Subject:	**Final Minutes, Quarterly Restoration Advisory Board (RAB) Meeting, Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting:	**Karnack Community Center, Karnack, Texas**
Date of Meeting:	**July 16, 2013, 6:00 – 8:00 PM**

Meeting Participants:

LHAAP/BRAC:	Rose M. Zeiler
USACE:	Aaron Williams
USAEC:	Marilyn Plitnik, Robin Paul
AECOM:`	Dave Wacker, Gretchen McDonnell
TCEQ:	April Palmie
USEPA Region 6:	Rich Mayer, Stephen Tzhone, Janetta Coats, Kent Becher (USGS)
USFWS:	Paul Bruckwicki
RAB:	**Present:** Paul Fortune, Carol Fortune, Richard LeTourneau, Tom Walker, Nigel Shivers **Absent:** Judy Vandeventer, Ken Burkhalter, Ted Kurz, Jim Lambright, Charles Dixon, Pickens Winters, Judith Johnson, Robert Cargill, Lee Guice
Public:	Dawn Orsack, CLI-TAG

An agenda for the RAB meeting was distributed prior to the meeting. Paul Fortune called the meeting to order.

Welcome – Rose Zeiler
Ms. Zeiler welcomed attendees to the meeting. Mr. Wacker advised attendees that there were handouts providing information on various sites at the entry tables.

Open Items – Rose Zeiler

RAB Administrative Issues

New Members

Membership applications were received from Terry Britt and John Pollard. A membership application was provided to Glenn Burkel through Mr. Fortune, but has not been returned. AECOM will send the two applications received to all the RAB members for consideration. RAB members will deliberate prior to the October RAB meeting to decide on installation of the applicants, with the possibility that the new members will be installed during the October RAB meeting.

Community Involvement Plan / Community Relations Plan
No comments have been received from the RAB. Mr. Fortune stated that there is little community interest in the LHAAP RAB and, consequentially, little interest in the Community Relations Plan. Ms. Coats suggested that the RAB send an email to Ms. Zeiler (copy to Ms. Coats, Mr. Mayer and Ms. Palmie) stating that the RAB has no comments. Then USACE will move to finalize the Community Relations Plan. Mr. Fortune agreed, asking that Ms. Zeiler send an email to him copying the others so that he would have their email addresses.

Minutes
Ms. Fortune made a motion to approve all the April 2013 RAB meeting minutes. Motion seconded by Mr. Walker.

Website
Ms. McDonnell gave an overview of the SharePoint website to give RAB members direct access online to pertinent documentation for documents under public review. CDs containing the historical LHAAP Administrative Record through 2012 were distributed to RAB members in attendance to give easier access to historical documentation. In the future, AECOM may issue to RAB members CDs with the Administrative Record documents sorted site-by-site. The SharePoint site is a work in progress so additional items can be added to the site. Ms. Zeiler asked for the addition of 1) the RAB meeting wall map; 2) a map of nearby public water supply wells, surface water sampling locations, and perimeter well locations; and, 3) a RAB meeting folder containing the recent RAB agendas and minutes. The RAB members can also provide requests for things that they might want to have added to the site. Mr. Mayer asked if the CERCLA phase process diagram could be added to the site.

Defense Environmental Restoration Program (DERP) Update – AECOM (Dave Wacker)

Fieldwork Completed and Upcoming Field Activities Planned
AECOM will be doing field work at three primary sites over the next few months; LHAAP-37, LHAAP-50 and LHAAP-58.

Additionally, wells recently installed at LHAAP-46, LHAAP-67 and LHAAP-18/24 will be surveyed, and IDW from recently installed wells will be removed to the disposal site.

<u>LHAAP-35B(37) – Chemical Laboratory</u>
The bioplug study is being performed by APG to treat VOCs in that area, and will run for approximately another year. APG will be presenting information to the RAB at the October RAB meeting.

AECOM's work is separate from the APG bioplug study. For a relative comparison, this site has VOC concentrations greater than LHAAP-46 and LHAAP-67, but much less than that at

LHAAP-18/24. DPT will be used to position permanent wells for monitoring of the remediation.

Mr. Fortune asked what was done at the Chemical Lab to create contamination. Ms. Zeiler stated that it's not confirmed what caused the impacts in that area. She stated that the PCE plume looks like it originated at the sump that was located outside the lab, but that the TCE plume source has not been identified.

Mr. Mayer stated that the bioplug work requires oxygenated conditions, while the AECOM MNA requires reducing conditions. If the bioplug approach does not reduce contaminants to acceptable levels, the aquifer will be restored to reducing conditions by the Bioplug contractor before AECOM begins MNA work.

LHAAP-50 Former Sump Water Tank

Soil and groundwater impacts at this site will be addressed. Two areas of perchlorate-impacted soil will be excavated to a depth of one foot (approximately 150 cubic yards), and disposed at an off-site landfill. Confirmation samples will be taken and excavation continued until all material exceeding the clean-up goal is removed. An additional location across the street will be assessed for potential perchlorate impacts to soils and will be excavated if impacts are found.

Mr. Mayer asked where certified clean backfill soil is obtained from. Mr. Wacker stated that Mr. Matt Munden has a local soil source that is currently being used.

Groundwater at this site is impacted with perchlorate. Additional DPT will be done to guide wells installation.

LHAAP-47 is just to the north of LHAAP-50 and the potential for interaction between the perchlorate plumes for each of these sites will be investigated further.

LHAAP-58 Shops Area

Multiple services were conducted in this area and could have contributed to contamination at the site. VOC impacts to groundwater is the issue at the site. There are two groundwater plumes; "eastern plume" and "western plume", each with their own remediation strategy. In the heart of the east plume, where concentrations are on the order of a few thousand micrograms per liter (µg/L), In-Situ Bioremediation (ISB) will be conducted to more aggressively treat those higher concentration impacts.

Continued Discussion of In-Site Bioremediation

Mr. Wacker provided follow-on information on how ISB is employed. Basic information on the LHAAP-58 treatability study was reviewed. Both substrates tested were effective, but sodium lactate was more efficient and is planned for use at the site.

Document Status/Environmental Sites

AECOM will be doing field work at LHAAP-37, LHAAP-50 and LHAAP-58 over the next few months. Field work has been finished on LHAAP-46, LHAAP-67 and LHAAP-18/24.

LHAAP-46 Plant 2 Area Update

Primary contaminant is trichloroethene with levels less than 100 ug/L, with a clean-up level of 5 ug/L. There are shallow (to 25') and intermediate (25-50') groundwater zone plumes. The remedy is MNA, so additional wells were installed earlier this year and the initial monitoring round conducted. Analytical data will be presented at the next RAB meeting. The monitoring well network was designed to complete delineation of the intermediate plume, so the new data should result in an updated plume map.

