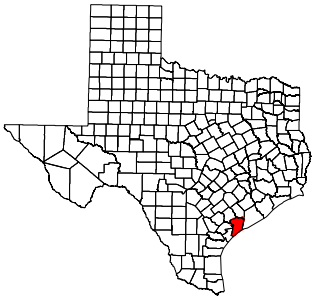
Project: 30403451

Date: 1/29/2019

Figure 1

Prepared for
ALCOA CORPORATION





EXPLANATION

CA018B	Well Designation
○	Monitoring Well
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—1.5—	Estimated Potentiometric Surface Contour (Ft) C.I. = 0.5 Ft
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0 60 120 Feet

Notes:
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3. Only wells measured for water levels are shown on this figure.
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2018 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (6/24/2018)

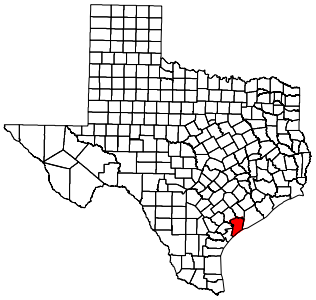
GOLDER

Project: 30403451

Date: 1/29/2019

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:
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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).

2018 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (9/11/2018)

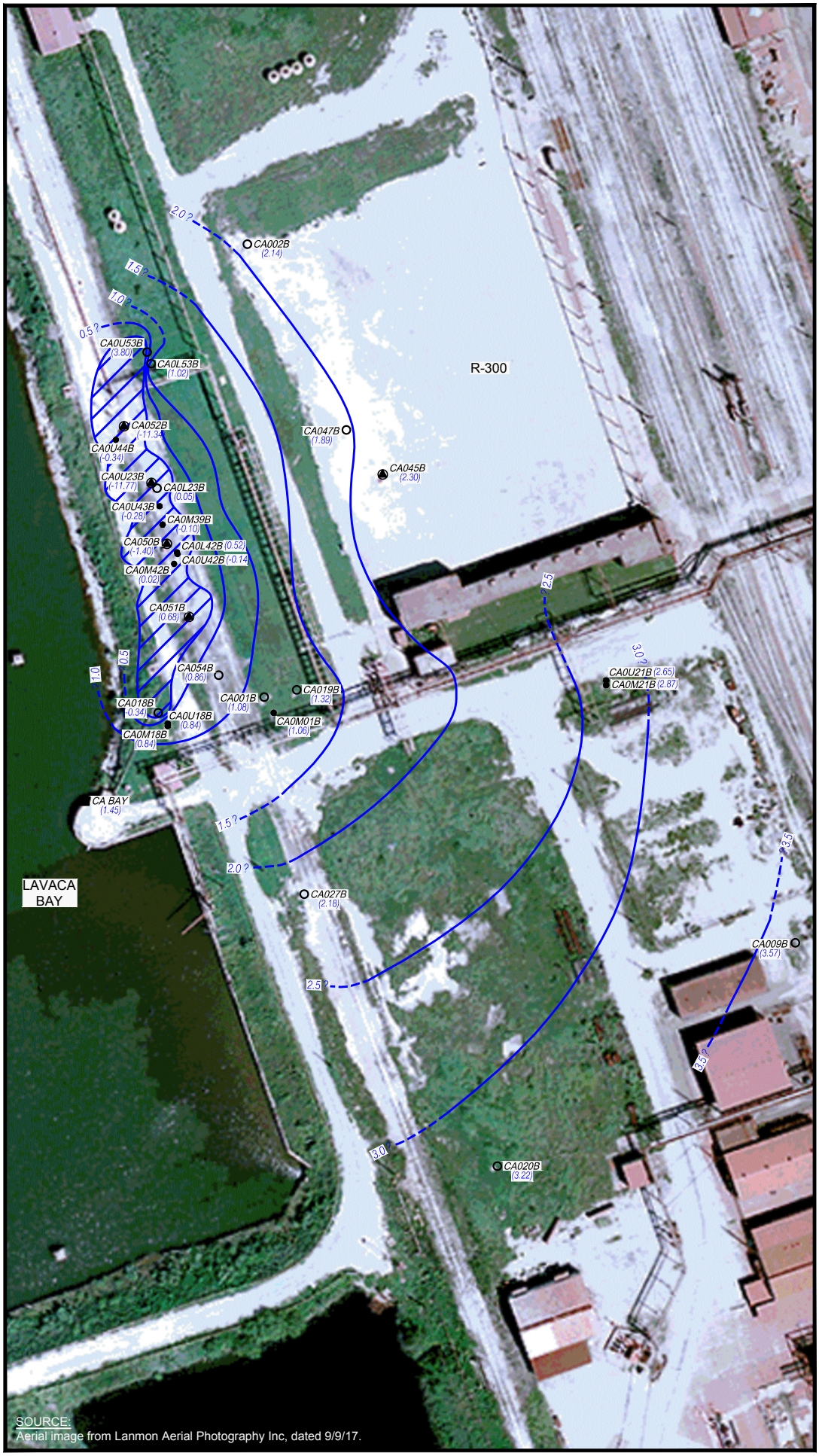
GOLDER

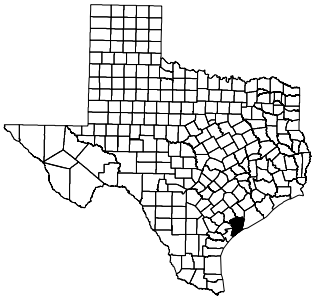
Project: 30403451

Date: 1/29/2019

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)

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).

2018 RAAER

POTENTIOMETRIC SURFACE OF ZONE B GROUNDWATER (11/19/2018)

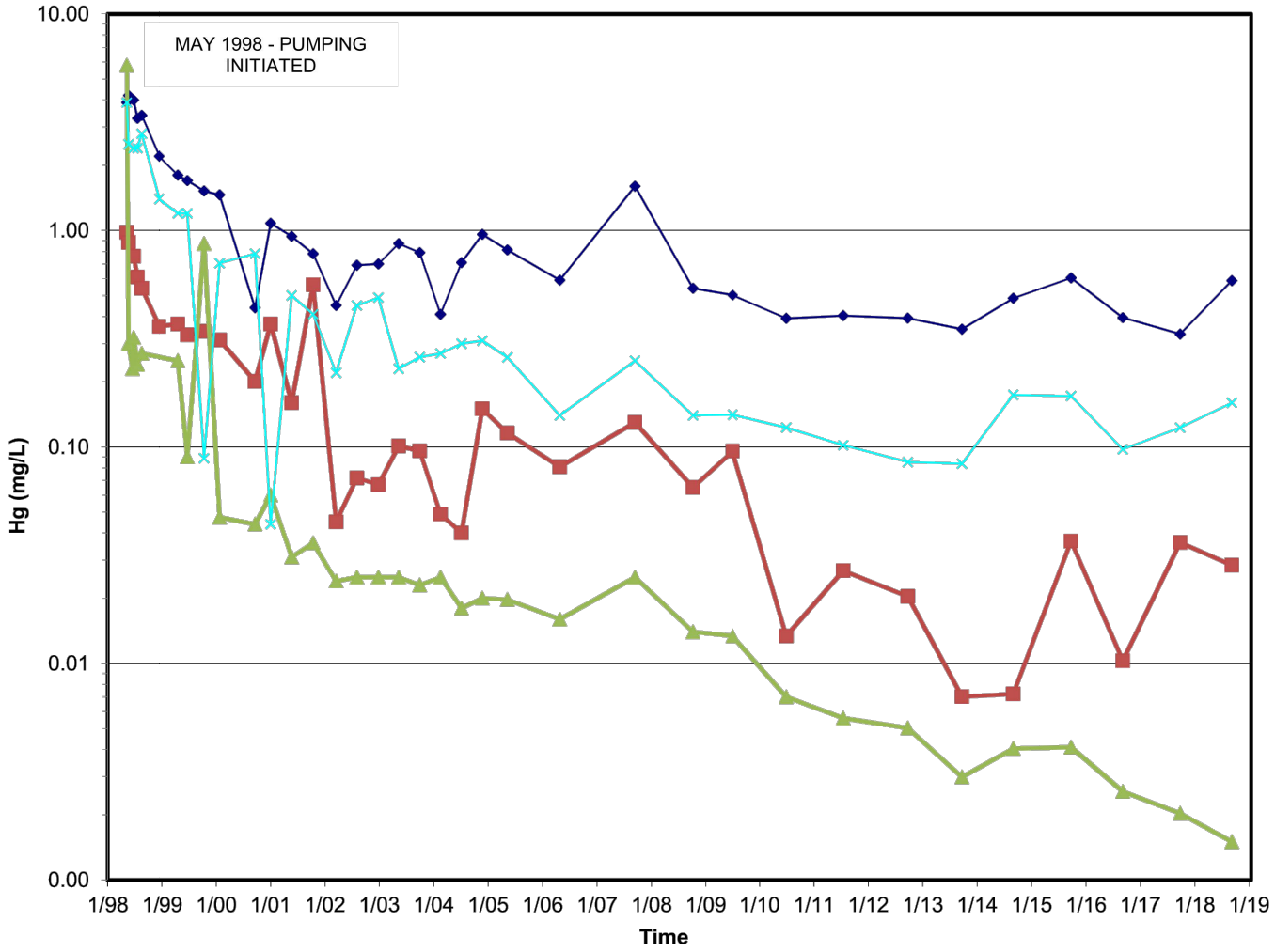
GOLDER

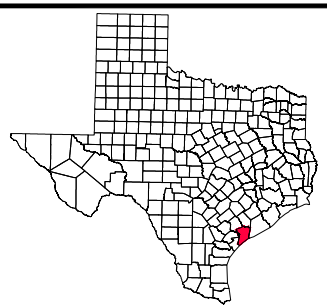
Project: 30403451

Date: 1/29/2019

Figure 4

Prepared for
ALCOA CORPORATION





EXPLANATION

- CAO50B
- CA051B
- CA052B
- CA0U23B

2018 RAAER

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

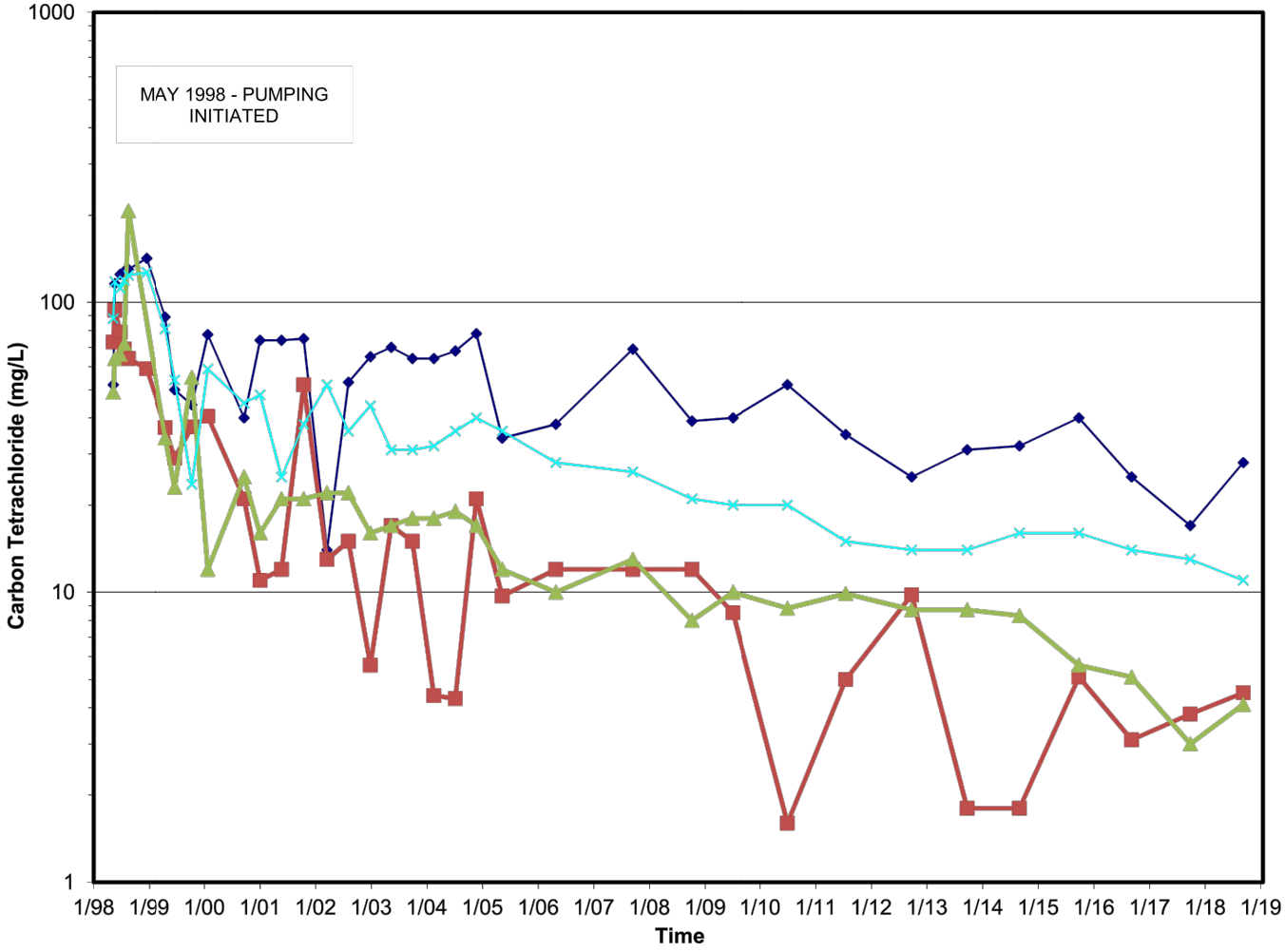
GOLDER

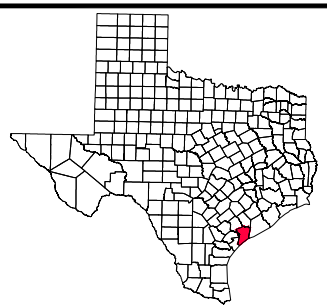
Project: 30403451

Date: 02/06/2019

Figure 5

Prepared for
ALCOA CORPORATION





EXPLANATION

- CA050B
- CA051B
- CA052B
- CA0U23B

2018 RAAER

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

GOLDER

Project: 30403451

Date: 02/06/2019

Figure 6

Prepared for
ALCOA CORPORATION

APPENDIX B1
DREDGE ISLAND INSPECTION RECORDS

1Q18 DREDGE ISLAND INSPECTION RECORD

Inspector's Name: Kevin Dworsky
Weather: Mostly Clear Sky
Temperature: 70° F
KBD accompanied by Benchmark Ecological Services, Inc during the inspection.

Date: 03/29/2018
Time Begin: 1330
Time End: 1530
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	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 4Q17 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 the 2011 maintenance event and prior to the 2017 dredge event on the island. Most of these signs have also been knocked down by the strong winds. Minor to moderate vegetation on the road, along the sides of the roads, interior dikes, outer dikes, and on toes of the exterior dikes. 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. Hard to inspect the side slopes of the ramps thoroughly due to healthy/heavy vegetation. There is minor erosion observed along the crest and along the sides of the north entry ramp. There are no issues that compromise the integrity of the levees and other structures on the island.
	Deterioration	X	□	
	Settling/Ponding	X	□	
	Uplift	X	□	
	Washouts	X	□	
	Rodent Holes	X	□	
	Vegetation	X	□	
Access Bridge	Deterioration	□	X	Conditions similar to previous 4Q17 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.
	Damage	□	X	
	Navigation Lights	□	X	
CDF Dike	Erosion	X	□	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
	Deterioration	X	□	
	Damage	X	□	
	Vegetation	X	□	

1Q18 DREDGE ISLAND INSPECTION RECORD

CDF Dike (Cont.)				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. There is water inside the CDF in the southwestern corner, most of which is from recent rain events. 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.
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.

1Q18 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. <u>North Structure:</u> 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. The area around the structure is dry (3.23' from the platform of the structure). Water inside of the structure was 17.1' below the top of the platform. <u>South Structure:</u> 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. The area around the structure has water at 6.1' from the platform of the structure. The water inside the structure is 17.6' from the platform. The north and south outfall structures were observed from the bay 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 2018
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 exposed geofabric

5 – North Inner Dike, viewing destroyed reflector

6 – Northeast Corner Outer Dike, viewing West

FIRST QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

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

FIRST QUARTER 2018
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

FIRST QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

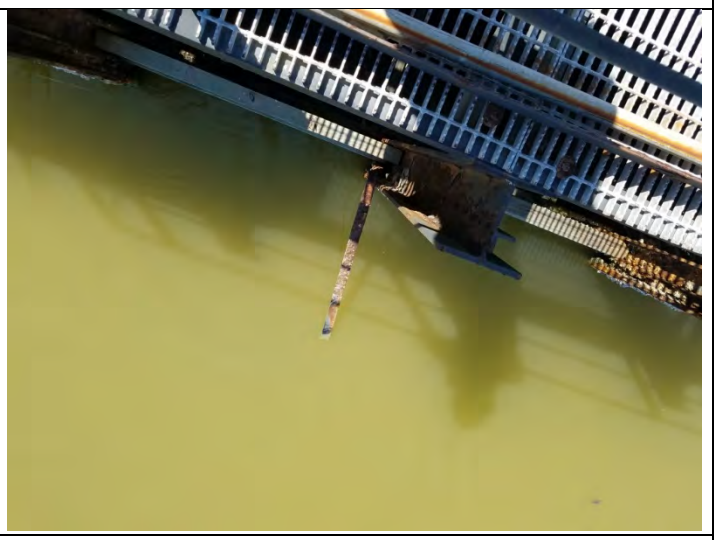
19 – South Inner Dike, viewing exposed geomembrane

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

FIRST QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

25 – Northwest Corner Inner Dike, viewing South

26 – Northwest Corner Outer Dike, viewing South

27 – Northwest Corner Inner Dike, viewing East

28 – Northwest Corner Outer Dike, viewing East

29 – Emergency Spillway, viewing minor erosion along outer edge

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

FIRST QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

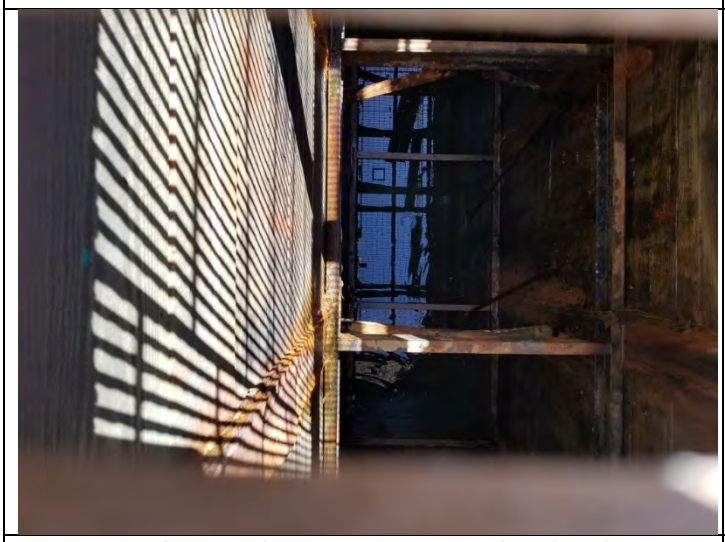
ALCOA PCO – Point Comfort, Texas

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

FIRST QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

37 – Northeast Corner Inner Dike, panoramic view

38 – East Corner Inner Dike, panoramic view

2Q18 DREDGE ISLAND INSPECTION RECORD

Inspector's Name: Kevin Dworsky
Weather: Mostly Clear Sky
Temperature: 80° F
KBD accompanied by Benchmark Ecological Services, Inc during the inspection.