LHAAP-67 AST Farm

This site has TCE concentrations similar to the LHAAP-46 site. MNA for trichloroethene is the remedy. Additional wells have been installed and the initial monitoring round conducted. New data will be presented at the next RAB meeting.

The process for getting data from a new well takes several weeks. After installation, the well is allowed to "rest" and equilibrate for two weeks before sampling. After sampling, it takes 21 days for lab to provide data, and an additional 2-4 weeks to validate the data to ensure quality.

Groundwater at both LHAAP-46 and LHAAP-67 will be sampled quarterly for 2 years and then the MNA remedy will be assessed. These sites are in the Remedial Action Operation phase, which is the long, final phase of remediation of a site.

LHAAP-18/24 Burning Ground 3 & Unlined Evaporation Pond

The Groundwater Treatment Plant (GWTP) addresses impacts at this site. A data gap investigation report detailing findings of recent field work will be issued to agencies within the next month. Additional products (cross-sections, etc.) will be produced and be shared with the RAB, likely during the next meeting.

Mr. Walker recalled that the UEP "pond" area is actually a hill. Ms. Zeiler stated that the UEP was filled and covered as part of the closure, so now is a hill versus a depression. Mr. Walker asked how much contaminant material has actually been removed. Mr. Williams stated that 30,000 cubic yards of soil was removed and thermally treated. Ms. Palmie added that contaminant material is also removed from the groundwater. Volumes treated are running about 700,000 gallons per month, and currently removal rates are on the order of pounds per month. AECOM will add contaminant mass removal information to the quarterly RAB handouts. The GWTP treats the groundwater through a multi-stage process, with treated water discharged to Harrison Bayou or back to the surface of the site through sprinklers, and treatment sludge that is generated at a rate of one roll-off every 6 months disposed of off-site. Mr. Walker asked how perchlorates are being addressed in the system. AECOM will do a tutorial on the GWTP process for the next meeting.

Mr. Wacker stated that chlorinated volatiles will be treated through ISB providing food for soil microbes that encourages them to destroy the contaminant when they eat. Additionally, the correct microbes can be added if they don't already exist in the subsurface. Lab studies are done prior to implementation in the field to ensure the process will work in the field.

Of note, a well was installed on the north side of the Bayou to determine whether contamination had gone under Harrison Bayou. The preliminary data from that well shows no impacts in that well indicating the LHAAP-18/24 plume does not appear to extend under Harrison Bayou.

One of the objectives of the LHAAP-18/24 data gap investigation work was to determine whether additional source areas exist within the containment area, and whether contamination extends outside the containment area. The data developed through this investigation work will help answer those questions.

CERCLA 5-Year Review Process for Multiple Sites
The 5-Year review has been performed and the document is planned for submittal to the agencies next week.

LHAAP-03
Record of Decision is in progress, currently under EPA and TCEQ review. Excavation work is planned for the late fall.

LHAAP-12 and LHAAP-16
Continuing operation and maintenance activities have been performed at these landfill sites. Areas of minor erosion and subsidence have been identified and are being addressed with the application of additional soil cover material.

GWTP
The GWTP continues to operate to contain the groundwater plumes at LHAAP-18/24 and LHAAP-16. See attached AECOM PowerPoint Presentation for more detail. A groundwater extraction data chart was presented. AECOM will add a contaminant mass calculation to future handouts.

Surface Water - Recent surface water sampling results were presented for Goose Prairie Creek and Harrison Bayou.

Other DERP Environmental Restoration Update – Rose Zeiler
LHAAP-37 Bioplug Demonstration Project
Ms. Plitnik advised that a presentation on the initial results for the project is anticipated for the RAB meeting to be held in October.

EPA Quality Assurance Sampling (Kent Becher, USGS)
Mr. Mayer introduced Mr. Becher as a USGS liason to EPA acting as technical support for EPA, providing quality assurance. Mr. Becher is particularly involved in split sampling at Longhorn. Mr. Becher provided information on the recent work in the split sampling program for LHAAP. EPA observes the Army's sampling efforts and provides a field report of their observations and recommendations, and compares analytical results.

The September 2012 sampling event was observed. A few minor deviations from the standard operating procedures were observed, but were corrected by Army during the event. The April 2013 sampling event for the emerging contaminant 1,4-dioxane was also observed.

The term "relative percent difference" was explained. Army and EPA samples correlated well for the most part.

1,4-dioxane is an emerging contaminant that EPA is now interested in looking at. It's a stabilizer associated with chlorinated solvents like 1,1,1-trichloroethane. This is a potential carcinogen that is more mobile in water than associated solvents and it degrades slowly. Army volunteered to sample 43 Longhorn wells for this analyte. Some low levels of 1,4-dioxane were found within sites that were thought most likely to have it (i.e., if 1,1,1-trichloroethane was known to be present). Although the Army used an appropriate laboratory method, the EPA split samples resulted in higher values because they were analyzed by a different method. 1,4-dioxane method guidance are currently being developed and refined by EPA.

In summary, Mr. Becher stated that Army and AECOM have been mostly accepting of recommendations EPA has provided, and they are doing a good job.

Other Environmental Restoration Issues – Rose Zeiler

Dispute Resolution
Dispute resolution continues. Nothing specific to update since last RAB meeting.

Look Ahead at the Schedule
Next RAB meeting is tentatively scheduled for Tuesday, October 29th from 6PM – 8PM at the Karnack Community Center.

A motion to adjourn was made by Mr. Fortune and seconded by Mr. LeTourneau.

Adjourn

July Meeting Attachments and Handouts:

- *Meeting Agenda*
- *Minutes from April meeting*
- *AECOM Powerpoint Presentation*
- *GWTP Treated Groundwater Volumes Handout*

Acronyms

AECOM	AECOM Technical Services, Inc.
BRAC	Base Realignment and Closure
CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
CLI	Caddo Lake Institute
DERP	Defense Environment Response Program
DPT	Direct Push Technology
GWTP	Groundwater Treatment Plant
ISB	In-Situ Bioremediation
LHAAP	Longhorn Army Ammunition Plant
MNA	Monitored Natural Attenuation
RAB	Restoration Advisory Board
TAG	Technical Assistance Grant
TCEQ	Texas Commission on Environmental Quality
UEP	Unlined Evaporation Pond

USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Center
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
µg/L	micrograms per liter

LONGHORN ARMY AMMUNITION PLANT
RESTORATION ADVISORY BOARD
Karnack, Texas
(479) 635-0110

AGENDA

DATE:	Tuesday, July 16, 2013
TIME:	6:00 – 8:00 PM
PLACE:	Karnack Community Center, Karnack, Texas

06:00 Welcome and Introduction

06:05 Open items {RMZ}
- RAB Administrative Issues
- New Members
- Minutes
- Website – discuss types of documents available

06:35 Defense Environmental Restoration Program (DERP) Update {AECOM}
- Fieldwork completed and upcoming field activities planned
- Groundwater Treatment Plant (GWTP) Update
- Continued discussion of in-situ bioremediation

07:15 Other DERP Environmental Restoration Update {RMZ}
- Status of Demonstration at Site 37
- Sitewide LUC Management Plan Update

07:20 EPA Quality Assurance Sampling (KB)

07:45 Other Environmental Restoration Issues {RMZ}
- CRP/CIP status
- Dispute Resolution

07:50 Look Ahead at the Schedule

08:00 Adjourn {RMZ}

AECOM

Subject:	**Draft Minutes, Quarterly Restoration Advisory Board (RAB) Meeting, Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting:	**Karnack Community Center, Karnack, Texas**
Date of Meeting:	**April 4, 2013, 4:30 – 6:00 PM**

Meeting Participants:

LHAAP/BRAC:	Rose M. Zeiler
USACE:	Aaron Williams, Wendy Lanier
AECOM:	Dave Wacker, Gretchen McDonnell
TCEQ:	April Palmie
USEPA Region 6:	Rich Mayer, Janetta Coats, Kent Becher (USGS)
USFWS:	Jason Roesner
RAB:	**Present:** Paul Fortune, Pickens Winters, Judy Van Deventer, Judith Johnson, Robert Cargill, Lee Guice, Richard LeTourneau, Tom Walker, **Absent:** Ken Burkhalter, Ted Kurz, Jim Lambright, Charles Dixon, Carol Fortune, Nigel Shivers
Public:	Terry Britt, Bill Mauthe, Two additional unidentified (illegible roster signatures)

An agenda for the RAB meeting was distributed prior to the meeting.

Welcome – Rose Zeiler
Ms. Zeiler welcomed attendees to the meeting. Mr. Wacker advised attendees that there were handouts providing information on various sites at the entry tables.

Open Items – Rose Zeiler
RAB Tour

The RAB tour of LHAAP sites was conducted today from 2PM to 4PM. Mr. Dave Wacker, AECOM led the tour and provided information at each of the various sites, including the ground water treatment plant, 18/24, 04, 12, 16, 17, 29 and several others. A review of the tour will be presented at the next RAB meeting.

Attending the tour were:

Rose Zeiler	Longhorn AAP
Paul Fortune, Judith Johnson, Judy Van Deventer, Pickens Winters, Richard LeTourneau, Terry Britt (prospective member)	RAB Members
April Palmie	TCEQ
Rich Mayer, Janetta Coats	USEPA
Wendy Lanier, Aaron Williams	USACE
Dave Wacker, Gretchen McDonnell	AECOM
Jason Roesner	USFWS
Dawn Orsak	Caddo Lake Institute – USEPA TAG

RAB Administrative Issues

New Member Solicitation – Membership applications will be provided to Terry Britt and Bill Mauthe. An application form for Glenn Burkel will be sent to Paul Fortune.

Minutes

Ms. Johnson made a motion to approve all the January 2013 RAB meeting minutes. Motion seconded by Paul Fortune.

Website

Army is working with AECOM to develop a website where RAB members can access key documents. This will be discussed further in coming weeks. RAB members will likely receive notification of availability of the website within the next few weeks.

Defense Environmental Restoration Program (DERP) Update – AECOM (Dave Wacker)

Document Status/Environmental Sites

Ms. McDonnell provided descriptions of field activities shown in a display of photos from recent field work at LHAAP-18/24, LHAAP-46 and LHAAP-67.

Ms. Johnson asked about the comparative cost and speed of groundwater pump and treat and potential other technologies that have been developed over recent years. Ms. Zeiler stated that the final remedies for sites currently served by the GWTP may well include other technologies that can clean up the site more quickly and more cost effectively.

CERCLA 5-Year Review Process Video. Mr. Mayer introduced and presented an USEPA video created to help the public understand the 5-year review process at Superfund sites. Ms. Zeiler stated that the Army retains the responsibility for conducting the future 5-year reviews regardless of whether the land is transferred. Mr. Mayer stated that USEPA conducts the 5-year reviews at private, non-Federal sites. Ms. Zeiler stated that the most recent 5-year review report is in the administrative record, and the next review report will be coming out later this year.

Mr. Winters asked if Longhorn cleanup operations will be impacted by sequestration. Ms. Zeiler stated that there is no impact expected on the environmental cleanup due to sequestration. However, it will impact the days that meetings are held since Federal staff will be on mandatory furlough on Fridays through the end of the fiscal year.

Status reviews were presented for sites with significant activities upcoming in the near-term. (See attached AECOM Powerpoint presentation.)

LHAAP-03 Proposed Plan. The Proposed Plan public meeting date is tentatively June 11th, but may be rescheduled for May. This is a very small site, 30' x 20' which will likely be excavated. Thet Proposed Plan document will be coming to the RAB shortly.

Introduction to In-Situ Bioremediation. (See attached "Introduction to ISB" Powerpoint presentation.) ISB is one of the newer ways to remediate contamination. Mr. Winters asked if microbes and substrate could be injected at the same time. Mr. Wacker said they can be injected relatively close in time together, but would not be done during the same injection. The presentation covered topics such as bioaugmentation and contaminant breakdown products, and showed photos of ISB operations at other facilities. ISB will be used at LHAAP-04, LHAAP-47 and LHAAP-58, and may be used at LHAAP-18/24. AECOM will present some case studies showing remediation success with ISB at a future RAB meeting.

Groundwater Treatment Plant (GWTP) Update
The GWTP continues to operate to maintain containment of the plume at LHAAP-18/24. Treated water was has been released to Harrison Bayou for the last few months, since sufficient water flow has been present in the bayou. A handout showing surface water sample results was also provided and reviewed. (See attached Surface Water Sampling Results handout.) Ms. Zeiler stated that this information can be shared with the public by the RAB members to show that contaminants have not been released to Caddo Lake for quite some time. Ms. Palmie noted that Goose Prairie Creek was dry in January, so AECOM went back and sampled in February when water was first observed in that area. Mr. LeTourneau asked if treated water is discharged from the GWTP to Harrison Bayou on a continual basis during the rainy season. Ms. Zeiler responded that there is discharge to Harrison Bayou during the rainy season but that it is done based on flow in the Bayou to ensure discharge limits are not exceeded. Ms. Zeiler also referenced the surface water sampling handout to show that there has been no contaminant exceedance in the Bayou for quite some time.