Date: 06/26/2018
Time Begin: 0830
Time End: 1030
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	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 1Q18 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 the 2011 maintenance event and prior to the 2017 dredge event on the island. Most of these signs have also been knocked down by the strong winds. Minor to moderate vegetation on the road, along the sides of the roads, interior dikes, outer dikes, and on toes of the exterior dikes. 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. Hard to inspect the side slopes of the ramps thoroughly due to healthy/heavy vegetation. There is minor erosion observed along the crest and along the sides of the north entry ramp. There are no issues that compromise the integrity of the levees and other structures on the island.
	Deterioration	X	□	
	Settling/Ponding	X	□	
	Uplift	X	□	
	Washouts	X	□	
	Rodent Holes	X	□	
	Vegetation	X	□	
Access Bridge	Deterioration	□	X	Conditions similar to the previous 1Q18 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.
	Damage	□	X	
	Navigation Lights	□	X	
CDF Dike	Erosion	X	□	Conditions similar to the previous 1Q18 Report 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
	Deterioration	X	□	
	Damage	X	□	
	Vegetation	X	□	

2Q18 DREDGE ISLAND INSPECTION RECORD

CDF Dike (Cont.)				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. There is water inside the CDF in the southwestern corner, most of which is from recent rain events. 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.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage Vegetation	X X X X X X X	□ □ □ □ □ □ □	Conditions similar to the previous 1Q18 Report 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 and 2017 vegetation removal due to safety issues with workers on the stone armor. Due to safety concerns associated with walking on the armor stone, this inspection was conducted 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	□ □ □ □	Conditions similar to the previous 1Q18 Report 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	□ □ □ □	Conditions similar to the previous 1Q18 Report 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.

2Q18 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 □ □ □ □	Conditions similar to the previous 1Q18 Report 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. <u>North Structure:</u> 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. The area around the structure is dry (3.8' from the platform of the structure). Water inside of the structure was 16.7' below the top of the platform. <u>South Structure:</u> 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. The area around the structure has water at 5.6' from the platform of the structure. The water inside the structure is 17.5' from the platform. The north and south outfall structures were observed from the bay and do not appear to be discharging.
Gravel Road	Potholes Ponding Deterioration Washouts Vegetation	X X X X X	□ □ □ □ □	Conditions similar to the previous 1Q18 Report 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 □ □	Conditions similar to the previous 1Q18 Report 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	Conditions similar to the previous 1Q18 Report Some reflectors and traffic signage observed to be leaning or entirely down on the ground. If the

2Q18 DREDGE ISLAND INSPECTION RECORD

Reflectors Station Tags (cont.)				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 2018
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

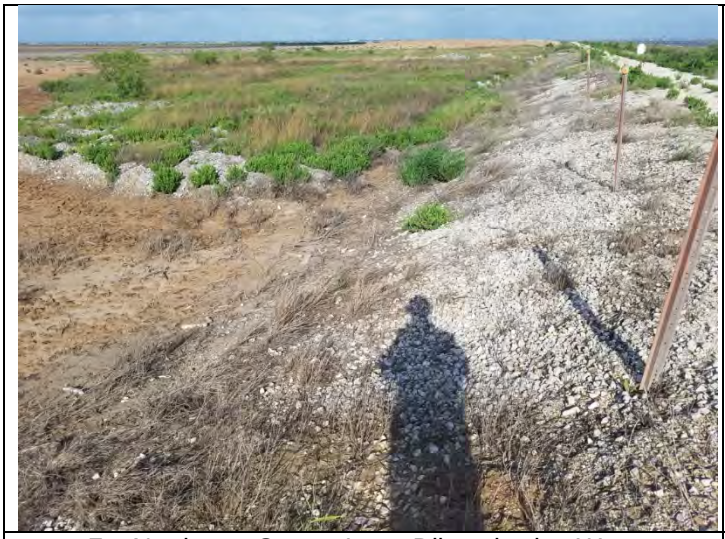
4 – North Inner Dike, viewing exposed geofabric

5 – North Inner Dike, viewing Southwest

6 – Northeast Corner Outer Dike, viewing West

SECOND QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas



7 – Northeast Corner Inner Dike, viewing West

8 – Northeast Corner Inner Dike, viewing South

9 – East Outer Dike, viewing North

10 – North Decant Structure

11 – North Decant Structure

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

SECOND QUARTER 2018
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

SECOND QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – South Inner 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

SECOND QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

25 – Northwest Corner Inner Dike, viewing South

26 – Northwest Corner Outer Dike, viewing South

27 – Northwest Corner Inner Dike, viewing East

28 – Northwest Corner Outer Dike, viewing East

29 – Emergency Spillway, viewing minor erosion along outer edge

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

SECOND QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

31 – North Outer Dike, viewing destroyed reflector

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 – Dredge Island Access Bridge, viewing damage

36 – Dredge Island Access Bridge, viewing damage

3Q18 DREDGE ISLAND INSPECTION RECORD

Inspector's Name: Kevin Dworsky
Weather: Mostly Cloudy Sky
Temperature: 71° F
KBD accompanied by Benchmark Ecological Services, Inc during the inspection.

Date: 09/27/2018
Time Begin: 1015
Time End: 1200
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	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 2Q18 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 the 2011 maintenance event and prior to the 2017 dredge event on the island. Most of these signs have also been knocked down by the strong winds. Moderate vegetation on the road, along the sides of the roads, interior dikes, outer dikes, and on toes of the exterior dikes. 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. Hard to inspect the side slopes of the ramps thoroughly due to healthy/heavy vegetation. There is minor erosion observed along the crest and along the sides of the north entry ramp. There are no issues that compromise the integrity of the levees and other structures on the island.
	Deterioration	X	□	
	Settling/Ponding	X	□	
	Uplift	X	□	
	Washouts	X	□	
	Rodent Holes	X	□	
	Vegetation	□	X	
Access Bridge	Deterioration	□	X	Conditions similar to the previous 2Q18 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.
	Damage	□	X	
	Navigation Lights	□	X	
CDF Dike	Erosion	X	□	Conditions similar to the previous 2Q18 Report 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 soon may be necessary. The geomembrane component of the water stop on the CPA dike, near the Alcoa CDF station 23+00
	Deterioration	X	□	
	Damage	X	□	
	Vegetation	□	X	

CDF Dike (Cont.)				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. There is water inside the CDF in the southern half, most of which is from recent rain events. 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. Moderate amounts of vegetation cover the inner and outer portions of the CDF.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage Vegetation	X X X X X X □	□ □ □ □ □ □ X	Conditions similar to the previous 2Q18 Report 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 and 2017 vegetation removal due to safety issues with workers on the stone armor. Due to safety concerns associated with walking on the armor stone, this inspection was conducted 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	□ □ □ □	Conditions similar to the previous 2Q18 Report 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 if the water levels are kept low.
Emergency Spillway	Obstructions Cracks in Concrete Deterioration	X X X	□ □ □	Conditions similar to the previous 2Q18 Report Generally good condition. Slight erosion and some cracks in the concrete. Slight erosion has occurred

3Q18 DREDGE ISLAND INSPECTION RECORD

Emergency Spillway (Cont.)	Damage	X	□	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) Overflow Quantity Flap Gate	□ X X □ □ X □ X X	X □ □ X X □ □ □ □	Conditions similar to the previous 2Q18 Report 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. <u>North Structure:</u> 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. The area around the structure is dry (3.8' from the platform of the structure). Water inside of the structure was 16.9' below the top of the platform. <u>South Structure:</u> 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. The area around the structure has water at 5.6' from the platform of the structure. The water inside the structure is 17.5' from the platform. The north and south outfall structures were observed from the levee and do not appear to be discharging.
Gravel Road	Potholes Ponding Deterioration Washouts Vegetation	X X X X X	□ □ □ □ □	Conditions similar to the previous 2Q18 Report 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 □ □	Conditions similar to the previous 2Q18 Report 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	□ □	X X	Conditions similar to the previous 2Q18 Report

3Q18 DREDGE ISLAND INSPECTION RECORD

Reflectors Station Tags (Cont.)	Intact/Legibility			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.

THIRD QUARTER 2018
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

5 – North Inner Dike, viewing damaged sign

6 – Northeast Corner Outer Dike, viewing West

THIRD QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

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

THIRD QUARTER 2018
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

THIRD QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – South Inner Dike, viewing exposed geofabric

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

THIRD QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

25 – Northwest Corner Inner Dike, viewing South

26 – Northwest Corner Outer Dike, viewing South

27 – Northwest Corner Inner Dike, viewing East

28 – Northwest Corner Outer Dike, viewing East

29 – Emergency Spillway, viewing minor erosion along outer edge

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

THIRD QUARTER 2018
DREDGE ISLAND INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

31 – East Outer Dike, viewing damaged sign

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

35 – View North Decant Structure deterioration

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

37 – Northeast Corner Inner Dike, viewing Southwest

38 – Southwest Corner Inner Dike, viewing Northeast

SITE INSPECTION LOG

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

2/7/19

Inspector's Signature:

Inspection Date: 12-05-18
Time Begin: Approx. 10:20 a.m.
Time End: Approx. 12:50 p.m.

Sheet: 1 of 2

Specific Item to Inspect	Typical Problems Encountered	Conditions Observed		Comments or Corrective Action(s) Implemented and Dates
		Normal	Abnormal	
General Dredge Island	Erosion Deterioration Settling/Ponding Uplift Washouts Rodent Holes	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	Shoreline bank cut observed (as noted during recent inspections) near northeast dike toe of exterior slope. Appears possibly associated with dredging. Cut does not extend to dike cross section but future erosion could eventually chase back into toe of dike. Monitor as part of future inspections. Minor erosion observed on North entry ramp, along edges of ramp crest. 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 was sustained during Hurricane Harvey in 2017. Detailed inspection of bridge not performed as part of this site visit. Bridge abutments severely eroded.
CDF Dike	Erosion Deterioration Damage Vegetation	☒ ☒ ☒ ☒	☐ ☐ ☐ ☐	The geomembrane component of the water stop on the Port dike, near the Alcoa CDF Station 23+00 (east side) and Station 37+00 (west side), is exposed due to severe erosion of the overlying topsoil cover material (see attached photos) as noted in previous inspections. 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 vegetation intrusion becoming re-established as shown in photos. Minor erosion observed along the west dike interior.
Stone Storm Protection	Erosion Settlement Stone Deterioration Stone Movement Fabric Exposure Damage	☒ ☒ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☐ ☐ ☐	No damage observed. Vegetation was removed in 2015, however 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) 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.

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 Overflow Quantity Flap Gate	☒ ☒ ☒ ☐ ☐ ☒ ☒ ☒ ☒	☐ ☐ ☐ ☒ ☒ ☐ ☐ ☐ ☐	North Structure: Severe corrosion of structural steel was observed during this limited visual inspection. Based on previous site observations of surface and near surface steel it has been 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. CDF surface at decant was dry during inspection, with no on-going discharge. From deck to water surface inside structure measured 19'-5". 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. A stoplog had been removed in recent days prior to inspection to lower CDF water levels slightly in preparation for upcoming proposed detailed structure inspection. At time of inspection a very slight flow (approximately one-half inch deep) was coming in to the structure. Site personnel verified water quality meets parameters. From deck to water surface inside structure measured 17'-7". Plastic wrap around the structure was 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

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

North Entry Ramp (facing south)

North Exterior Slope (facing East)

At North Entry Ramp (facing west)

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

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

North Decant Structure

North Decant Structure Outfall (facing east)

North Decant Structure

North CDF Interior

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

East Dike Interior (facing north)

East Exterior Dike (facing south)

Historic Seep No. 4 (dry)

Historic Seep Area No. 5 (dry)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

East Dike Exterior (facing south)

East Dike Exterior (facing north)

East Dike Exterior (facing north)

Port CDF Erosion/Exposed FML at East Water Stop - Interior

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

South Dike Exterior (facing west)

West Dike Interior (facing north towards South Decant)

South Dike Exterior (facing east)

Port CDF Erosion at West Water Stop – Interior

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

West Dike Exterior (facing north)

South Decant Structure Outfall (facing west)

South Decant Structure

West Dike Exterior (facing north)

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

West Dike, Spillway (facing north)

Entry Ramp (facing north)

Port CDF, South Dike Erosion

Port CDF, West Dike Erosion

DREDGE ISLAND SITE INSPECTION PHOTOGRAPHS
12/05/2018

West Dike Exterior at Spillway (facing east)

12-05-2018 DI Inspection

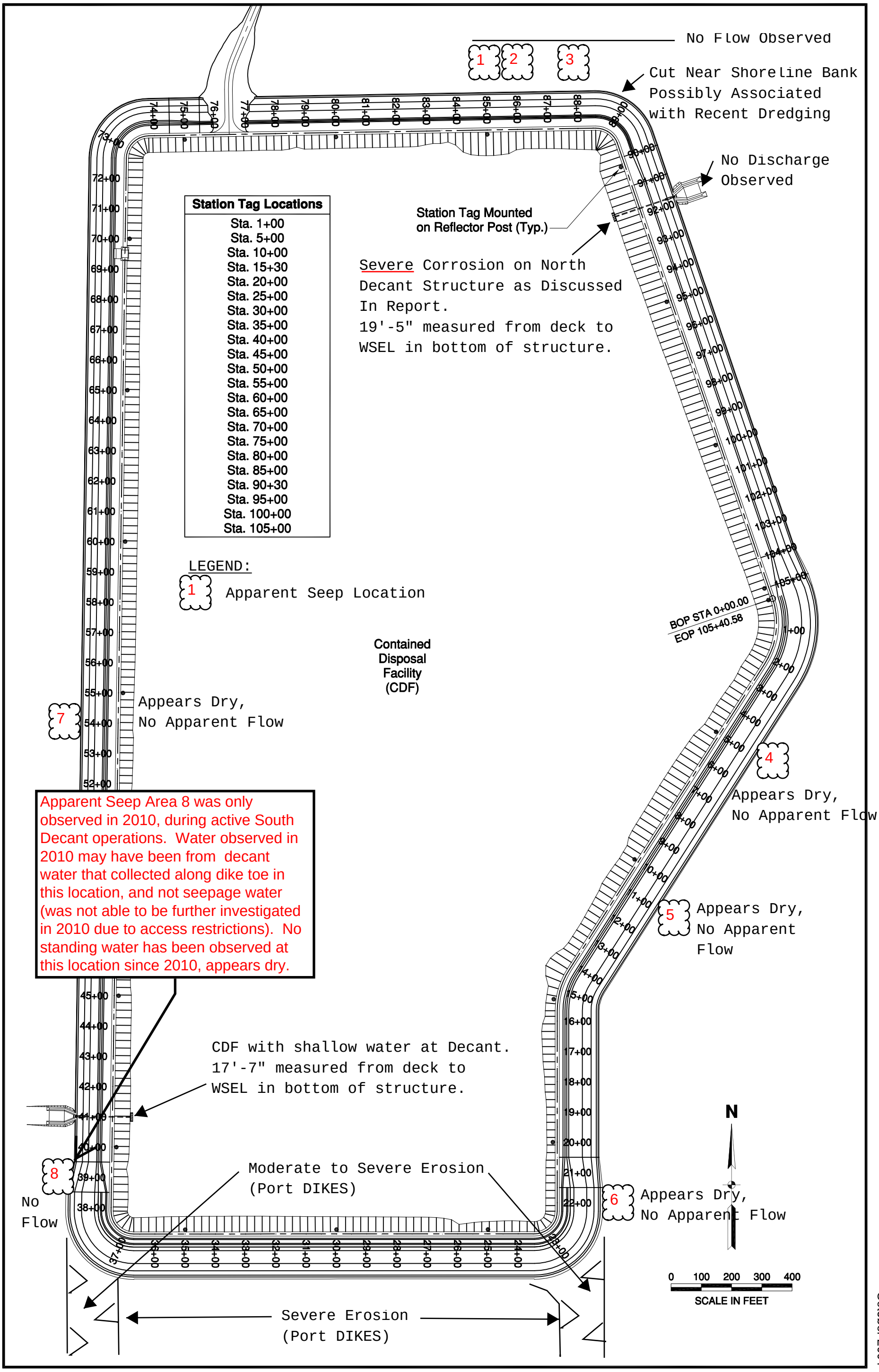


FIGURE 4-2
STATION NUMBER LOCATIONS

URS

APPENDIX B2
CAPA CAP INSPECTION RECORDS

1Q18 CAPA CAP INSPECTION RECORD

Date: 03/29/2018 **Time Started:** 1130 **Time Ended:** 1230

Weather Conditions: 68°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 and will monitor the material washing off of 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	☑	☐	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	☑	☐	Control boxes need latches repaired.
	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. Rusted supports and building condition will be monitored closely.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Continue mowing of the area and herbicide treatment on the cap.

Recommendations: PBW will apply rust killer to equipment and equipment stands overtime to slow down the deterioration from rust.

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

620 E. Airline | Victoria, Texas 77901

O·361.573.6442 F·361.573.6449

www.pbwllc.com

FIRST QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – R301, showing damaged roof on western exterior

2 – R301, storm sewer drain

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

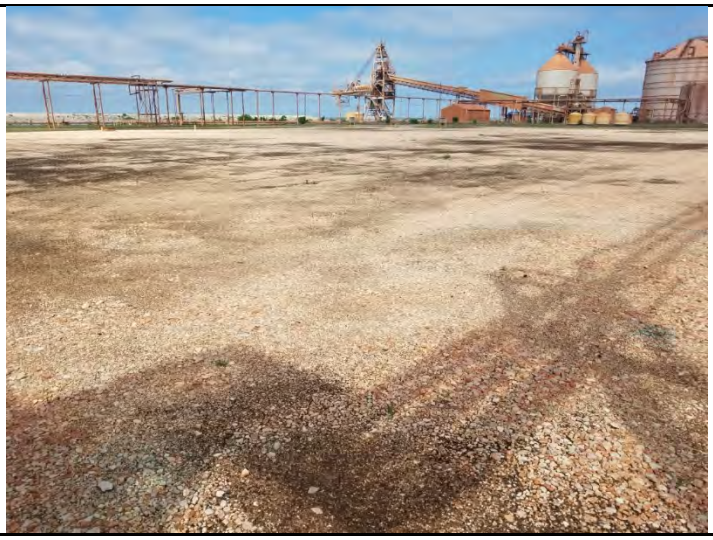
6 – Cap, Northeast storm drain

FIRST QUARTER 2018
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

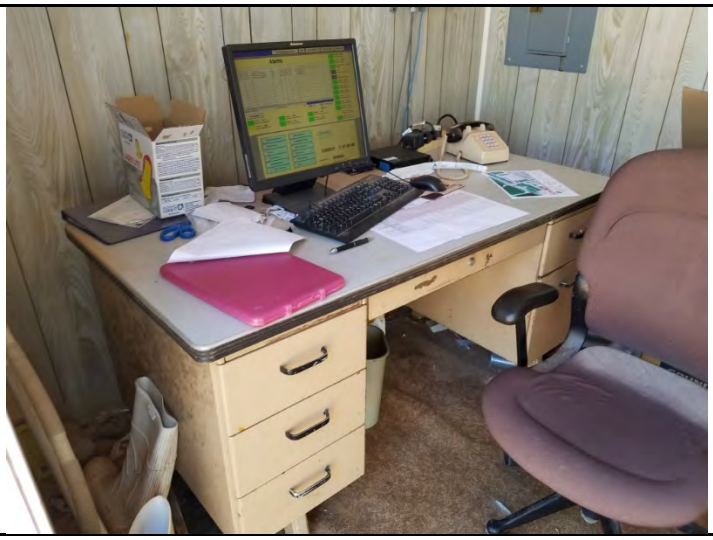
10 – Cap, view Northeast from Southwest corner

11 – R301, viewing northern exterior

12 – R301, viewing southern exterior

FIRST QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas



13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – R301, viewing system – accumulation, acid and stripper

16 – R301, viewing corridor

17 – R301, viewing satellite collection station

18 – R301, viewing system – carbon canisters

FIRST QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – Viewing inside one of the recovery well system boxes

20 – View North to South, monitoring wells and recovery wells

21 – View South to North, monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West viewing East

EXPLANATION

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ALCOA

POINT COMFORT OPERATION□

PHOTO LOCATION MAP

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2Q18 CAPA CAP INSPECTION RECORD

Date: 06/28/2018 **Time Started:** 0915 **Time Ended:** 1015

Weather Conditions: 82°F, Partly 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/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 and will monitor the material washing off of 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	☑	☐	None observed.
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	☑	☐	Control boxes need latches repaired.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Good condition.
	Transfer Piping	☑	☐	Good condition.
	Vegetation	☑	☐	Healthy vegetation.
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. Rusted supports and building condition will be monitored closely.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Continue mowing of the area and herbicide treatment on the cap.

Recommendations: PBW will apply rust killer to equipment and equipment stands overtime to slow down the deterioration from rust.

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

620 E. Airline | Victoria, Texas 77901

O·361.573.6442 F·361.573.6449

www.pbwllc.com

SECOND QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – R301, showing damaged roof on western exterior

2 – R301, storm sewer drain

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

6 – Cap, Northeast storm drain

SECOND QUARTER 2018
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 – R301, viewing northern exterior

12 – R301, viewing southern exterior

SECOND QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – R301, viewing system

16 – R301, viewing corridor

17 – R301, viewing satellite collection station

18 – R301, viewing system – carbon canisters

SECOND QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – Viewing inside one of the recovery well system boxes

20 – View North to South, monitoring wells and recovery wells

21 – View South to North, monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West viewing East

EXPLANATION

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ALCOA

POINT COMFORT OPERATION□

PHOTO LOCATION MAP

PRO□ECT: 3415□3	□□: A□D	RE□I□ION□
DATE: MAR□201□	C□EC□ED: M□□	

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3Q18 CAPA CAP INSPECTION RECORD

Date: 09/29/2018 **Time Started:** 1230 **Time Ended:** 1330

Weather Conditions: 72°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	☑	☐	Some minor signs of settling/ponding on the cap. Does not effect the integrity of the cap.
	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 and will monitor the material washing off of cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Intrusive Vegetation	☑	☐	None observed.
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	☑	☐	Control boxes need latches repaired.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Conduit pipe joints are starting to come loose. Will monitor closely and repair as needed..
	Transfer Piping	☑	☐	Some connections are starting to come loose. Will monitor closely and repair as needed.
	Vegetation	☑	☐	Healthy vegetation.
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. Rusted supports and building condition will be monitored closely.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Continue mowing of the area and herbicide treatment on the cap. Water around building due to fire water system draining.

Recommendations: Golder will apply rust killer to equipment and equipment stands overtime to slow down the deterioration from rust.

Inspector:

Kevin Dworsky

Inspectors Signature:

GOLDER

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THIRD QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – R301, showing damaged roof on western exterior

2 – R301, storm sewer drain

3 – Cap, West storm sewer drain

4 – Cap, Northwest corner storm drain

5 – Cap, Northwest storm drain

6 – Cap, Northeast storm drain

THIRD QUARTER 2018
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 – R301, viewing northern exterior

12 – R301, viewing southern exterior and office building

THIRD QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

	
13 – R301, viewing system – accumulation, acid and stripper	14 – R301, viewing corridor
	
15 – R301, viewing satellite collection station	16 – R301, viewing system – carbon canisters
	
17 – Viewing inside one of the recovery well system boxes	18 – View North to South, monitoring wells and recovery wells

THIRD QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – View South to North, monitoring wells and recovery wells

20 – Viewing control box

21 – Panoramic of site from West viewing East

EXPLANATION

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POINT COMFORT OPERATION□

PHOTO LOCATION MAP

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4Q18 CAPA CAP INSPECTION RECORD

Date: 12/19/2018 **Time Started:** 1015 **Time Ended:** 1125

Weather Conditions: 60°F, Partly 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	☑	☐	None observed.
	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 and will monitor the material washing off of cap.
	Holes	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Intrusive Vegetation	☑	☐	Traces of vegetation on the cap.
Signage	In Place	☑	☐	Good condition.
	Legible	☑	☐	Legible.
Storm Drains	Grates	☑	☐	Good Condition
	Debris	☑	☐	Some minor vegetation on southwest grate. Not impeding flow.
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	☑	☐	Control boxes need latches repaired.
	Electrical	☑	☐	Good condition.
	Conduit	☑	☐	Conduit pipe joints are starting to come loose. Will monitor closely and repair as needed..
	Transfer Piping	☑	☐	Some connections are starting to come loose. Will monitor closely and repair as needed.
	Monitoring Wells	☑	☐	Some wells need new locks. Generally in good condition.
	Vegetation	☑	☐	Healthy vegetation.
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. Rusted supports and building condition will be monitored closely.
	Leaks	☑	☐	None observed.
	Odors	☑	☐	None observed.

Additional Comments or Observations: Cap and system is generally in good condition. Continue mowing of the area and herbicide treatment on the cap.

Recommendations: Golder will apply rust killer to equipment and equipment stands overtime to slow down the deterioration from rust. Golder will install new locks on the monitoring wells with bad locks.

Inspector:

Kevin Dworsky

Inspectors Signature:

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FOURTH QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

1 – R301, showing damaged roof on western exterior

2 – R301, storm sewer drain

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

FOURTH QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

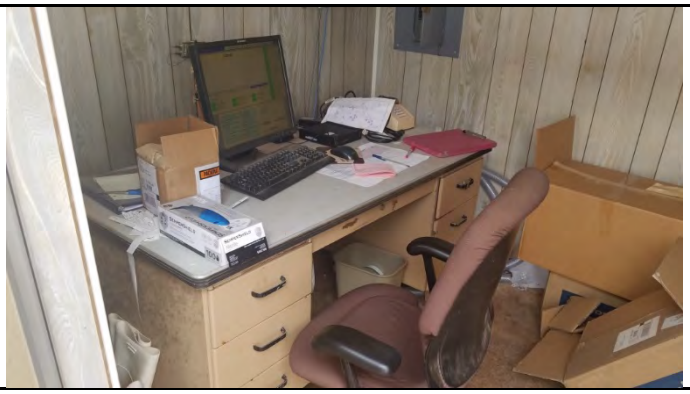
ALCOA PCO – Point Comfort, Texas

9 – Cap, view Northwest from Southeast corner

10 – Cap, view Northeast from Southwest corner

11 – R301, viewing northern exterior

12 – R301, viewing southern exterior



13 – Office building, viewing control portion

14 – Office building, viewing lab portion

15 – R301, viewing system

16 – R301, viewing corridor

FOURTH QUARTER 2018
CAPA CAP INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

17 – R301, viewing satellite collection station

18 – R301, viewing system – carbon canisters

19 – Viewing inside one of the recovery well system boxes

20 – View North to South, monitoring wells and recovery wells

21 – View South to North, monitoring wells and recovery wells

22 – Viewing system effluent outfall

23 – Panoramic of site from West viewing East

EXPLANATION

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ALCOA

POINT COMFORT OPERATION□

PHOTO LOCATION MAP

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APPENDIX B3
WITCO INSPECTION RECORDS

1Q18 WITCO AREA INSPECTION RECORD

Date: 03/29/2018 **Time Started:** 1230 **Time Ended:** 1330

Weather Conditions: 71° F, Clear Sky

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Drainage Channel	Cracks in Concrete	☑	☐	Few old cracks, no new ones in new (West) portion of the channel. Old channel continues to slowly deteriorate, not affecting performance of drainage from the cap.
	Obstructions	☑	☐	The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. There is some minor sediment buildup at the bay outlet of the West (new) channel. No obstruction to flow at this time.
	Erosion	☑	☐	Signs of minor erosion behind the outlet ends of the West (new) channel walls and riprap. Repair is currently not needed but will monitor closely.
	Deterioration	☑	☐	Old marks on concrete of West (new) channel, cause is unknown. Areas of the old (East) drainage channel continue to deteriorate but are currently not effecting performance. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	None observed.
	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. Repair is not currently needed but will monitor closely.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low ponding areas. Repair not needed at this time but will continue to monitor.
	Vegetation	☑	☐	Healthy vegetation.
	Intrusive Trees	☑	☐	None observed.
	Drainage/Rip Rap	☑	☐	Traces of sediment and vegetation. No obstruction to flow. Will continue to monitor.
	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 continue to monitor to ensure erosion doesn't occur.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Several bare spots with geofabric netting exposed. Will continue to monitor.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
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 = 4.29' BMP, no DNAPL, 12.73' TD

Additional Comments or Observations: There are no signs of seepage from the cap. Monitoring wells are in good condition. Recommend the continual shredding of the Witco Area and weed eating the slope.

Recommendations:

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

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FIRST QUARTER 2018
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, Southwest corner, viewing ponding locations

5 – O/W Separator, viewing signage

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

FIRST QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

7 – Tank Farm, viewing rip rap

8 – Drainage Channel, viewing seam 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

FIRST QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

13 – Drainage channel, viewing drainage pipe into channel

14 – Drainage channel, West end of new channel, viewing 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

FIRST QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – Slope from cap to channel, viewing slope

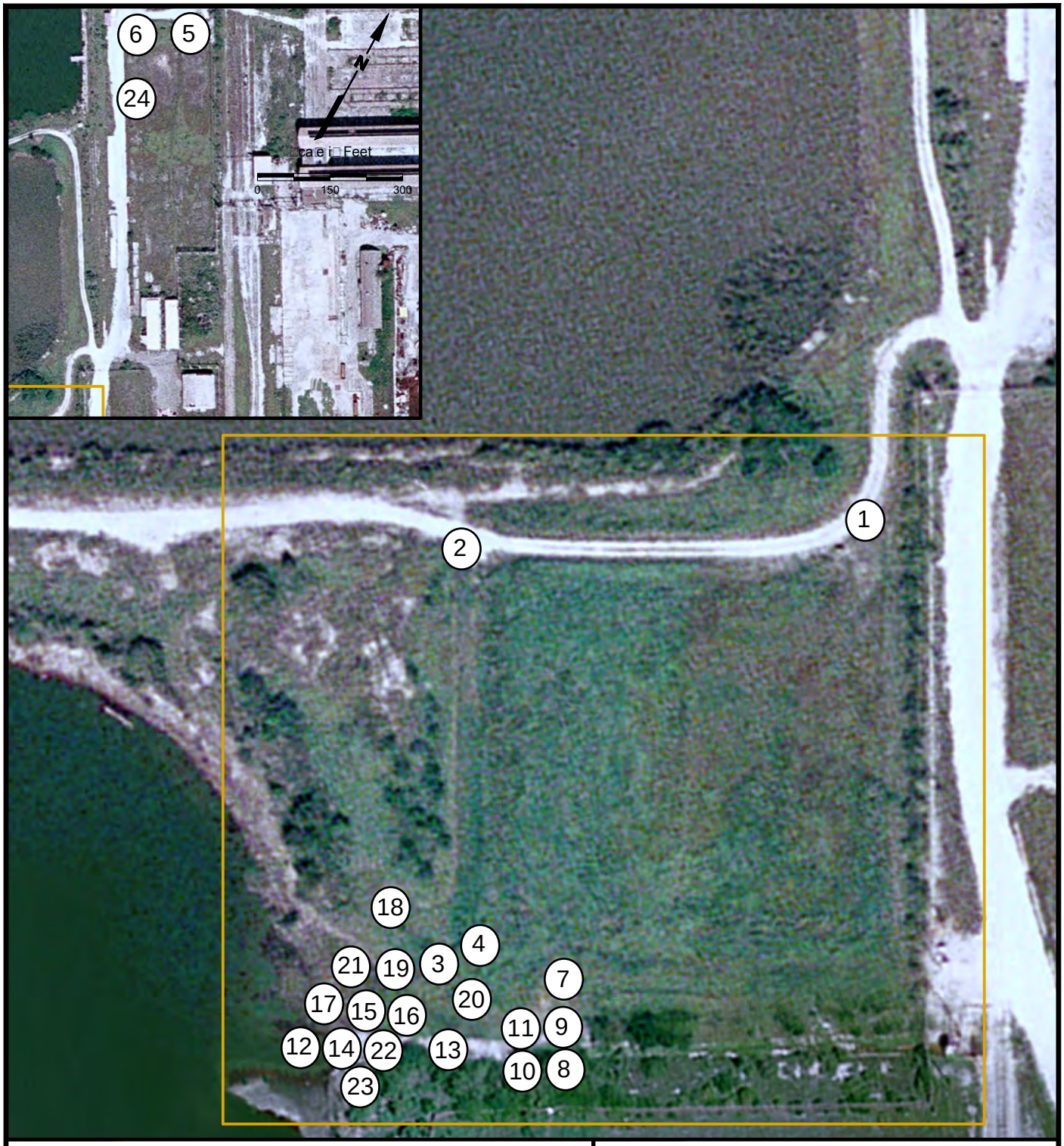
20 – Slope from cap to channel, viewing bare spot and exposed geofabric

21 – Slope from cap to channel, viewing slope

22 – Drainage channel, viewing slight erosion on Northwest corner

23 – Drainage channel, viewing slight erosion on Southwest corner

24 – O/W Separator, viewing monitoring well



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2Q18 WITCO AREA INSPECTION RECORD

Date: 06/28/2018 **Time Started:** 1025 **Time Ended:** 1115

Weather Conditions: 86° F, Partly Cloudy Sky

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Drainage Channel	Cracks in Concrete	☑	☐	Few old cracks, no new ones in new (West) portion of the channel. Old channel continues to deteriorate, not affecting performance of drainage from the cap.
	Obstructions	☑	☐	The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. There is some minor sediment and debris buildup at the bay outlet of the West (new) channel. No obstruction to flow at this time.
	Erosion	☑	☐	Signs of minor erosion behind the outlet ends of the West (new) channel walls and riprap. Repair is currently not needed but will monitor closely.
	Deterioration	☑	☐	Old marks on concrete of West (new) channel, cause is unknown. Areas of the old (East) drainage channel continue to deteriorate but is currently not effecting drainage from the cap. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	None observed.
	Rip Rap	☑	☐	Some minor movement of the rip rap has occurred. Minor build-up of sediment has formed in the rip rap. Repair is not needed at this time but will monitor closely.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low ponding areas. Repair not needed at this time but will continue to monitor.
	Vegetation	☑	☐	Healthy vegetation.
	Intrusive Trees	☑	☐	Some signs of small mesquite trees.
	Drainage/Rip Rap	☑	☐	Traces of sediment, debris, and vegetation. No obstruction to flow. Will continue to monitor.
	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 continue to monitor to ensure erosion doesn't occur. No repair needed at this time.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Slope from Cap to Channel (continued)	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Several bare spots with geofabric netting exposed. Will continue to monitor. No repair needed at this time.
Signage	Damage	☑	☐	Good condition.
	Illegible	☑	☐	Good condition.
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid. Manway is sealed and no action is needed at this time.
	Product Level	☑	☐	WL in sump = 4.23' BMP, no DNAPL, 12.73' TD

Additional Comments or Observations: There are no signs of seepage from the cap. Monitoring wells are in good condition. Recommend the continual shredding of the Witco Area and weed eating the slope. Recommend spraying of small intrusive vegetation to prevent them from becoming a problem.