Decision Document Sites Review
Mr. Williams provided a review of four non-residential use sites (LHAAP-19, LHAAP-56, LHAAP-65 and LHAAP-69) for which Decision Documents are being developed. (See attached AECOM presentation.) All four sites were determined to be suitable for non-residential use. No further action is required for these four sites. The sites will be evaluated every five years to confirm the use remains non-residential. Ms. Palmie clarified that TCEQ will be looking at these sites to ensure protectiveness every five years as part of the 5-year review process. Ms. Zeiler noted that the purpose of the Decision Document is to document for the record the decisions made, and agency concurrence with decisions made, for management of these sites.

Mr. Fortune asked about a historical allegation of mercury disposal at LHAAP-19. The allegation was that mercury switches were disposed of illegally at LHAAP-19. Ms. Zeiler stated that Army and USEPA both investigated the allegations and determined there was no validity and no basis.

Mr. Mauthe asked if Tulsa District USACE is run by Fort Worth District USACE. Ms. Zeiler and Ms. Lanier explained that Fort Worth District did manage the project historically, but Tulsa District has been managing for quite some time due to specialized expertise with CERCLA sites held by the personnel in the Tulsa District.

Upcoming Field Work
Field work for LHAAP-18/24, LHAAP-46 and LHAP-67 should be complete by the end of April. Routine compliance sampling will start in late April or early May, and will take a few weeks to complete. This summer, field work will be conducted at LHAAP-37, LHAAP-50 and LHAAP-58, similar in nature to that currently being done at LHAAP-46 and LHAAP-67.

Other DERP Environmental Restoration Update – Rose Zeiler
LHAAP-37 Bioplug Demonstration Project
Ms. Zeiler advised that a presentation on the initial results for the project is anticipated for the RAB meeting to be held in September/October.

Sitewide Land Use Controls (LUC) Management Plan Update
Ms. Zeiler stated that the update of this plan for the year was recently completed.

Community Involvement Plan (CIP) – The document has been provided to the RAB for review and comment. All comments should be submitted by or before the next RAB meeting.

Military Munitions Response Program (MMRP) – USACE
No update at this time.

Other Environmental Restoration Issues – Rose Zeiler
Dispute Resolution
Dispute resolution continues. Nothing specific to update since last RAB meeting.

Look Ahead at the Schedule
Next RAB meeting is scheduled for July 16th from 4PM – 6PM at the Karnack Community Center.

The LHAAP-03 Proposed Plan public meeting is anticipated for June 11th, but RAB members should watch their email for this to change to an earlier date.

A motion to adjourn was made by Mr. Cargill and seconded by Ms. Zeiler.

Adjourn

April Meeting Attachments and Handouts:
- *Meeting Agenda*
- *Minutes from January meeting*
- *AECOM Powerpoint Presentation*
- *Introduction to ISB Powerpoint Presentation*
- *Surface Water Sampling Results Handout*

- *GWTP Treated Groundwater Volumes Handout*

Acronyms

AECOM	AECOM Technical Services, Inc.
BRAC	Base Realignment and Closure
CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
CLI	Caddo Lake Institute
DERP	Defense Environment Response Program
GWTP	Groundwater Treatment Plant
ISB	In-Situ Bioremediation
LHAAP	Longhorn Army Ammunition Plant
LUC	Land Use Controls
MMRP	Military Munitions Response Program
RAB	Restoration Advisory Board
TAG	Technical Assistance Grant
TCEQ	Texas Commission on Environmental Quality
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Center
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

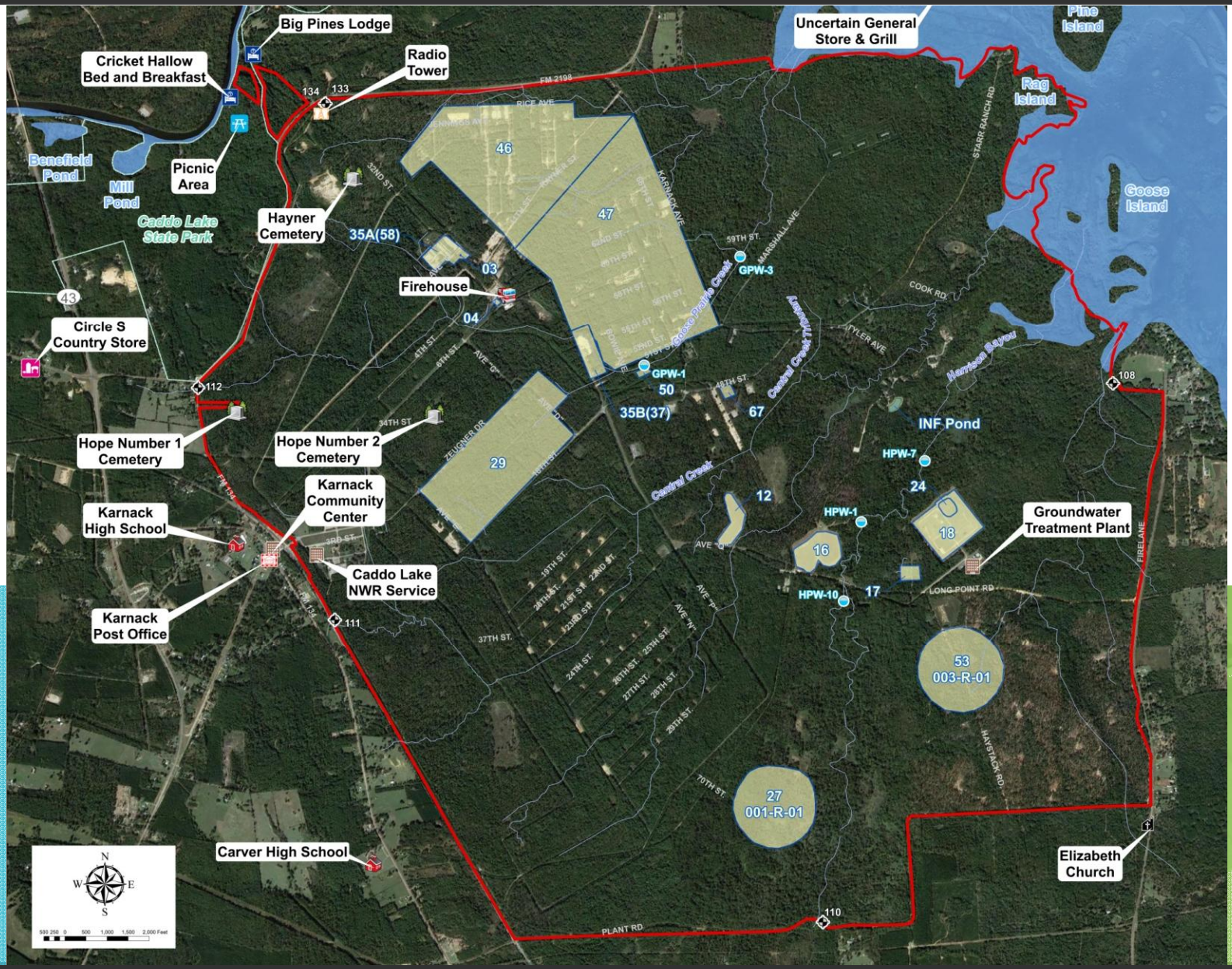
Longhorn Army Ammunition Plant Restoration Advisory Board Meeting July 16, 2013