Recommendations:

Inspector:

Kevin Dworsky

Inspectors Signature:

PBW

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SECOND QUARTER 2018
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 North

SECOND QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

7 – Tank Farm, viewing rip rap

8 – Drainage Channel, viewing seam 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

SECOND QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

	
13 – Drainage channel, viewing drainage pipe into channel	14 – Drainage channel, West end of new channel, viewing 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

SECOND QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

19 – Slope from cap to channel, viewing slope

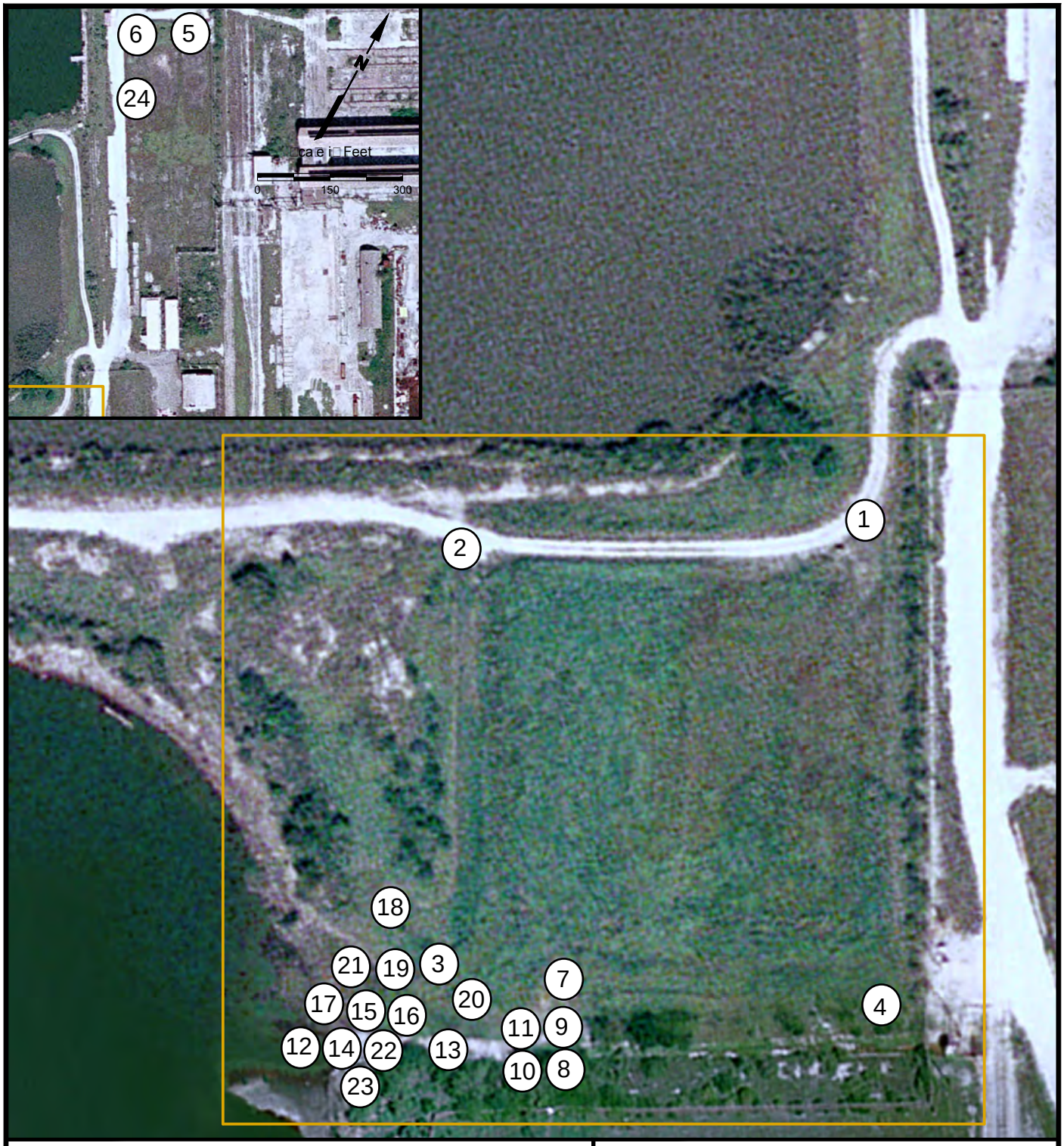
20 – Slope from cap to channel, viewing West to bay from top of slope

21 – Slope from cap to channel, viewing slope

22 – Drainage channel, viewing slight erosion on Northwest corner

23 – Drainage channel, viewing rip rap to bay

24 – O/W Separator, viewing monitoring well



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3Q18 WITCO AREA INSPECTION RECORD

Date: 09/27/2018 **Time Started:** 1330 **Time Ended:** 1400

Weather Conditions: 73° F, Cloudy Sky

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Drainage Channel	Cracks in Concrete	☑	☐	Few old cracks, no new ones in new (West) portion of the channel. Old channel continues to deteriorate, not affecting performance of drainage from the cap.
	Obstructions	☑	☐	The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. There is some minor sediment buildup at the bay outlet of the West (new) channel. No obstruction to flow at this time.
	Erosion	☑	☐	Signs of minor erosion between the outlet ends of the West (new) channel walls and riprap. Repair is currently not needed but will monitor closely.
	Deterioration	☑	☐	Old marks on concrete of West (new) channel, cause is unknown. Areas of the old (East) drainage channel continue to deteriorate but is currently not effecting drainage from the cap. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	None observed.
	Rip Rap	☑	☐	Some minor movement of the rip rap has occurred. Minor build-up of sediment has formed in the rip rap. Repair is not needed at this time but will monitor closely.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low ponding areas. Repair not needed at this time but will continue to monitor.
	Vegetation	☑	☐	Healthy and heavy vegetation.
	Intrusive Trees	☑	☐	None observed.
	Drainage/Rip Rap	☑	☐	Traces of sediment and dead vegetation. No obstruction to flow. Will continue to monitor.
	Animal Damage	☑	☐	None observed.
	Vehicle Ruts	☑	☐	None observed.
	Damage	☑	☐	None observed.
Soil Cap (O/W Separator)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Healthy and heavy 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. No signs of erosion. Will continue to monitor to ensure erosion doesn't occur. No repair needed at this time.
	Slumping	☑	☐	None observed.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Slope from Cap to Channel (continued)	Vegetation	☑	☐	Healthy and Heavy.
Signage	Damage	☑	☐	Good condition.
	Illegible	☑	☐	Good condition.
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid. Manway is sealed and no action is needed at this time.
	Product Level	☑	☐	WL in sump = 4.24' BMP, no DNAPL, 12.73' TD

Additional Comments or Observations: There are no signs of seepage from the cap. Monitoring wells are in good condition. Recommend the continual shredding of the Witco Area and weed eating the slope.

Recommendations:

Inspector:

Kevin Dworsky

Inspectors Signature:

GOLDER

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THIRD QUARTER 2018
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 – O/W Separator, viewing signage

5 – Tank Farm Rip Rap, viewing South

6 – Tank Farm Rip Rap, viewing North

THIRD QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

	
7 – Drainage channel, West end of old channel, viewing east	8 – Drainage channel, viewing deterioration of old channel
	
9 – Drainage channel, East end of new channel, viewing West	10 – Drainage channel, West end of new channel, viewing West
	
11 – Drainage channel, viewing drainage pipe into channel	12 – Drainage channel, West end of new channel, viewing East

THIRD QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

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

14 – Slope from cap to channel, viewing sump well

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

16 – Slope from cap to channel, viewing monitoring well

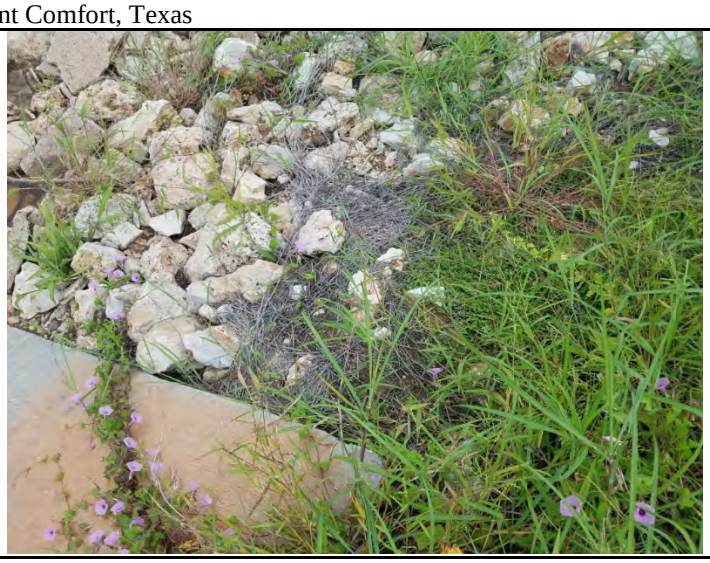
17 – Slope from cap to channel, viewing slope

18 – Slope from cap to channel, viewing slope

THIRD QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

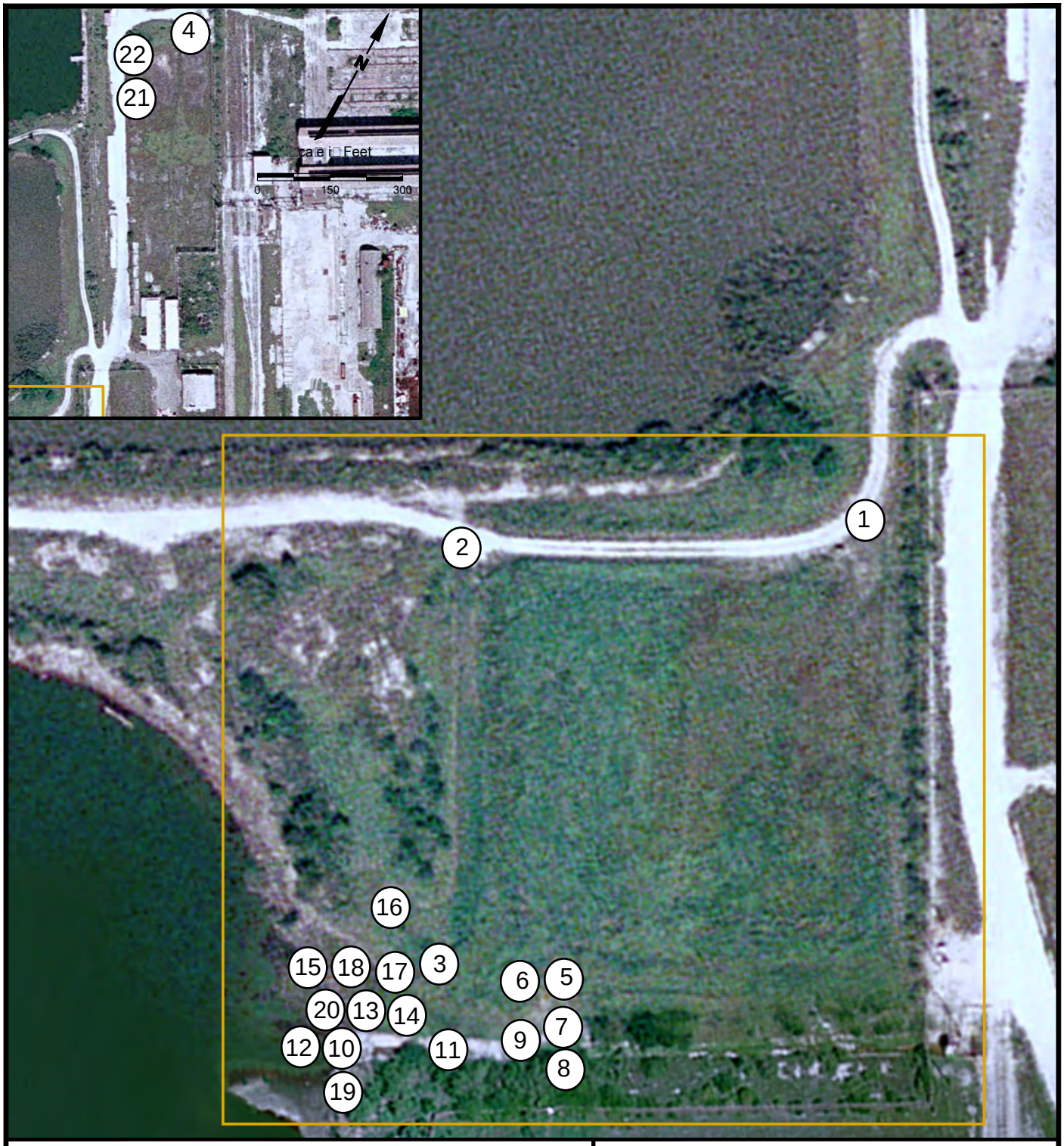
19 – Drainage channel, viewing slight erosion on Southwest corner



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

21 – O/W Separator, viewing monitoring well

22 – O/W Separator, viewing North



ALCOA

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DATE: OCT□□201□	C□EC□ED: M□□	

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4Q18 WITCO AREA INSPECTION RECORD

Date: 12/19/2018 **Time Started:** 1135 **Time Ended:** 1215

Weather Conditions: 70° F, Mostly Clear Sky

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Drainage Channel	Cracks in Concrete	☑	☐	Few old cracks, no new ones in new (West) portion of the channel. Old channel continues to deteriorate, not affecting drainage from the cap.
	Obstructions	☑	☐	The concrete sidewall of the old portion of the channel continues to slough into the bottom of the channel. There is some minor sediment buildup at the bay outlet of the West (new) channel. No obstruction to flow at this time.
	Erosion	☑	☐	Signs of minor erosion between the outlet ends of the West (new) channel walls and riprap. Repair is currently not needed but will monitor closely.
	Deterioration	☑	☐	Old marks on concrete of West (new) channel, cause is unknown. Areas of the old (East) drainage channel continue to deteriorate but is currently not effecting drainage from the cap. Signs of deterioration around some of the inlet drains. No obstruction to flow at this time.
	Washouts	☑	☐	None observed.
	Rip Rap	☑	☐	Some minor movement of the rip rap has occurred. Minor build-up of sediment has formed in the rip rap. Some dead vegetation and timber in the rip rap at the bay outlet. Repair is not needed at this time but will monitor closely.
Soil Cap (Tank Farm)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	Few low ponding areas. Repair not needed at this time but will continue to monitor.
	Vegetation	☑	☐	Good condition.
	Intrusive Trees	☑	☐	None observed.
	Drainage/Rip Rap	☑	☐	Traces of sediment, vegetation, and dead vegetation. No obstruction to flow. Will continue to monitor.
	Animal Damage	☑	☐	Minor animal damage at edge of rip rap. Repair is not needed at this time but will monitor closely.
	Vehicle Ruts	☑	☐	None observed.
	Damage	☑	☐	None observed.
Soil Cap (O/W Separator)	Erosion	☑	☐	None observed.
	Settlement	☑	☐	None observed.
	Vegetation	☑	☐	Good condition.
	Damage	☑	☐	None observed.

AREA	ITEM	CONDITIONS		COMMENTS, CORRECTIVE ACTIONS NEEDED, COORECTIVE ACTIONS IMPLEMENTED (WITH DATE)
		Normal	Abnormal	
Slope from Cap to Channel	Erosion	☑	☐	Several areas of exposed geofabric netting. The geofabric netting is torn in a few areas. No signs of erosion. Will continue to monitor to ensure erosion doesn't occur. No repair needed at this time.
	Slumping	☑	☐	None observed.
	Vegetation	☑	☐	Good condition.
Signage	Damage	☑	☐	Good condition.
	Illegible	☑	☐	Good condition.
DNAPL Collection Sump	Damage	☑	☐	Unable to place cap on sump due to location of lid. Manway is sealed and no action is needed at this time.
	Product Level	☑	☐	WL in sump = 4.03' BMP, no DNAPL, 12.62' TD

Additional Comments or Observations: There are no signs of seepage from the cap. Monitoring wells are in good condition. Recommend the continual shredding of the Witco Area and weed eating the slope.

Recommendations:

Inspector:

Kevin Dworsky

Inspectors Signature:

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FOURTH QUARTER 2018
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, Southwest corner, viewing animal damage

5 – O/W Separator, viewing signage

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

7 – Tank Farm Rip Rap, viewing South

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

FOURTH QUARTER 2018
WITCO INSPECTION PHOTO LOG

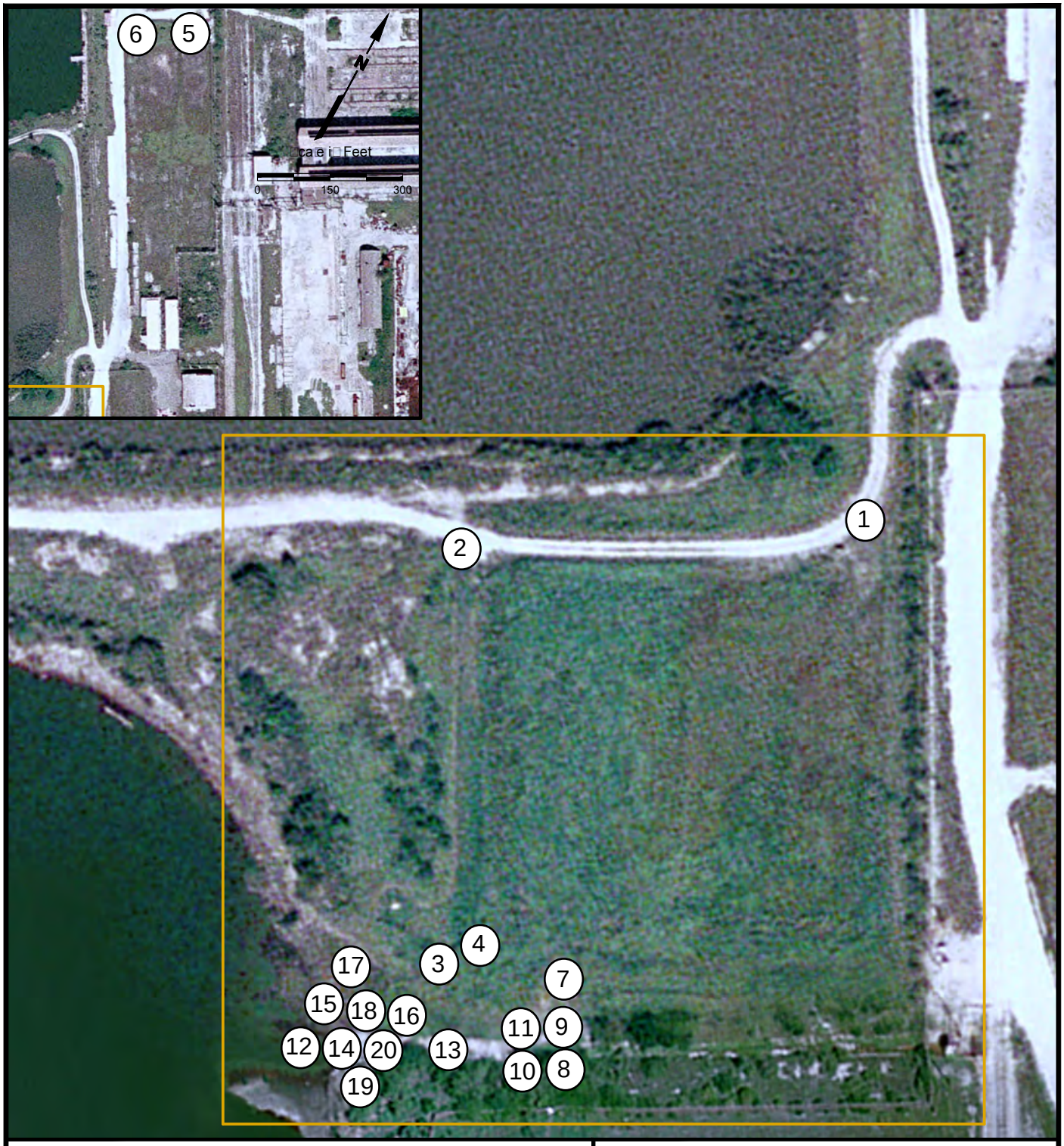
ALCOA PCO – Point Comfort, Texas

	
9 – Drainage channel, West end of old channel, viewing East	10 – Drainage channel, viewing deterioration of old channel
	
11 – Drainage channel, viewing vegetation along South edge	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 – Slope from cap to channel, viewing deteriorated silt fence	16 – Slope from cap to channel, viewing slope

FOURTH QUARTER 2018
WITCO INSPECTION PHOTO LOG

ALCOA PCO – Point Comfort, Texas

	
17 – Slope from cap to channel, viewing slope	18 – Drainage channel, viewing slight erosion and vegetation on Northwest corner
	
19 – Drainage channel, viewing slight erosion on Southwest corner	20 – Drainage channel, viewing debris and vegetation in rip rap



ALCOA

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APPENDIX C1
LAVACA BAY FINFISH AND SHELLFISH MONITORING REPORT

LAVACA BAY FINFISH AND SHELLFISH MONITORING REPORT 2018

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

January 2019

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

Battelle	Battelle Marine Sciences Laboratory
DI	Deionized (water)
GPS	Global Positioning System
ID	Identification
µg/g	micrograms per gram
mm	millimeter
OMMP	Operations, Maintenance, and Monitoring Plan
QA/QC	Quality Assurance/Quality Control

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 2018 monitoring project. A detailed description of the methods and procedures for this project are presented in the Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan (OMMP, Appendix I of the Consent Decree March 2005).

1.2 SITE DESCRIPTION

The Alcoa Point Comfort Operations Plant is located in Calhoun County, Texas, adjacent to Lavaca Bay. An area in the bay adjacent to the Alcoa Plant is associated with elevated mercury concentrations in fish tissue and is closed to the taking of finfish and blue crabs for consumption by order of the Texas Department of Health (now called Department of State Health Services). This area is referred to as the "Closed Area" and is delineated in the figures contained in this report. The monitoring areas specified in the OMMP include both the Closed Area and designated areas outside the Closed Area (referred to as "Adjacent Areas" or the "Open Area").

2.0 METHODS

Red drum and juvenile blue crab tissue samples for the 2018 Finfish and Blue Crab Monitoring Project were collected and processed by Benchmark Ecological Services, Inc., and analyzed by Battelle Marine Sciences Laboratory (Battelle) in Sequim, Washington. Samples were collected between 26 September 2018 and 14 November 2018. 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 10 stations inside the Closed Area (Figure 1), and 30 samples were collected from 10 stations in the Adjacent Areas (outside the Closed Area) (Figure 2). A total of 30 juvenile blue crab composite samples were collected from 10 stations inside the Closed Area (Figure 3). Thirty composite crab samples were also collected from 10 stations in Adjacent Areas (Figure 4).

As described in the OMMP (p. 3-3), the objectives for selecting sample stations are to achieve equal geographic representation of the four quadrants (or zones) within the Closed Area. As also stated in the OMMP (p. 3-3), netting success will be variable and stations from which samples are collected and the number of samples per station will vary. The actual numbers of stations sampled for red drum and juvenile blue crab during the 2018 monitoring event are shown for each of the four Closed Area zones in Figures 1 and 3, respectively. Table 1 shows the number of red drum and juvenile blue crab samples collected per zone.

Table 1 – Tissue Samples Analyzed per Zone

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

The distribution of red drum samples ranged from 6 samples in Zones 3 and 4 (6 samples per zone) to 9 samples in Zones 1 and 2 (9 samples per zone). The number of juvenile blue crab samples ranged from 3 samples in Zones 1 and 3 (3 samples per zone) to 15 samples in Zone 2. The uneven distribution of samples among the zones was due to the uneven distribution of suitable habitat within the Zones.

The primary objective for the placement of both Adjacent Area and Closed Area monitoring stations was to achieve uniform distribution of stations within the sampling areas. The goal was to establish stations that would provide a geographically uniform distribution of samples (OMMP, p. 3-3). The general goal for both sampling areas was to collect approximately the same number of samples from 10 to 12 stations, distributed evenly over the sampling area. Whenever possible, from one year to the next, red drum and juvenile blue crab samples are collected from the same stations.

N

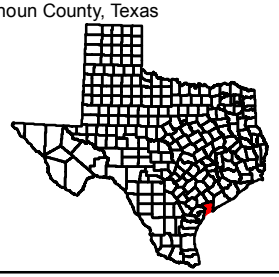
0 1,500 3,000 Feet

Legend

- Red Drum Stations
- #.## Total Hg (ug/g wet weight)
- Zone Boundaries
- Closed Area Boundary

Notes

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



Lavaca Bay Finfish and Shellfish Monitoring Report 2018

Closed Area Red Drum Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-096
Date: 1/21/2019

Figure 1

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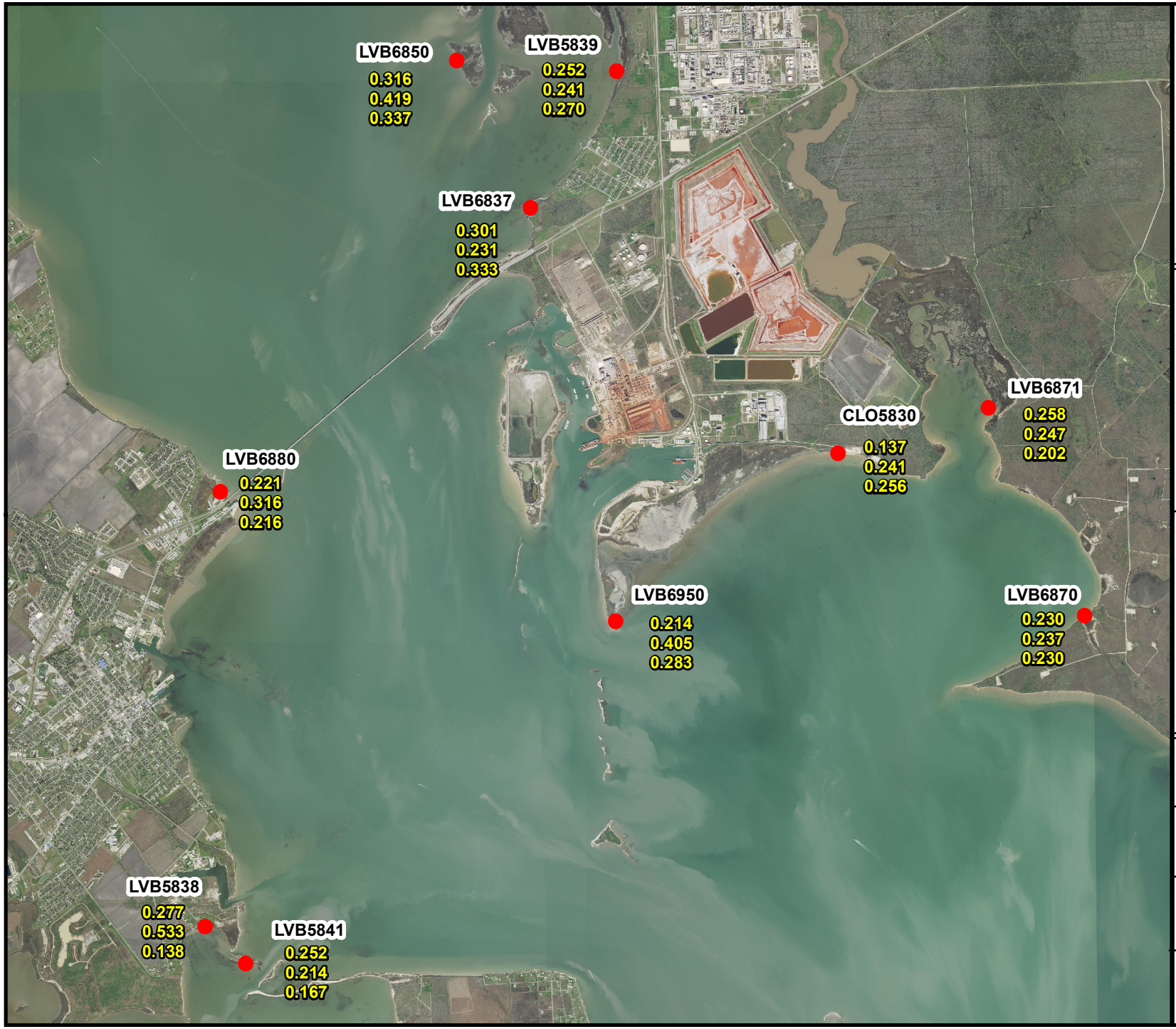


N

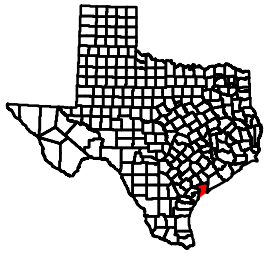
0 0.5 1 Miles

Legend

- Red Drum 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 2018

Adjacent Area Red Drum Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-096
Date: 1/21/2019

Figure 2

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N

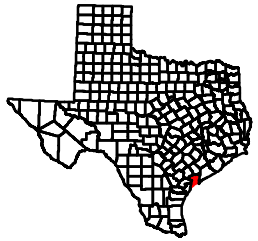
0 1,500 3,000 Feet

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 2018

Closed Area Juvenile Blue Crab Sample Stations and Analytical Results

Prepared for Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-096
Date: 1/21/2019

Figure 3

M:\98003\096\arc\Results\cls_blc_18_results.mxd

N

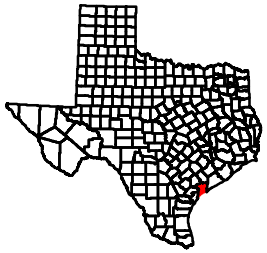
0 0.5 1 Miles

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 2018

Adjacent Area Juvenile Blue Crab Sample Stations and Analytical Results

Prepared for
Alcoa Corporation

BESI Benchmark Ecological Services, Inc.

Project: 98003-096
Date: 12/21/2018

Figure 4

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2.2 SAMPLE COLLECTION

2.2.1 Red Drum

Red drum were collected from the Closed Area and Adjacent Areas between 26 September 2018 and 14 November 2018. In the Closed Area, 30 red drum tissue samples were collected from the 10 sample stations shown in Figure 1. In the Adjacent Areas, 30 red drum tissue samples were collected from the 10 sample stations shown on Figure 2. Sampling was conducted from a 20-foot aluminum boat. A Global Positioning System (GPS) was used to determine the positions of all sample stations.

Red drum specimens were collected using gill nets (6 feet x 150 feet) with 6-inch stretch mesh. Multiple nets (1-3) were set at each sample station in the evening, and left over night. The nets were retrieved the following morning, and the fish removed. Gill nets were set at stations shown in Figures 1 and 2. Red drum with total lengths between 508 and 711 mm (20 to 28 inches) were removed from the gill nets, placed in plastic bags, and labeled with station identification (ID), date, and time. According to Texas Parks and Wildlife regulations, only red drum measuring between 20 and 28 inches (total length) may be legally harvested by recreational fisherman. Labeled bags were immediately placed in an insulated box with ice for storage. Undersized and oversized red drum and specimens of other species were returned to the water.

The following information (at a minimum) was recorded on data sheets:

Station ID	Initials of field personnel	End date
Gear type	Set date	End time
Water depth	Set time	List of photo log entries

2.2.2 Juvenile Blue Crab

Juvenile blue crabs were collected from the Closed Area and Adjacent Areas between 26 September 2018 and 01 November 2018. In the Closed Area, 30 blue crab tissue samples were collected from 10 stations shown in Figure 3 and in the Adjacent Area, 30 blue crab tissue samples were collected from 10 sample stations shown in Figure 4. Sampling was conducted from a 20-foot aluminum boat. A Global Positioning System was used to determine the positions of all sample stations.

Juvenile blue crabs were collected using barrel-type minnow traps baited with commercial crab bait (Gulf menhaden). Traps were checked at least every 4 days. Crabs were removed from the traps, inspected, and sorted by size in a clean sorting tray. Injured, dead, undersized, and oversized blue crabs, as well as by-catch, were returned to the water. Crabs that were between 25-75 mm in width were retained. Width is the distance between the tips of the primary lateral spines of the carapace. Crabs collected in the field were placed in resealable bags labeled with station ID, date, and collection time. Labeled bags were immediately placed in an insulated chest with ice. Data sheets were used to record the same sample site information listed above for finfish samples.

2.3 SAMPLE PROCESSING

2.3.1 Red Drum

Red drum samples were processed on the date of collection in the Alcoa Clean Lab (located at the Alcoa Point Comfort Facility) and remained on ice until processing was complete. Fish were weighed, measured, 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 further processing.

In the clean lab, the fish were again rinsed with DI water and placed on pre-cleaned Teflon cutting boards. The right fillet (with skin) was removed with pre-cleaned, hexane-rinsed stainless steel fillet knives. The fillets were cut into small cubes, mixed, and weighed (in grams). A random 33-62 gram sub-sample was removed, weighed, and placed in a pre-cleaned sample container supplied by the analytical laboratory. Fillet weights and sample weights were recorded digitally on sample processing data sheets and are listed in Tables 2 and 3 for Closed Area and Adjacent Area specimens, respectively. Sample jars were labeled with sample number, species, collection date, time, and initials of processing personnel.

The containers with samples were placed into resealable plastic bags and stored at 4 ±2 degrees Celsius. A Chain of Custody form was completed for all samples collected. Sample containers were shipped to Battelle overnight on the date of collection. A total of three red drum samples arrived at the laboratory later than the acceptable overnight shipping period, which was modified and described in the 2015 RAAER (Alcoa, 2015). All samples arrived with acceptable hold temperatures and were freeze-dried and archived upon arrival and subsequently replaced through continued field sampling.

2.3.2 Juvenile Blue Crab

Blue crabs were registered within 24 hours of collection at the Alcoa Clean Lab (located at the Alcoa Point Comfort Facility) and remained on ice or in a refrigerator until processing was complete. In the laboratory, crabs were rinsed with DI water and sorted by size on pre-cleaned Teflon cutting boards. Individual blue crabs were measured, weighed, and placed into sample containers. Each sample was a composite of 5 crabs measuring 25 to 75 mm in width. Individual crab weights and total sample weights were recorded on digital sample processing data sheets. Data associated with Closed Area and Adjacent Area juvenile blue crab monitoring are listed in Tables 4 and 5, respectively. Sample containers were labeled with the sample ID, collection date, time, and initials of processing personnel and were placed into resealable plastic bags in a secure refrigerator in the Clean Lab. Samples were shipped overnight to Battelle for analysis.

3.0 ANALYTICAL RESULTS

Red drum and juvenile blue crab samples were analyzed for total mercury and percent moisture by Battelle. Total mercury results were reported in µg/g as wet weight. Benchmark received the final data packet from the analytical laboratory on 4 January 2019, and Analytical QA/QC was completed by Environmental Chemistry Services on 4 January 2019. Analytical results for red drum collected from the Closed Area are presented in Table 2, and the results for red drum collected from the Adjacent Areas are presented in Table 3. Analytical results for juvenile blue crabs collected from the Closed Area are presented in Table 4, and results for juvenile blue crabs collected from the Adjacent Areas are presented in Table 5.

Analytical 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, 2005. Appendix B. *Statement of Work for Remedial Action. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan.* Alcoa (Point Comfort) / Lavaca Bay Superfund Site. October 2003. Appendix I.

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

Table 2 - Closed Area Red Drum Sample Stations, Sample IDs, Processing Data, and Analytical Results

Station ID	Sample ID	Date	Time	Total Length (mm)	Standard Length (mm)	Total Weight (g)	Tissue Weight (g)	Sample Weight (g)	Percent Moisture	Total Hg wet weight (µg/g)	Flag
CLO5815	B12b-TF-18699	09/26/18	7:27	569	470	1626	250.4	54.1	81.3	1.18	-
CLO5802	B12b-TF-18703	09/27/18	8:07	563	460	1703	235.9	55.4	78.5	0.859	-
CLO5815	B12b-TF-18704	09/27/18	8:50	619	505	2241	261.2	58.3	81.8	1.01	-
CLO1414	B12b-TF-18706	10/01/18	8:40	589	480	1726	219.1	49.1	80.7	1.11	-
LVB5508	B12b-TF-18712	10/04/18	7:55	518	430	1345	192.6	53	80.7	0.919	-
LVB5504	B12b-TF-18713	10/04/18	8:15	520	430	1418	198	40.7	79.0	1.05	-
CLO5818	B12b-TF-18714	10/04/18	8:35	641	530	2415	360.3	52.5	78.7	0.323	-
CLO6802	B12b-TF-18715	10/04/18	8:55	664	545	2883	415.9	50.3	79.0	0.160	-
CLO5815	B12b-TF-18716	10/10/18	9:00	575	465	1653	254.1	53.3	81.0	1.05	-
CLO6802	B12b-TF-18717	10/10/18	8:40	571	460	1819	310.5	51.2	78.3	0.189	-
CLO6802	B12b-TF-18718	10/10/18	8:40	614	505	2228	347.9	52.9	79.9	0.216	-
CLO5818	B12b-TF-18719	10/11/18	9:40	525	420	1270	179.8	42.2	78.6	1.05	-
CLO5804	B12b-TF-18720	10/16/18	7:40	529	430	1315	191.5	47.5	80.2	1.38	-
CLO5804	B12b-TF-18721	10/16/18	7:40	521	420	1222	161.6	47.7	81.6	1.53	-
CLO1414	B12b-TF-18723	10/17/18	8:27	509	400	1035	144.1	33.4	79.9	0.450	-
CLO5803	B12b-TF-18741	10/25/18	8:10	562	540	2777	405.4	54	76.7	0.290	-
CLO5802	B12b-TF-18742	10/25/18	8:25	580	475	1763	269.2	42.6	80.1	0.695	-
CLO5802	B12b-TF-18748	10/30/18	9:25	709	585	3701	483.8	51	79.8	0.640	-
LVB5508	B12b-TF-18749	11/01/18	8:05	587	490	1935	300.4	38.2	81.4	0.659	-
CLO5818	B12b-TF-18750	11/01/18	8:20	619	505	2358	367.1	56.1	80.9	1.04	-
CLO5803	B12b-TF-18751	11/02/18	8:05	586	470	1844	293.9	49.9	79.3	0.577	-
LVB5508	B12b-TF-18753	11/05/18	8:00	681	560	3066	500.7	48.2	80.4	0.339	-
LVB5504	B12b-TF-18754	11/06/18	7:15	663	540	2825	482.3	55.2	79.9	0.256	-
CLO5804	B12b-TF-18755	11/06/18	6:55	639	525	2826	448.6	53.8	79.2	0.154	-
CLO5803	B12b-TF-18756	11/07/18	6:30	516	420	1429	220.6	47	79.2	0.667	-
CLO1414	B12b-TF-18757	11/11/18	6:50	705	575	3478	548.5	57.9	79.1	0.244	-
CLO5816	B12b-TF-18758	11/14/18	6:45	624	515	2850	446.6	46.6	76.8	0.257	-
CLO5816	B12b-TF-18759	11/14/18	6:45	639	520	2478	380.1	45.9	78.6	0.379	-
CLO5816	B12b-TF-18760	11/14/18	6:45	625	520	2817	445.9	47.2	78.5	0.175	-
LVB5504	B12b-TF-18761	11/14/18	7:30	681	555	2956	442.0	46.2	80.2	0.306	-
Average Values				**598**	**492**	**2167**	**325.3**	**49.4**	**79.6**	**0.638**	-