AECOM Environment

Agenda

1. RAB Administrative Issues
2. SharePoint Website
3. Field Activities Update of Environmental Sites (46, 67, 18/24, 37, 50, 58)
4. Groundwater Treatment Plant (GWTP)
5. Surface Water Sample Results
6. Status of Demonstration at Site 37
7. EPA Quality Assurance Sampling
8. Community Relations Plan/Community Involvement Plan (CRP/CIP) Status
9. Dispute Status and Projected Schedule

Longhorn Map



AECOM Longhorn NPL Sites

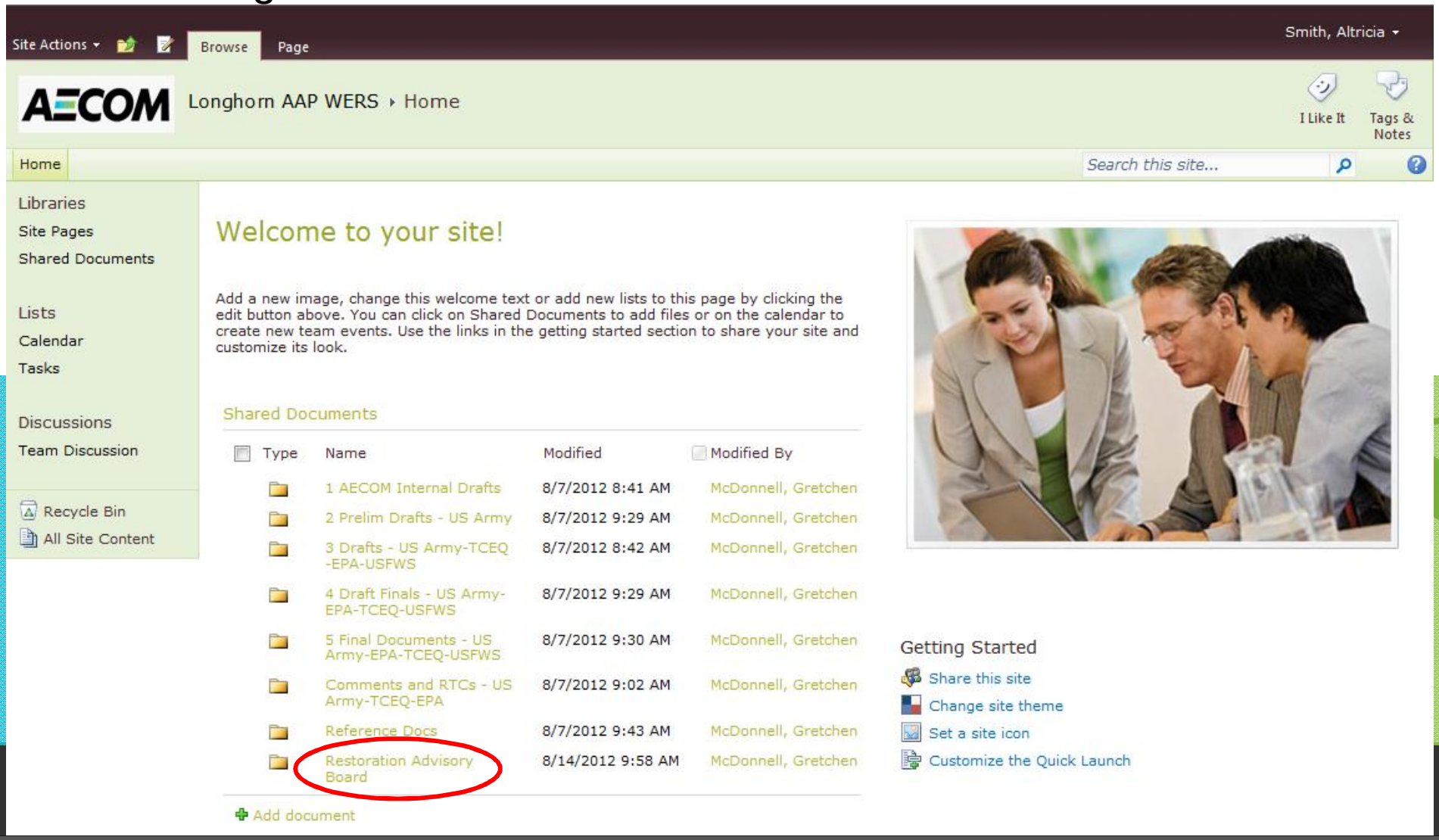
LHAAP-03	Building 722 Paint Shop
LHAAP-04	Pilot Wastewater Treatment Plant
LHAAP-12	Landfill 12
LHAAP-16	Landfill 16
LHAAP-17	Burning Ground No.2/Flashing Area
LHAAP-18	Burning Ground No.3
LHAAP-24	Unlined Evaporation Pond
LHAAP-29	Former TNT Production Area
LHAAP-37	Chemical Laboratory Waste Pad
LHAAP-46	Plant Area 2
LHAAP-47	Plant Area 3
LHAAP-50	Former Sump Water Tank
LHAAP-58	Maintenance Complex
LHAAP-67	Aboveground Storage Tank Farm
LHAAP-001-R-01	South Test Area/Bomb Test Area
LHAAP-003-R-01	Ground Signal Test Area

RAB Administrative Issues

4.3 Nomination and Selection of RAB members. Candidates for new RAB members may be presented at any time by current RAB community members. Individuals interested in participating in the RAB must submit a completed RAB Application Form to the Co-chairs in order to be eligble for selection. The community RAB members may, by a two-thirds majority vote, nominate replacement and new RAB members. All RAB members must be approved by the Army's responsible official to ensure diversity and balance in regard to gender, age, race /ethnicity, type of employment, neighborhood, expertise, income, and education levels.

SharePoint Website

- **https://extranet.aecom.com/sites/longhornaapwers**
- The Home Page



SharePoint Website

Site Actions | Browse | Page | Smith, Altricia

AECOM Longhorn AAP WERS ▸ Home

I Like It | Tags & Notes

Home | Search this site...