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
LVB5839	B12b-TF-18700	09/27/18	7:25	705	575	3229	492.1	59	77.8	0.252	-
LVB5839	B12b-TF-18701	09/27/18	7:25	627	515	2532	423	62.4	79.0	0.241	-
LVB5839	B12b-TF-18702	09/27/18	7:25	582	475	1831	250.5	55	78.3	0.270	-
LVB6837	B12b-TF-18705	10/01/18	7:50	575	460	1929	298.4	51.6	81.7	0.301	-
LVB6880	B12b-TF-18707	10/01/18	8:00	539	445	1783	297.4	52.1	81.3	0.221	-
LVB6950	B12b-TF-18708	10/03/18	11:17	654	535	2850	439	51	78.3	0.214	-
LVB6950	B12b-TF-18709	10/03/18	11:17	687	560	3460	446.4	59	79.6	0.405	-
LVB5841	B12b-TF-18710	10/03/18	7:50	667	560	2894	436.2	51.6	79.5	0.252	-
LVB5841	B12b-TF-18711	10/03/18	7:50	605	490	2371	317.9	51.3	79.3	0.214	-
LVB6837	B12b-TF-18722	10/17/18	9:27	510	405	1211	208.9	56	80.0	0.231	-
LVB6871	B12b-TF-18724	10/18/18	9:44	709	590	4022	632	54.7	75.7	0.258	-
LVB6871	B12b-TF-18725	10/18/18	9:44	685	565	3150	447.9	58.7	79.4	0.247	-
LVB6871	B12b-TF-18726	10/18/18	9:44	628	510	2229	272.8	48.3	80.7	0.202	-
LVB6950	B12b-TF-18727	10/18/18	8:27	685	560	3497	571.6	51.3	77.2	0.283	-
CLO5830	B12b-TF-18728	10/18/18	8:58	576	460	1664	254.4	54.4	80.9	0.137	-
CLO5830	B12b-TF-18729	10/18/18	8:58	696	575	4164	563.8	52.6	77.7	0.241	-
LVB6837	B12b-TF-18730	10/18/18	7:00	693	575	3511	528.6	52.3	77.6	0.333	-
LVB6870	B12b-TF-18731	10/18/18	10:06	511	415	1237	199.7	53.9	79.8	0.230	-
LVB6870	B12b-TF-18732	10/18/18	10:06	620	500	2290	347.6	50.5	79.2	0.237	-
LVB6870	B12b-TF-18733	10/18/18	10:06	573	470	1911	315.4	51.1	80.1	0.230	-
CLO5830	B12b-TF-18737	10/24/18	8:50	707	590	3668	538.2	55.6	77.1	0.256	-
LVB6850	B12b-TF-18738	10/24/18	7:30	676	565	3042	458.3	53.7	80.4	0.316	-
LVB6850	B12b-TF-18739	10/24/18	7:30	540	435	1699	259.6	53.1	79.7	0.419	-
LVB6850	B12b-TF-18740	10/24/18	7:30	553	455	1791	283.7	56.2	79.5	0.337	-
LVB5838	B12b-TF-18743	10/29/18	9:20	697	570	3439	514.5	55.3	79.5	0.277	-
LVB5838	B12b-TF-18744	10/29/18	9:20	646	530	2993	455.6	50.9	80.1	0.533	-
LVB5838	B12b-TF-18745	10/29/18	9:20	700	585	3684	624.4	53.6	79.4	0.138	-
LVB5841	B12b-TF-18746	10/29/18	8:45	560	455	1802	324.5	52.9	78.8	0.167	-
LVB6880	B12b-TF-18747	10/29/18	8:10	617	500	2310	348.2	55.4	80.2	0.316	-
LVB6880	B12b-TF-18752	11/05/18	6:45	590	480	2000	329.9	49.1	80.7	0.216	-
Average Values				**627**	**514**	**2606**	**396.0**	**53.8**	**79.3**	**0.266**	**-**

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
LVB5513	B12b-TS-19183	09/26/18	8:27	41.1	5.3	41.3	70.2	0.0830	-
				70.2	20.8				
				42.9	6.5				
				39.7	4.3				
				39.6	4.4				
LVB5508	B12b-TS-19184	09/26/18	8:15	69.1	23.4	58.8	70.3	0.170	-
				48.0	10.0				
				48.4	9.3				
				57.6	13.3				
				32.3	2.8				
CLO5802	B12b-TS-19191	09/27/18	16:40	72.4	24.7	43.5	64.8	0.115	-
				68.7	12.3				
				30.5	2.1				
				27.1	1.3				
				35.2	3.1				
CLO5802	B12b-TS-19192	09/27/18	16:40	64.8	15.7	42.4	67.4	0.124	-
				39.9	4.7				
				61.7	13.7				
				31.6	2.5				
				44.3	5.8				
CLO5802	B12b-TS-19193	10/01/18	10:00	40.4	5.8	35.8	73.7	0.0799	-
				36.3	3.5				
				73.8	20.8				
				28.4	1.9				
				33.7	3.8				
CLO5803	B12b-TS-19195	09/27/18	16:54	40.2	5.2	11.2	69.5	0.0984	-
				27.2	1.3				
				27.4	1.6				
				29.3	2.1				
				25.7	1.0				
CLO5803	B12b-TS-19196	09/27/18	16:54	25.5	0.9	44.0	69.3	0.226	-
				26.7	1.0				
				58.7	20.0				
				47.6	10.0				
				60.5	12.1				
LVB5508	B12b-TS-19205	09/27/18	17:05	52.1	10.0	42.5	69.0	0.103	-
				40.9	6.1				
				26.6	1.8				
				63.6	18.0				
				45.2	6.6				

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
LVB5513	B12b-TS-19206	09/27/18	17:30	72.2	26.6	58.1	67.5	0.0646	-
				50.4	10.0				
				64.4	17.9				
				25.8	1.1				
				31.0	2.5				
CLO6802	B12b-TS-19210	09/27/18	17:56	68.3	17.5	45.5	67.1	0.0560	-
				35.4	3.0				
				74.4	22.3				
				31.2	1.8				
				26.7	0.9				
LVB5513	B12b-TS-19211	10/01/18	10:55	30.7	2.2	58.2	65.3	0.0812	-
				68.3	25.4				
				43.6	6.2				
				47.1	6.5				
				59.9	17.9				
CLO5900	B12b-TS-19216	09/27/18	17:20	33.6	2.3	18.5	65.7	0.0971	-
				32.9	3.3				
				51.1	7.9				
				29.2	1.2				
				38.3	3.8				
LVB5504	B12b-TS-19222	10/01/18	10:30	65.2	23.1	43.3	70.5	0.0819	-
				46.0	6.4				
				49.4	8.3				
				40.1	4.3				
				25.2	1.2				
CLO6802	B12b-TS-19223	10/03/18	11:45	30.4	1.9	16.0	63.9	0.0510	-
				32.0	2.1				
				31.2	1.6				
				52.8	8.0				
				33.2	2.4				
CLO5814	B12b-TS-19224	10/03/18	12:00	52.4	2.6	25.7	65.6	0.0842	-
				62.3	16.0				
				32.0	2.8				
				38.3	2.0				
				32.1	2.3				
LVB5517	B12b-TS-19225	10/02/18	13:39	53.8	8.1	34.9	67.9	0.0797	-
				29.0	2.1				
				39.1	4.9				
				27.2	1.0				
				70.9	18.8				

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-19226	10/04/18	10:41	30.9	2.5	12.8	67.8	0.0650	-
				33.0	2.5				
				31.2	4.0				
				28.5	1.9				
				28.4	1.9				
CLO6802	B12b-TS-19228	10/08/18	11:58	43.7	8.6	25.0	71.5	0.0483	-
				36.0	2.9				
				52.7	7.7				
				34.8	2.9				
				36.6	2.9				
CLO5815	B12b-TS-19229	10/08/18	1:24	35.8	1.7	9.9	74.5	0.0535	-
				25.3	1.0				
				43.3	4.7				
				29.0	1.3				
				26.6	1.2				
LVB5504	B12b-TS-19231	10/04/18	11:00	41.1	4.6	15.5	76.5	0.0244	-
				44.0	5.9				
				51.1	2.7				
				26.2	1.3				
				25.1	1.0				
CLO5803	B12b-TS-19233	10/04/18	10:30	29.8	2.3	17.9	63.4	0.183	-
				27.0	0.8				
				30.9	2.6				
				43.3	8.4				
				36.7	3.8				
CLO5814	B12b-TS-19234	10/04/18	9:35	27.0	1.5	40.5	76.5	0.0327	-
				74.5	23.7				
				45.1	8.0				
				43.2	5.4				
				28.7	1.9				
CLO5814	B12b-TS-19235	10/08/18	12:25	56.2	12.6	49.0	71.2	0.0417	-
				30.9	2.3				
				60.6	15.9				
				43.6	5.4				
				58.8	12.8				
CLO5900	B12b-TS-19237	10/08/18	12:40	27.4	1.3	9.6	65.1	0.0612	-
				30.4	1.3				
				39.2	3.4				
				31.1	2.3				
				27.2	1.3				

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
LVB5504	B12b-TS-19238	10/08/18	12:50	29.9	1.7	8.4	69.8	0.0316	-
				33.0	2.7				
				27.4	1.5				
				27.5	1.0				
				27.0	1.5				
CLO5815	B12b-TS-19239	10/10/18	9:20	49.1	7.2	23.7	69.7	0.338	-
				29.3	1.4				
				43.4	6.7				
				27.3	1.7				
				40.5	6.7				
CLO5815	B12b-TS-19240	10/16/18	8:52	51.9	10.4	22.9	76.3	0.287	-
				45.8	6.5				
				25.5	1.4				
				34.1	3.1				
				25.2	1.5				
LVB5517	B12b-TS-19241	10/10/18	10:25	34.2	1.8	35.1	72.5	0.0525	-
				49.5	7.0				
				71.0	22.1				
				35.7	2.2				
				29.0	2.0				
LVB5517	B12b-TS-19244	10/29/18	11:45	32.3	3.6	22.9	70.5	0.0442	-
				32.3	2.1				
				28.8	2.5				
				43.7	6.0				
				45.4	8.7				
CLO5900	B12b-TS-19245	10/29/18	11:15	31.0	2.2	37.5	69.0	0.0856	-
				52.2	10.0				
				60.6	14.2				
				47.9	9.2				
				30.3	1.9				
Average Values				**41.1**	**6.3**	**31.7**	**69.4**	**0.0981**	-

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
LVB6880	B12b-TS-19185a	09/30/18	18:38	72.9	27.4	86.9	70.6	0.0433	-
				42.8	7.2				
				70.0	25.4				
				55.6	17.3				
				42.3	9.6				
LVB6871	B12b-TS-19186	09/27/18	18:15	61.3	20.4	41.2	69.8	0.0393	-
				45.5	9.2				
				37.2	4.3				
				27.0	2.6				
				43.5	4.7				
LVB6871	B12b-TS-19187	09/27/18	18:15	71.3	25.2	64.4	67.9	0.0341	-
				61.6	14.3				
				28.9	2.2				
				52.1	13.6				
				47.2	9.1				
LVB5839	B12b-TS-19188	09/27/18	16:00	29.4	2.6	33.8	65.6	0.0390	-
				46.6	8.5				
				36.1	4.3				
				50.5	12.7				
				38.2	5.7				
LVB5839	B12b-TS-19189	09/27/18	16:00	57.7	14.2	42.1	73.7	0.0268	-
				49.9	12.6				
				31.0	2.7				
				38.4	5.3				
				41.7	7.3				
LVB5839	B12b-TS-19190	09/27/18	16:00	33.7	4.4	43.9	70.4	0.0348	-
				56.6	16.9				
				43.5	8.0				
				36.3	3.3				
				49.0	11.3				
LVB6852	B12b-TS-19194	10/01/18	12:45	47.4	9.7	40.1	70.0	0.0636	-
				31.8	3.0				
				30.4	2.0				
				61.6	23.1				
				31.4	2.3				
LVB6837	B12b-TS-19197	09/30/18	18:30	66.4	27.4	82.2	67.4	0.0615	-
				69.1	31.4				
				40.3	5.8				
				41.7	6.5				
				44.2	11.1				

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
LVB6850	B12b-TS-19198	09/27/18	16:15	74.9	21.3	73.7	68.8	0.0529	-
				48.7	10.2				
				67.8	28.4				
				29.9	2.9				
				50.1	10.9				
LVB6850	B12b-TS-19199	09/27/18	16:15	58.7	14.8	64.9	71.2	0.0366	-
				50.2	10.3				
				58.6	12.9				
				43.7	8.6				
				60.6	18.3				
LVB6850	B12b-TS-19200	09/30/18	18:10	73.1	29.2	62.6	68.1	0.0547	-
				41.9	6.2				
				50.6	12.9				
				40.9	5.5				
				44.5	8.8				
LVB5838	B12b-TS-19201	10/01/18	12:27	70.2	24.6	54.9	72.1	0.0242	-
				65.3	20.8				
				28.4	2.4				
				31.7	2.8				
				35.6	4.3				
LVB6870	B12b-TS-19202	09/27/18	18:30	53.8	8.0	25.9	77.4	0.0270	-
				54.1	9.4				
				47.5	5.9				
				29.8	1.5				
				26.4	1.1				
LVB6870	B12b-TS-19203	09/27/18	18:30	29.7	1.3	14.6	71.4	0.0390	-
				41.6	4.3				
				27.5	1.9				
				37.2	5.1				
				32.4	2.0				
LVB6870	B12b-TS-19204	09/28/18	18:30	26.9	1.9	24.5	64.9	0.0405	-
				55.0	11.5				
				42.6	7.6				
				29.3	1.3				
				26.1	2.2				
LVB6853	B12b-TS-19207	09/27/18	18:55	64.7	19.4	49.6	72.8	0.0769	-
				30.9	2.6				
				37.5	3.2				
				57.1	16.2				
				45.8	8.2				

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
LVB6975	B12b-TS-19208	10/01/18	13:00	42.3	5.6	23.6	73.6	0.0173	-
				34.5	2.8				
				27.8	1.5				
				28.4	1.8				
				53.5	11.9				
LVB6975	B12b-TS-19209	10/01/18	13:00	32.6	2.3	9.8	70.4	0.0211	-
				26.7	1.5				
				35.2	3.3				
				26.8	1.6				
				25.8	1.1				
LVB6871	B12b-TS-19213	09/27/18	18:15	46.4	8.5	54.0	68.7	0.0436	-
				55.0	15.9				
				29.2	1.9				
				33.8	3.3				
				65.6	24.4				
LVB6853	B12b-TS-19214	10/03/18	9:20	40.5	4.9	21.3	72.1	0.0600	-
				36.0	3.8				
				38.6	4.9				
				33.3	2.3				
				40.3	5.4				
LVB5838	B12b-TS-19215	10/01/18	12:27	63.1	15.1	37.6	69.0	0.0274	-
				64.7	18.2				
				26.3	1.7				
				26.1	1.1				
				28.3	1.5				
LVB6837	B12b-TS-19217	10/03/18	17:55	59.1	14.3	36.8	71.1	0.0332	-
				38.5	5.0				
				37.1	4.7				
				41.8	5.7				
				42.2	7.1				
LVB6837	B12b-TS-19218	09/30/18	18:30	53.3	14.2	44.0	65.7	0.0456	-
				48.3	9.1				
				52.6	11.2				
				36.7	4.2				
				40.1	5.3				
LVB6880	B12b-TS-19219	10/04/18	11:33	63.8	21.0	40.1	65.3	0.0563	-
				50.2	11.5				
				27.2	2.1				
				36.4	3.9				
				26.4	1.6				

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
LVB6975	B12b-TS-19220	10/01/18	13:00	74.5	19.8	54.7	75.7	0.0294	-
				60.3	15.8				
				56.3	13.3				
				34.5	3.3				
				30.7	2.5				
LVB6852	B12b-TS-19221	10/01/18	12:45	25.7	1.7	42.5	67.5	0.0561	-
				39.7	4.1				
				51.1	12.0				
				39.4	6.0				
				57.3	18.7				
LVB6853	B12b-TS-19227	10/03/18	9:20	42.3	6.8	44.8	73.2	0.0676	-
				44.4	7.6				
				51.5	11.0				
				58.3	16.5				
				35.4	2.9				
LVB6880	B12b-TS-19230	10/04/18	11:35	40.6	6.4	42.2	66.7	0.0393	-
				36.7	4.6				
				39.1	4.1				
				53.7	15.4				
				49.0	11.7				
LVB6852	B12b-TS-19232	10/04/18	11:42	61.8	17.7	26.5	69.0	0.0537	-
				27.1	2.0				
				27.1	1.6				
				32.5	3.2				
				27.3	2.0				
LVB5838	B12b-TS-19236	10/08/18	11:20	67.0	30.6	37.7	68.8	0.0655	-
				31.6	2.1				
				25.2	1.3				
				26.7	1.6				
				30.6	2.1				
Average Values				**43.8**	**8.8**	**44.0**	**70.0**	**0.0437**	-

APPENDIX C2
LAVACA BAY RED DRUM GUT CONTENT SURVEY REPORT

LAVACA BAY RED DRUM GUT CONTENT REPORT
2018

Alcoa Point Comfort Operations
Lavaca Bay Superfund Site

January 2019

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LIST OF ACRONYMS AND ABBREVIATIONS

DI	Deionized (water)
GPS	Global Positioning System
ID	Identification
mm	millimeter
RAAER	Remedial Action Annual Effectiveness Report

1.0 INTRODUCTION

A key factor in the success of the Lavaca Bay Remedy is the reduction in tissue mercury concentrations through targeted source control efforts, sediment removal efforts, capping, enhanced natural recovery, and/or natural recovery. In accordance with Section 4.4 (Recommendations) of the 2014 Remedial Action Annual Effectiveness Report (RAAER) (Alcoa 2015), supplemental studies concerning red drum diet were conducted to improve our understanding of the processes by which methylmercury bioaccumulates in red drum.

1.1 PURPOSE AND SCOPE

The objective of the Gut Content Survey was to evaluate the stomach contents of red drum (*Sciaenops ocellatus*) collected for the 2018 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 2018 Annual Monitoring Study were removed, sorted, and identified. Thirty fish were collected from Closed Area stations and thirty fish were collected from Adjacent Area stations; this survey consisted of examining the contents of each fish stomach which was analyzed for tissue mercury.

1.2 SITE DESCRIPTION

The Alcoa Point Comfort Operations Facility is located in Calhoun County, Texas, adjacent to Lavaca Bay. The area in the bay adjacent to the Alcoa Plant, referred to as the “Closed Area”, is associated with elevated mercury concentrations in fish tissue and is closed to the taking of finfish and blue crabs for consumption by order of the Texas Department of Health (now Department of State Health Services). Portions of Lavaca Bay adjacent and contiguous to the Closed Area are termed the “Adjacent Area” or the “Open Area”. Locations within the Closed and Adjacent Areas are specified in the Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan (Alcoa 2005) for annual sample collection studies.

2.0 METHODS

Legal-sized red drum (508-711 mm total length) were collected and processed for the annual monitoring effort by Benchmark Ecological Services, Inc. (Benchmark). Processing was conducted at the Alcoa Clean Lab at the Alcoa Facility, in Point Comfort, Texas (Point Comfort Operations). Red drum were collected between 26 September 2018 and 14 November 2018. Stomach contents collected for this survey were not chemically analyzed.

2.1 SAMPLE STATIONS

Legal-sized red drum were collected from 10 established stations in the Closed Area and 10 established stations in the Adjacent Area. Sample station locations are shown on Figures 1 and 2 in the Lavaca Bay Finfish and Shellfish Monitoring Report 2018 (Appendix C1 of this RAAER). A Global Positioning System (GPS) was used to determine the positions of all sample stations.

Table 1 shows the number of red drum collected by zone. The distribution of red drum samples ranged from 6 samples in Zones 3 and 4 (6 samples per zone) to 9 samples in Zones 1 and 2 (9 samples per zone). The uneven distribution of samples among the zones was due to the uneven distribution of suitable habitat within the Zones.