Libraries
Site Pages
Shared Documents

Lists
Calendar
Tasks

Discussions
Team Discussion

Recycle Bin
All Site Content

Welcome to your site!

Add a new image, change this welcome text or add new lists to this page by clicking the edit button above. You can click on Shared Documents to add files or on the calendar to create new team events. Use the links in the getting started section to share your site and customize its look.

Shared Documents

Type	Name	Modified	Modified By
	LHAAP-18_24 ROD Reference Documents	7/8/2013 10:34 AM	McDonnell, Gretchen

Add document

Getting Started

- Share this site
- Change site theme
- Set a site icon
- Customize the Quick Launch

SharePoint Website

- Documents that can be found in the “LHAAP-18_24 ROD Reference Documents” folder:
  - Draft Final Feasibility Study, LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas
  - DOW Environmental, Inc. (DEI) (Formerly AWD Technologies, INC.) Pilot Study Report - Phase II March 1995
  - Environmental Site Assessment (Plexus, 2005)
  - Closure of Unlined Evaporation Pond, Kindle, Stone & Associates, July 15, 1984
  - Jacobs, Phase III, 1998
  - Jacobs, Phase II, 1995
  - Jacobs, Phase I, 1993

SharePoint Website – How to Use

- Your User Name
  - Domain\UserID
    - Example: John Doe would be “ACM\DoeJ”

SharePoint Website - Troubleshooting

- You are presented with the same screen
  - This means your login was unsuccessful

- 401 – Unauthorized
  - After three unsuccessful attempts, you will be presented with this error.
  - You will be unable to access the SharePoint for a few hours.
  - After a few hours have passed, you may attempt to log on again.

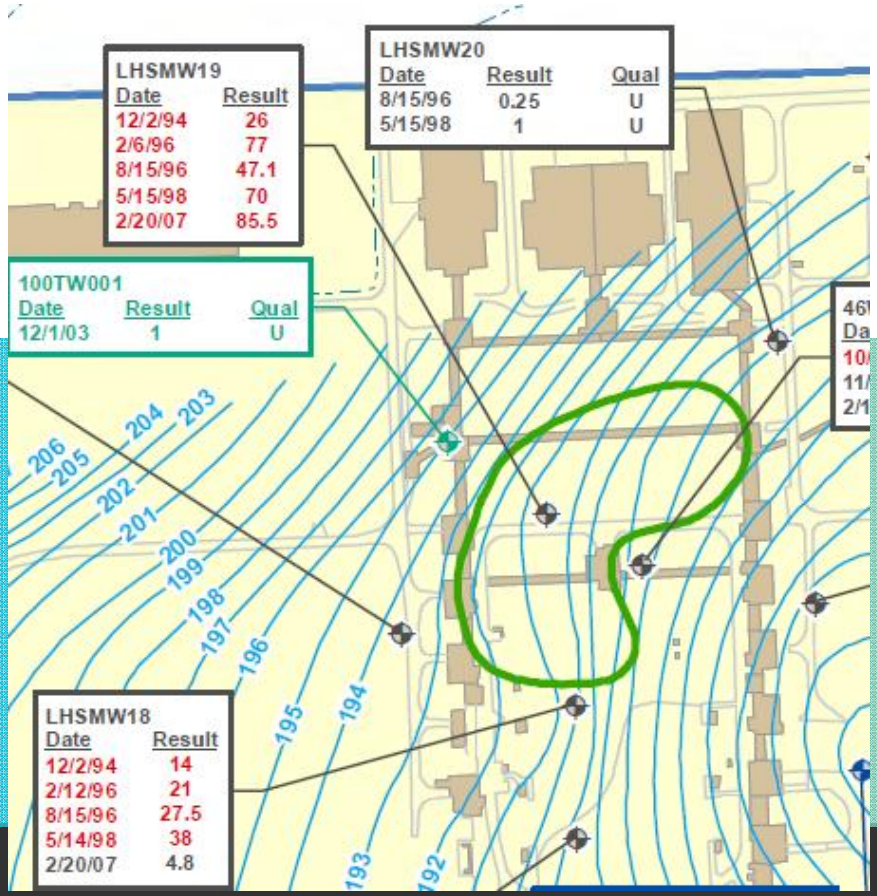
SharePoint Website – How to Use

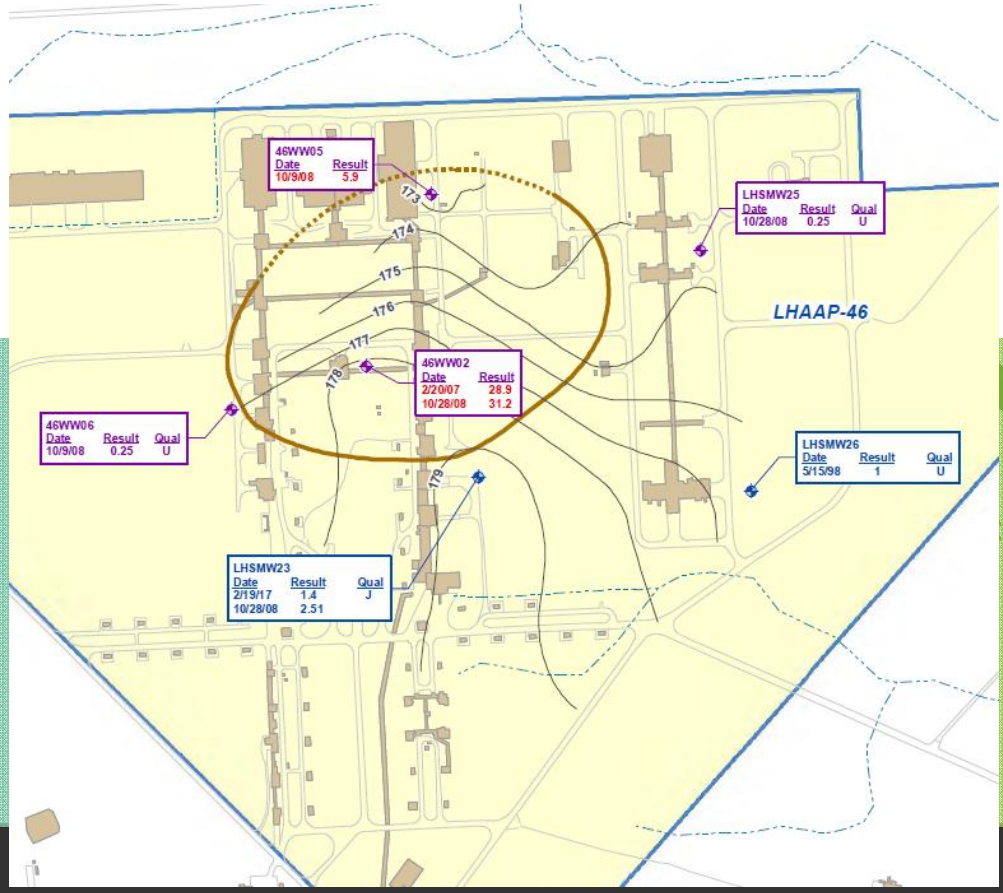
- Your Password
  - Your password will be provided to you.
    - If you copy/paste your password, please be sure not to copy the space. It will count as a character and you will be denied access.
  - Passwords Valid for 6 months
    - First password will expire at end of September
    - New password will be issued at that time
  - Contact Gretchen McDonnell if you need your username or password