Table 1 – Red Drum Collected by Zone

Zone	Red Drum
Zone 1	9
Zone 2	9
Zone 3	6
Zone 4	6

Sample stations are also grouped by habitat type: oyster reef, emergent marsh, or other benthic flats. The "other" habitat category is an addendum to historic reports and is a necessary classification given site conditions remaining after 2016-2017 remedial actions which resulted in locations with neither reef nor marsh habitat. Typical "other flats" are defined as shallow inundated areas of low slope with sand or clay bottom, where no emergent marsh exists along the shoreline, and consolidated oyster reef is not present.

2.2 SAMPLE COLLECTION

In the Closed Area, 30 red drum tissue samples were collected from the 10 sample stations. In the Adjacent Area, 30 red drum tissue samples were collected from the 10 sample stations.

A detailed description of the methods for collecting red drum for this survey is provided in the Lavaca Bay Finfish and Shellfish Monitoring Report 2018 (Appendix C1 of this RAAER). This survey was conducted according to procedures developed by Alcoa for gut content surveys conducted in 2011 and 2012, which are described in Benchmark Standard Operating Procedure SOP-BESI-515. Only legal-sized red drum (total lengths between 508 and 711 mm [20 to 28 inches]) were retained for this survey. Undersized and oversized red drum and specimens of other species were returned to the water.

2.3 SAMPLE PROCESSING

Red drum samples were processed on the date of collection in the Alcoa Clean Lab and remained on ice until processing was complete. Fish were weighed, measured, 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 2018 (Appendix C1 of this RAAER). After scaling, fish were placed in clean plastic bags and returned to cold storage until all fish were scaled.

After the right fillet (with skin) was removed from each fish and placed in a sample container, the abdominal cavity was opened and the stomach was removed by cutting the esophagus just above the stomach and cutting the intestine just below the stomach. Each stomach was cut open, and its contents were removed and placed on a cutting board.

Gut contents were separated by species, counted, and photographed and the associated red drum sample IDs were recorded on the gut content data sheet along with species counts (Tables 2 and 3). Representative photos are presented as Attachment 1.

Table 2 - 2018 Closed Area Red Drum Gut Contents

Habitat	Station ID	Sample ID	Gut Content			
			Content	Number	Internal Parasites Present	Gut Content Weight (g)
Other	CLO5802	B12b-TF-18703	Sand Eel	1	N	9.5
			Hardhead Catfish	1		
	CLO1414	B12b-TF-18706	Empty Gut	NA	N	NA
	LVB5508	B12b-TF-18712	Empty Gut	NA	NA	NA
	CLO1414	B12b-TF-18723	Hardhead Catfish	1	N	5.2
	CLO5803	B12b-TF-18741	Empty Gut	NA	Y	NA
	CLO5802	B12b-TF-18742	Sand Eel	1	N	2.0
			Hardhead Catfish	1		
	CLO5802	B12b-TF-18748	Hardhead Catfish	2	N	5.1
	LVB5508	B12b-TF-18749	Blue Crab	1	Y	13.6
			Hardhead Catfish	4		
	CLO5803	B12b-TF-18751	Unidentified Fish	1	N	2.1
	LVB5508	B12b-TF-18753	Empty Gut	NA	N	NA
	CLO5803	B12b-TF-18756	Hardhead Catfish	2	N	11.3
	CLO1414	B12b-TF-18757	Empty Gut	NA	Y	NA
Reef	CLO5815	B12b-TF-18699	Empty Gut	NA	N	NA
	CLO5815	B12b-TF-18704	Empty Gut	NA	Y	NA
	LVB5504	B12b-TF-18713	Empty Gut	NA	N	NA
	CLO5818	B12b-TF-18714	Empty Gut	NA	Y	NA
	CLO5815	B12b-TF-18716	Empty Gut	NA	Y	NA
	CLO5818	B12b-TF-18719	Empty Gut	NA	N	NA
	CLO5804	B12b-TF-18720	Oyster Dog	2	N	6.8
	CLO5804	B12b-TF-18721	Stone Crab	4	N	37.5
	CLO5818	B12b-TF-18750	Empty Gut	NA	N	NA
	CLO5504	B12b-TF-18754	Empty Gut	NA	N	NA
	CLO 5804	B12b-TF-18755	Blue Crab	1	Y	32.8
			Hardhead Catfish	2		
	CLO5816	B12b-TF-18758	Blue Crab	1	Y	207
			Sand Eel	1		
			Gulf Menhaden	14		
			Killfish	4		
			Sheepshead Minnow	1		
	CLO5816	B12b-TF-18759	Sand Eel	1	Y	17
	CLO5816	B12b-TF-18760	Gulf Menhaden	2	N	20.9
	LVB5504	B12b-TF-18761	Blue Crab	1	N	66
			Sand Eel	1		
			Gulf Menhaden	1		
			Grass Shrimp	15		
Marsh	CLO6802	B12b-TF-18715	Empty Gut	NA	N	NA
	CLO6802	B12b-TF-18717	Empty Gut	NA	N	NA
	CLO6802	B12b-TF-18718	Grass Shrimp	1	Y	0.4

[1]NA - Gut cavity was empty

Table 3 - 2018 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-18728	Penaeid Shrimp	4	N	7.3
	CLO5830	B12b-TF-18729	Mullet	16	N	430.1
	CLO5830	B12b-TF-18737	Empty Gut	NA	Y	NA
Reef	LVB6837	B12b-TF-18705	Empty Gut	NA	N	NA
	LVB6880	B12b-TF-18707	Stone Crab	1	N	9.4
			Other (rubber sole)	1		
	LVB6950	B12b-TF-18708	Empty Gut	NA	N	NA
	LVB6950	B12b-TF-18709	Stone Crab	1	Y	NA
	LVB6837	B12b-TF-18722	Grass Shrimp	6	N	NA
	LVB6950	B12b-TF-18727	Blue Crab	1	N	3.2
	LVB6837	B12b-TF-18730	Gulf Menhaden	15	Y	117.2
	LVB6880	B12b-TF-18747	Other (fishing hook)	NA	Y	NA
	LVB6880	B12b-TF-18752	Empty Gut	NA	Y	NA
Marsh	LVB5839	B12b-TF-18700	Blue Crab	1	N	7.8
			Penaeid Shrimp	1		
			Spartina Grass	1		
	LVB5839	B12b-TF-18701	Penaeid Shrimp	1	N	0.4
	LVB5839	B12b-TF-18702	Empty Gut	NA	-	NA
	LVB5841	B12b-TF-18710	Empty Gut	NA	Y	NA
	LVB5841	B12b-TF-18711	Hardhead Catfish	3	N	56.1
	LVB6871	B12b-TS-18724	Empty Gut	NA	N	NA
	LVB6871	B12b-TF-18725	Penaeid Shrimp	10	N	11.2
	LVB6871	B12b-TF-18726	Grass Shrimp	30	N	65.1
			Penaeid Shrimp	70		
			Blue Crab	1		
	LVB6870	B12b-TF-18731	Blue Crab	4	NA	34.7
	LVB6870	B12b-TF-18732	Hardhead Catfish	1	N	32.2
			Penaeid Shrimp	27		
	LVB6870	B12b-TF-18733	Empty Gut	NA	N	NA
	LVB6850	B12b-TF-18738	Empty Gut	NA	N	NA
	LVB6850	B12b-TF-18739	Blue Crab	1	N	25.4
	LVB6850	B12b-TF-18740	Unidentified Fish	1	N	1.5
			Penaeid Shrimp	1		
	LVB5838	B12b-TF-18743	Hardhead Catfish	1	N	34.9
	LVB5838	B12b-TF-18744	Empty Gut	NA	Y	NA
	LVB5838	B12b-TF-18745	Hardhead Catfish	4	N	20.7
	LVB5841	B12b-TS-18746	Sand Eel	1	N	2.2
			Penaeid Shrimp	1		

[1]NA - Gut cavity was empty

3.0 OBSERVATIONS

Observations and figures are based on prey species occurrence per red drum, rather than total count observed. The purpose of reporting instance of occurrence is to reflect general feeding trends without bias if one fish gut exhibits an abundance of a single prey item. Observations are as follows:

- Assortment of prey items available to red drum is different year to year.
- Penaeid shrimp were the most abundant prey item observed in Adjacent Area fish in 2018 (Figures 4 to 6).
- Juvenile blue crab consumption has increased in the Closed Area compared to 2017 observations.
- Nine fish were collected from reef stations, 3 from other flats habitat, and 18 from marsh stations in the Adjacent Area.
- Fifteen fish were collected from reef stations, 12 fish from other flats habitat, and 3 fish from marsh stations in the Closed Area.
- The most common prey item in fish from Closed Area reefs were juvenile blue crabs, sand eels, and gulf menhaden – each observed 3 times (Figure 1).
- The most common identifiable prey item in fish from Closed Area marshes was grass shrimp (Figure 2).
- The most common identifiable prey item in fish from Closed Area flats was hardhead catfish, as observed in previous years (Figure 3).
- The most common prey item in fish from Adjacent Area reefs was juvenile stone crabs and mud crabs (Figure 4).
- The most common identifiable prey item in fish from Adjacent Area marshes was penaeid shrimp (Figure 5).
- The most common identifiable prey item in fish from Adjacent Area flats was mullet and penaeid shrimp – observed once each (Figure 6).
- This 2018 Lavaca Bay Gut Content Survey did not find hardhead catfish as a primary component of the redfish diet. Hardhead catfish were noted as a major prey item in the 2016 and 2017 Gut Content Surveys. Hardhead catfish (and other small finfish) do not appear to be a primary prey where marsh is not present.
- Penaeid shrimp are a primary prey item in the marshes of the Adjacent Area.
- Heavy feeding was observed more frequently than in past surveys.

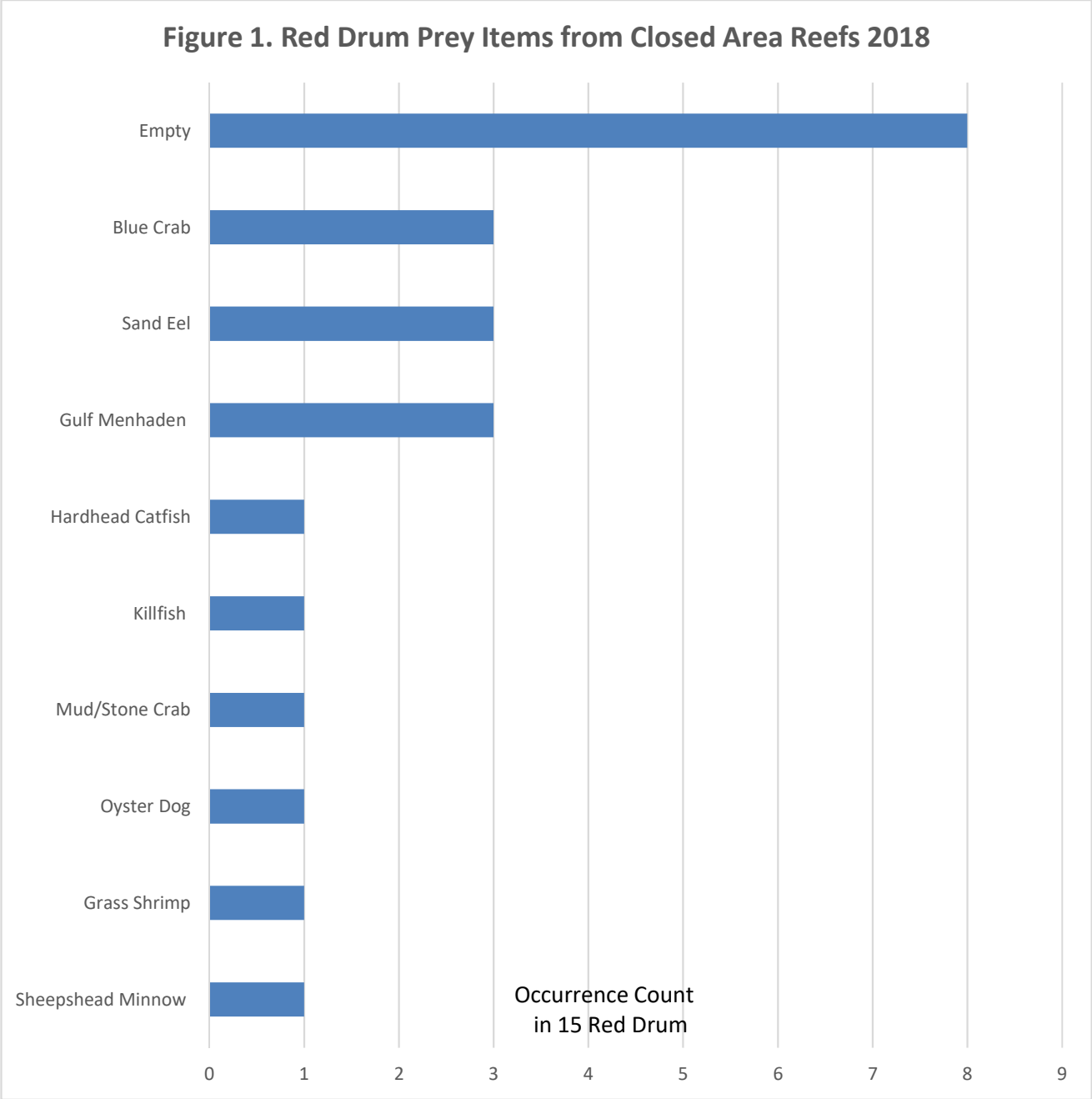
Figure 1. Red Drum Prey Items from Closed Area Reefs 2018
Empty
Blue Crab
Sand Eel
Gulf Menhaden
Hardhead Catfish
Killfish
Mud/Stone Crab
Oyster Dog
Grass Shrimp
Sheepshead Minnow
Occurrence Count in 15 Red Drum
0
1
2
3
4
5
6
7
8
9

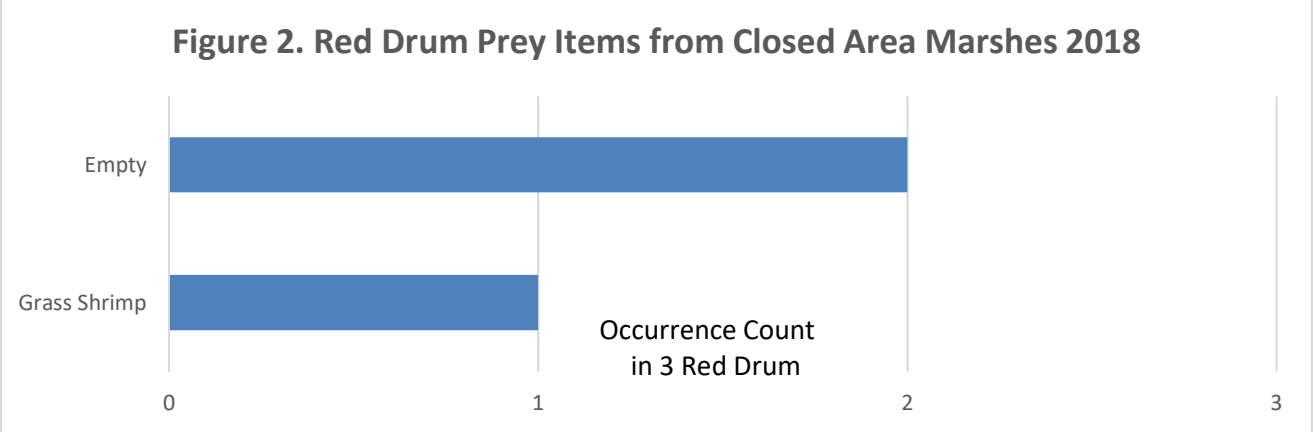
Figure 2. Red Drum Prey Items from Closed Area Marshes 2018
Empty
Grass Shrimp
Occurrence Count in 3 Red Drum
0
1
2
3

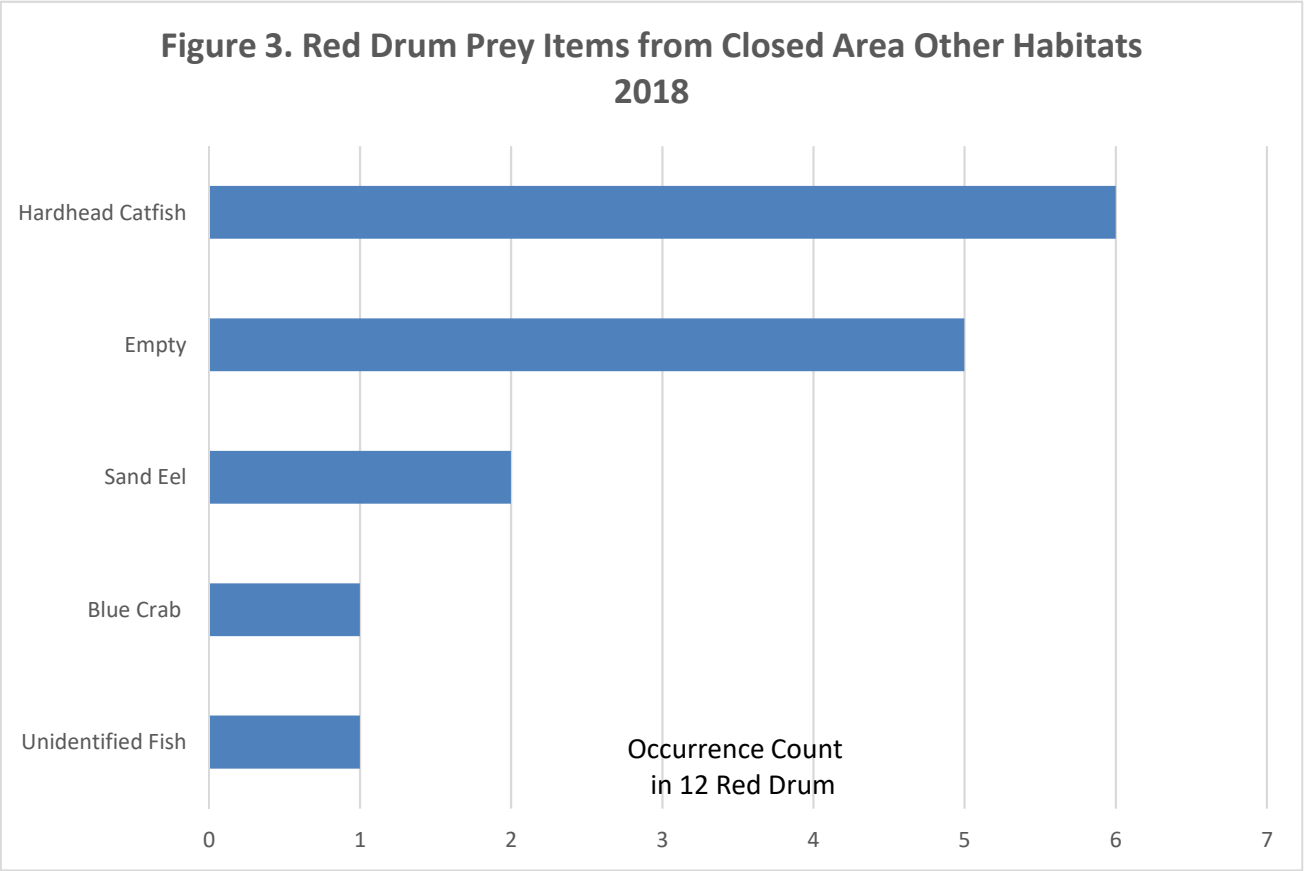
Figure 3. Red Drum Prey Items from Closed Area Other Habitats 2018
Hardhead Catfish
Empty
Sand Eel
Blue Crab
Unidentified Fish
Occurrence Count in 12 Red Drum
0
1
2
3
4
5
6
7