Status of Environmental Sites

– LHAAP-46 Plant Area 2 –

- Remedial Action Work Plan Completed
- Installed Wells, Began Quarterly Sampling for Monitored Natural Attenuation Evaluation over the next two years. ~shallow plume on left, intermediate depth plume on right below:

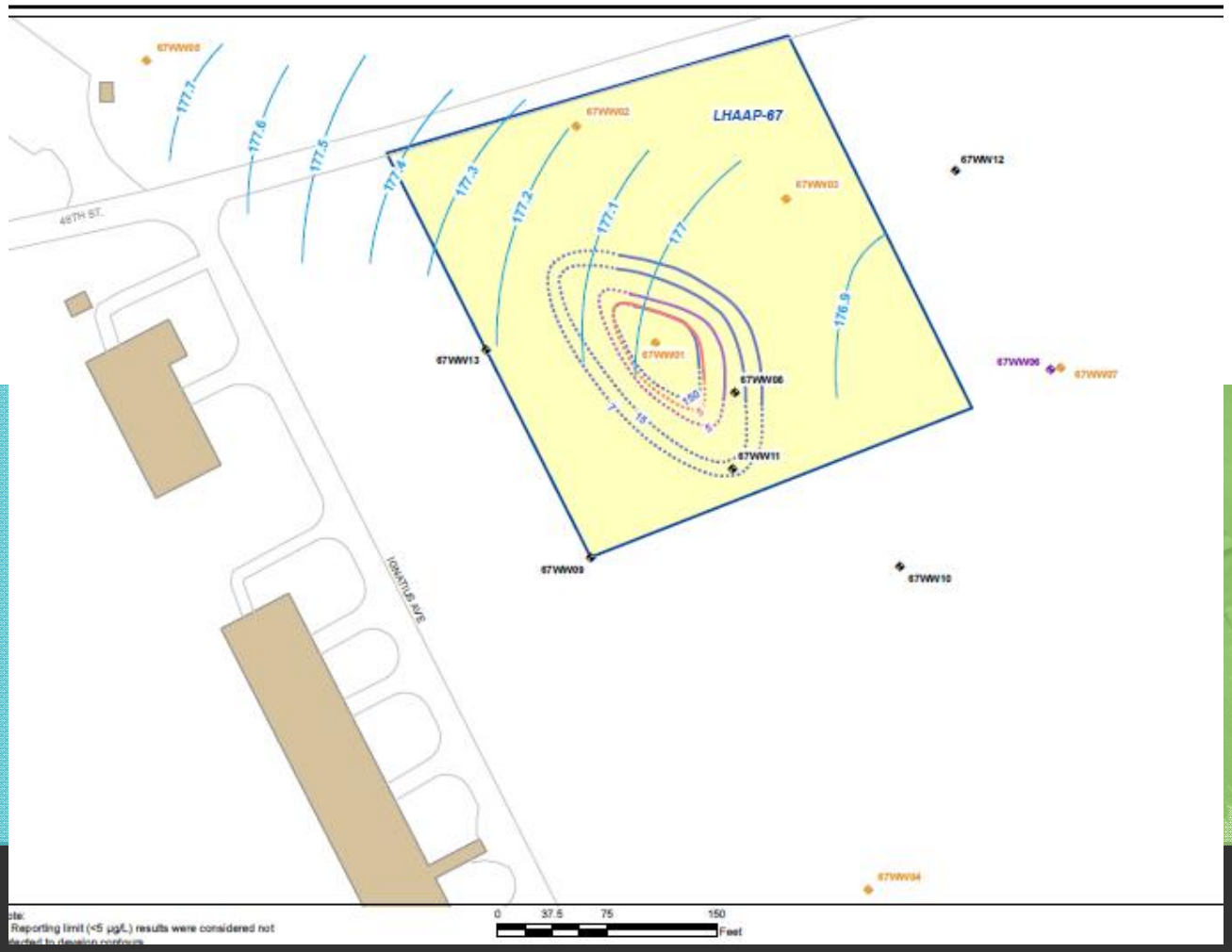




Status of Environmental Sites (cont)