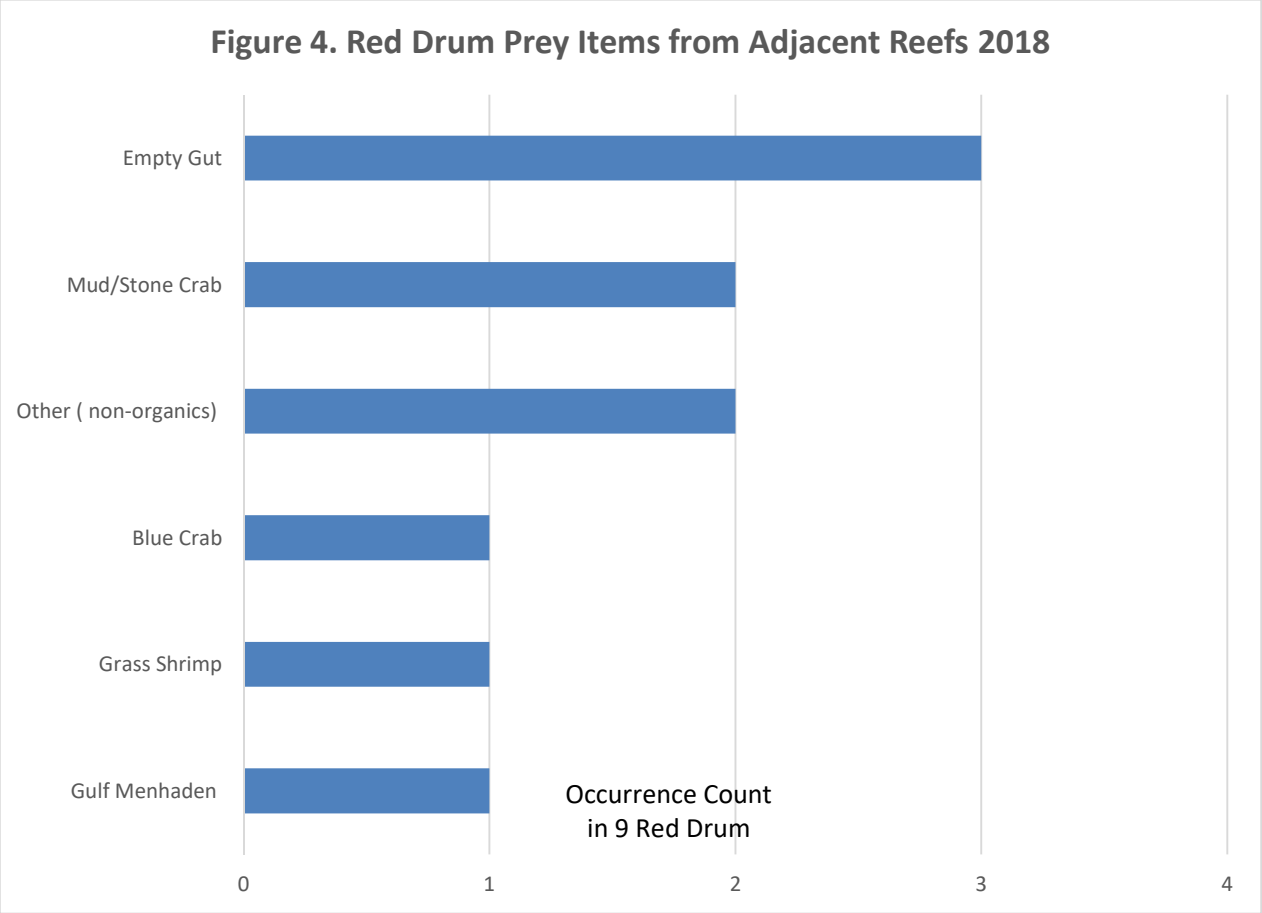
Figure 4. Red Drum Prey Items from Adjacent Reefs 2018
Empty Gut
Mud/Stone Crab
Other (non-organics)
Blue Crab
Grass Shrimp
Gulf Menhaden
Occurrence Count
in 9 Red Drum
0
1
2
3
4

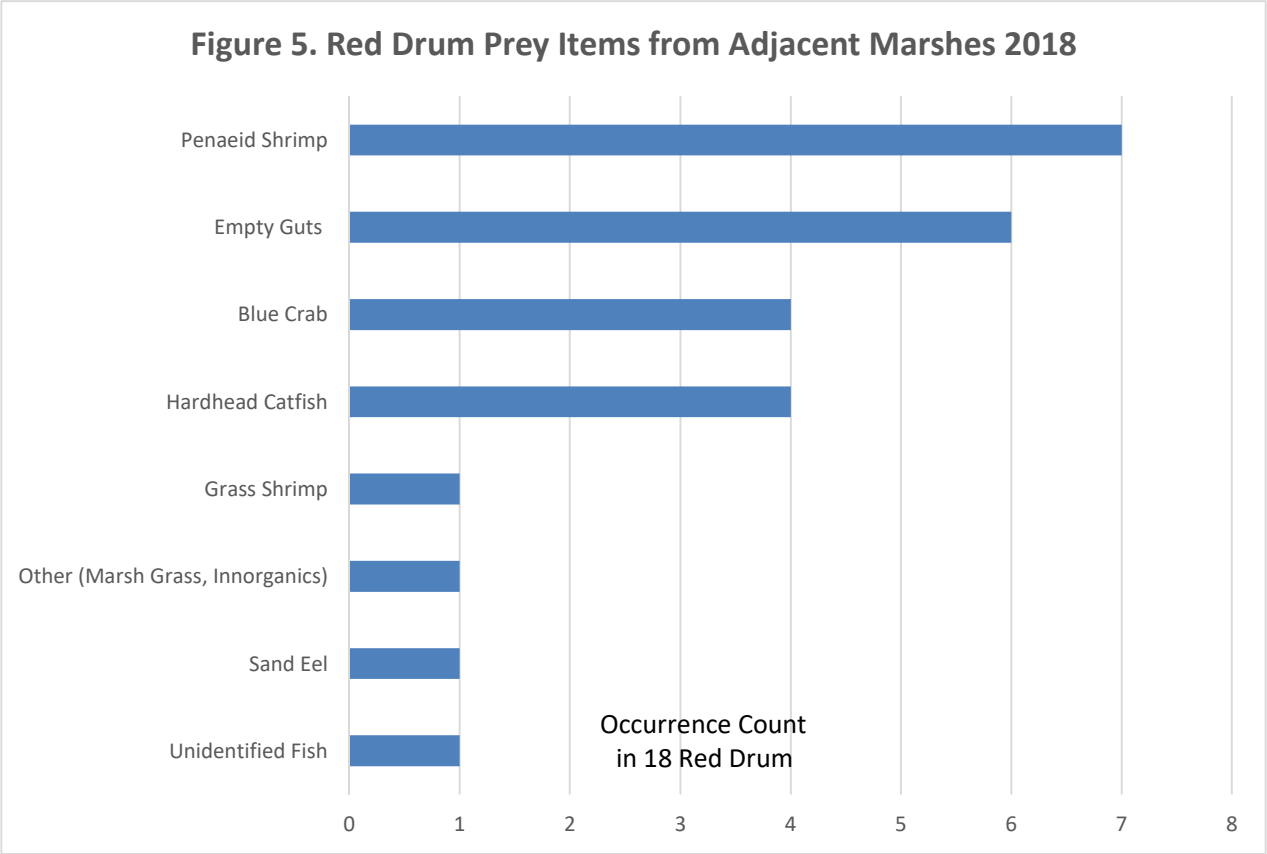
Figure 5. Red Drum Prey Items from Adjacent Marshes 2018
Penaeid Shrimp
Empty Guts
Blue Crab
Hardhead Catfish
Grass Shrimp
Other (Marsh Grass, Innorganics)
Sand Eel
Unidentified Fish
Occurrence Count
in 18 Red Drum
0
1
2
3
4
5
6
7
8

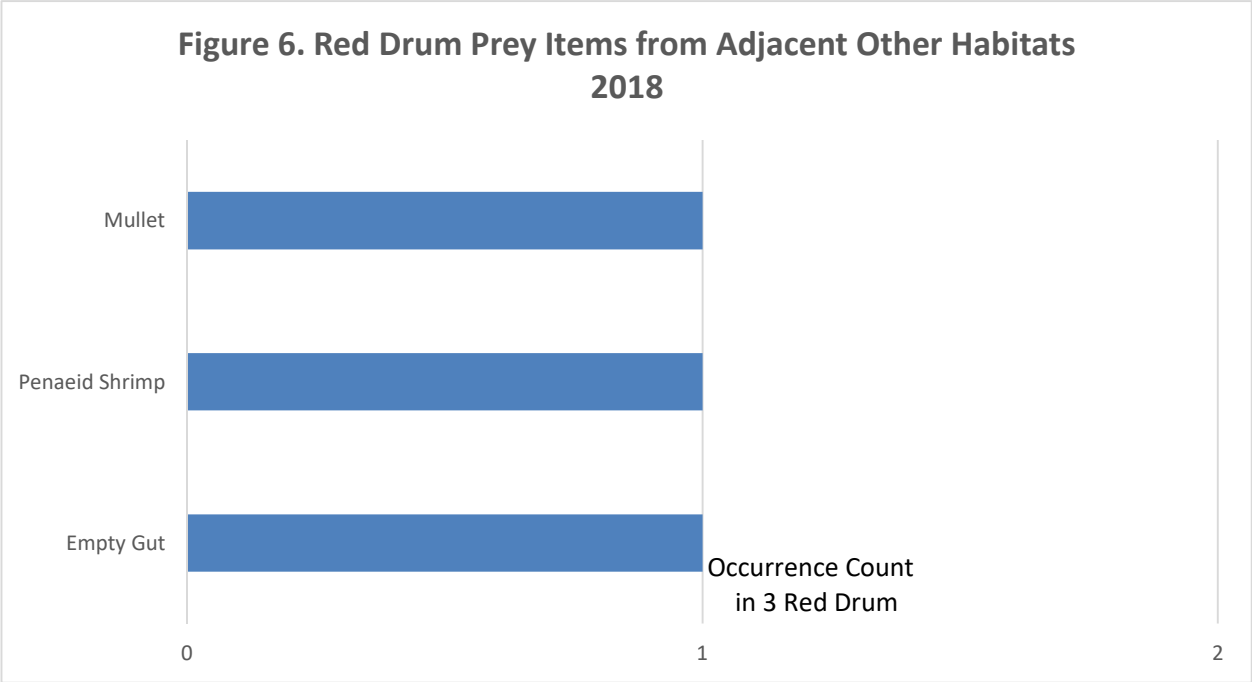
Figure 6. Red Drum Prey Items from Adjacent Other Habitats
2018
Mullet
Penaeid Shrimp
Empty Gut
Occurrence Count
in 3 Red Drum
0
1
2

4.0 REFERENCES

Alcoa, 2005. Appendix B. *Statement of Work for Remedial Action. Alcoa (Point Comfort) / Lavaca Bay Superfund Site. Lavaca Bay Finfish and Shellfish Operations, Maintenance, and Monitoring Plan.* Alcoa (Point Comfort) / Lavaca Bay Superfund Site. October 2003. Appendix I.

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

ATTACHMENT 1

Representative Photos: Lavaca Bay Gut Content Study 2018

Station ID:CLO5802, Sample ID:B12b-TF-18703

Station ID:LVB5839, Sample ID:B12b-TF-18700

Station ID:LVB5841, Sample ID: B12b-TF-18711

Station ID:CLO5804, Sample ID: B12b-TF-8721

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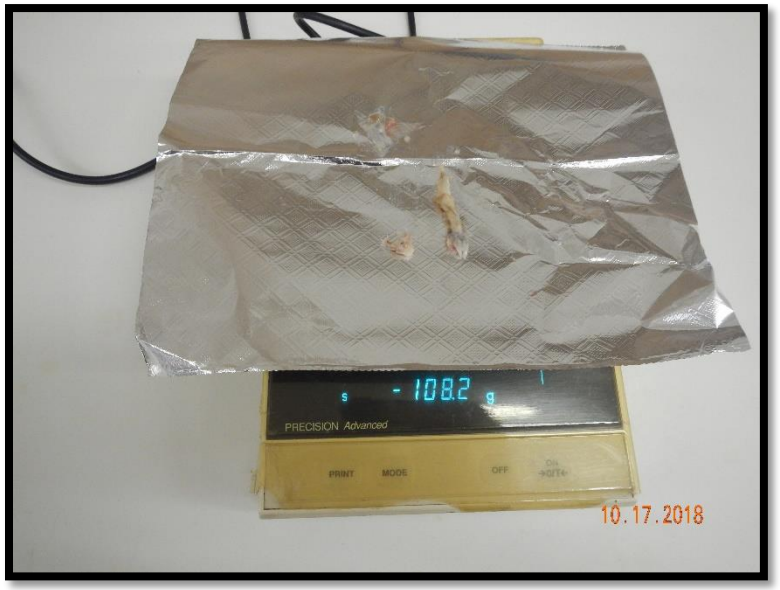
Fall 2018

Gut Content Photos



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Station ID LVB6837, Sample ID B12b-TF- 18730

Station ID LVB6870, Sample ID B12b-TF- 18731

Station ID LVB6871, Sample ID B12b-TF- 18725

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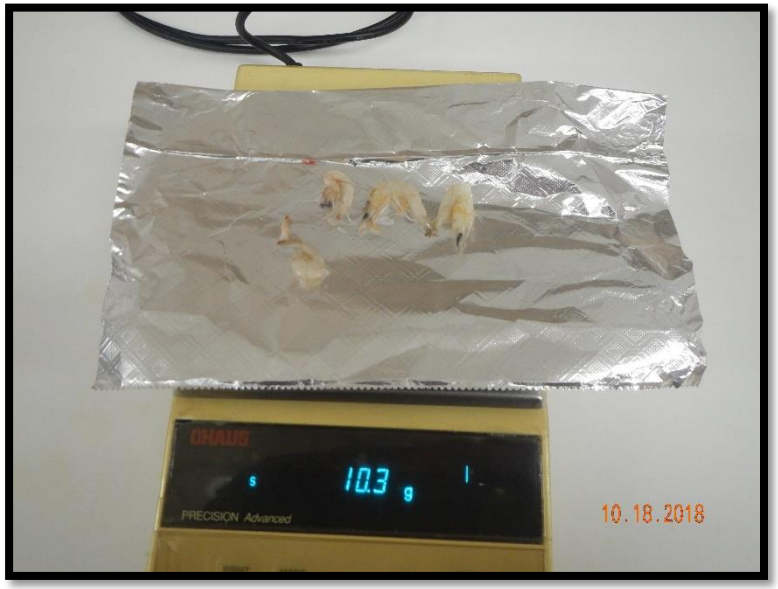

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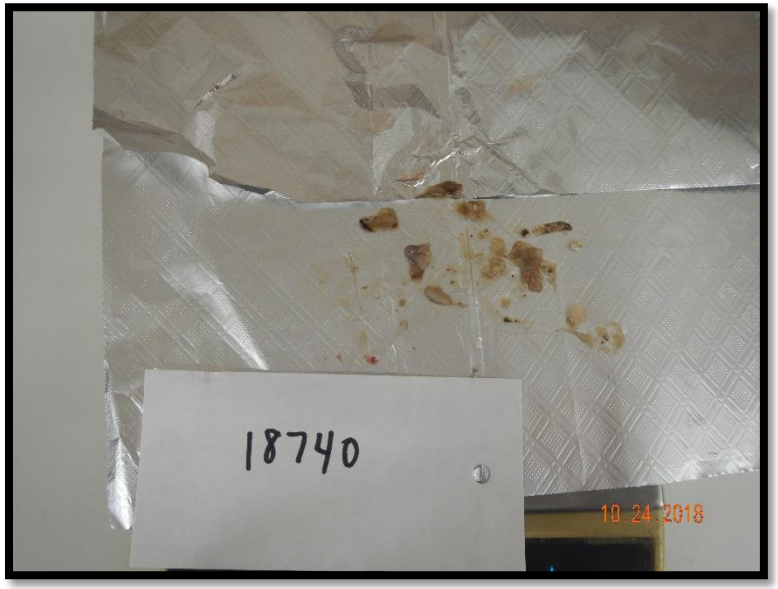
Station ID CLO5830, Sample ID B12b-TF-18729

Station ID LVB6850, Sample ID B12b-TF-18739



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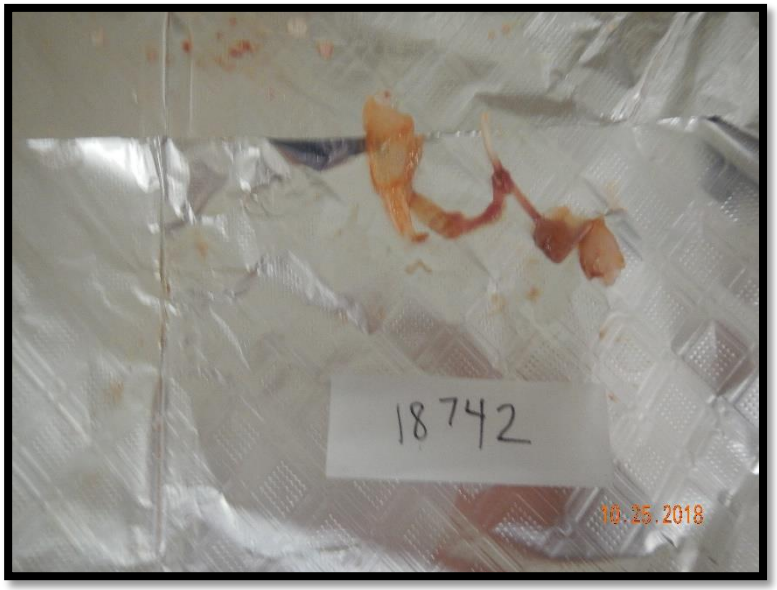

Station ID CLO5802, Sample ID B12b-TF-18742

Station ID LVB5841, Sample ID B12b-TF-18746

Station ID LVB5838, Sample ID B12b-TF-18743

BESI Benchmark Ecological Services, Inc

Fall 2018

Gut Content Photos

Station ID LVB5838, Sample ID B12b-TF-18744

Station ID LVB5508, Sample ID B12b-TF-18749

Station ID CLO5804, Sample ID B12b-TF-18755

Station ID LVB5504, Sample ID B12b-TF-18761

BESI Benchmark Ecological Services, Inc

Fall 2018

Gut Content Photos

Station ID CLO5816, Sample ID B12b-TF-18758

Station ID CLO5816, Sample ID B12b-TF-18759

Station ID CLO5816, Sample ID B12b-TF-18760

BESI Benchmark Ecological Services, Inc

Fall 2018

Gut Content Photos