– LHAAP-67 Aboveground Storage Tank Farm –

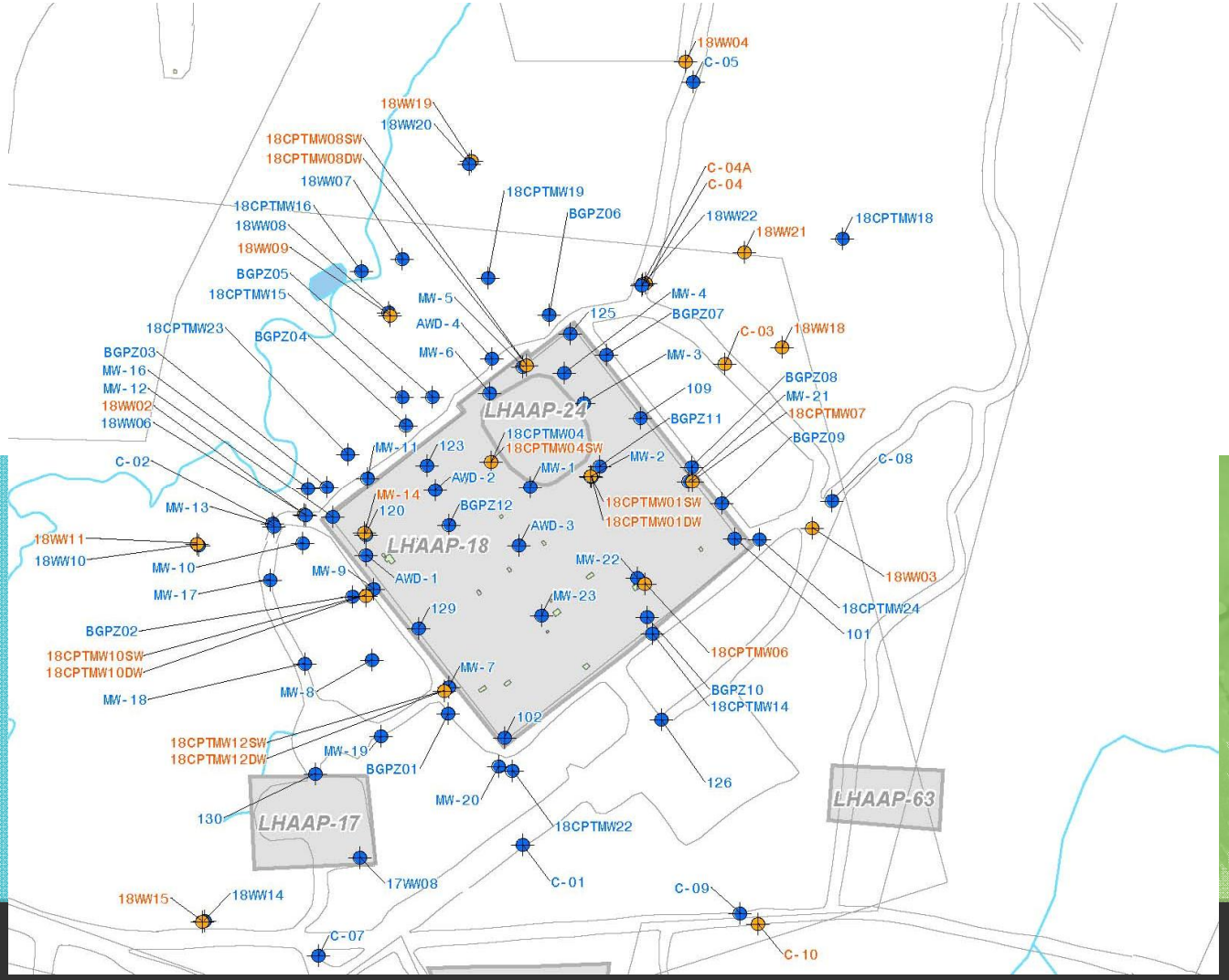
- Well installation complete, Quarterly Sampling initiated and Monitored Natural Attenuation Evaluation to be completed over the next two years. Plumes shown below:



Status of Environmental Sites (cont)

– LHAAP-18/24 Burning Grounds #3 and Unlined Evaporation Pond –

- Completed CPT, DPT, and installed Wells, collected soil and groundwater samples



AECOM

Status of Environmental Sites (cont)

- LHAAP-35B (37) – Chemical Laboratory
  - Remedial Action Work Plan Complete
  - Bio-Plug Study on-going
  - Plan to Install Wells, Complete Sampling following completion of bio-plug study

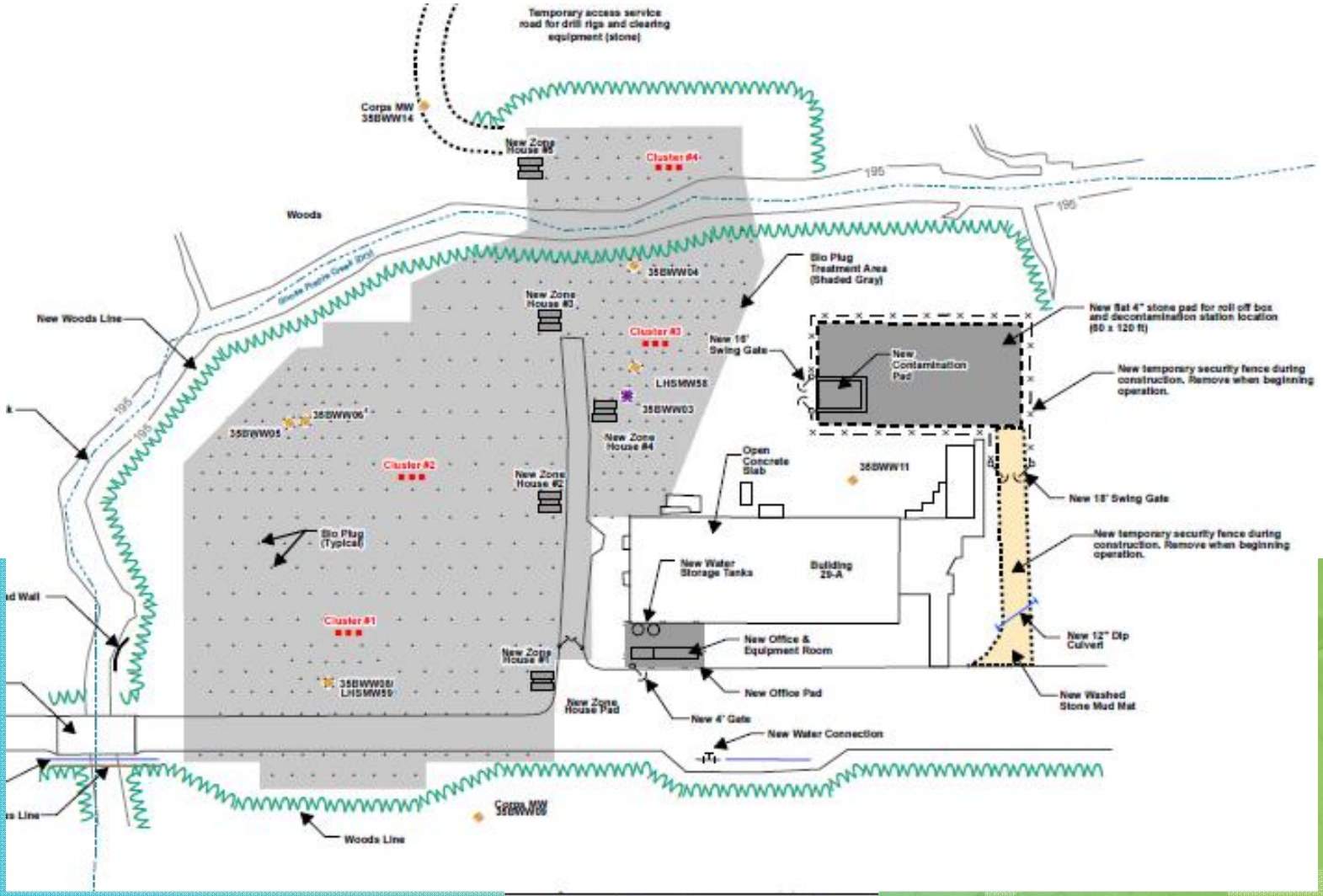
Table 1-1 below presents the cleanup levels for the LHAAP-35B (37) site.

Table 1-1: Cleanup Levels

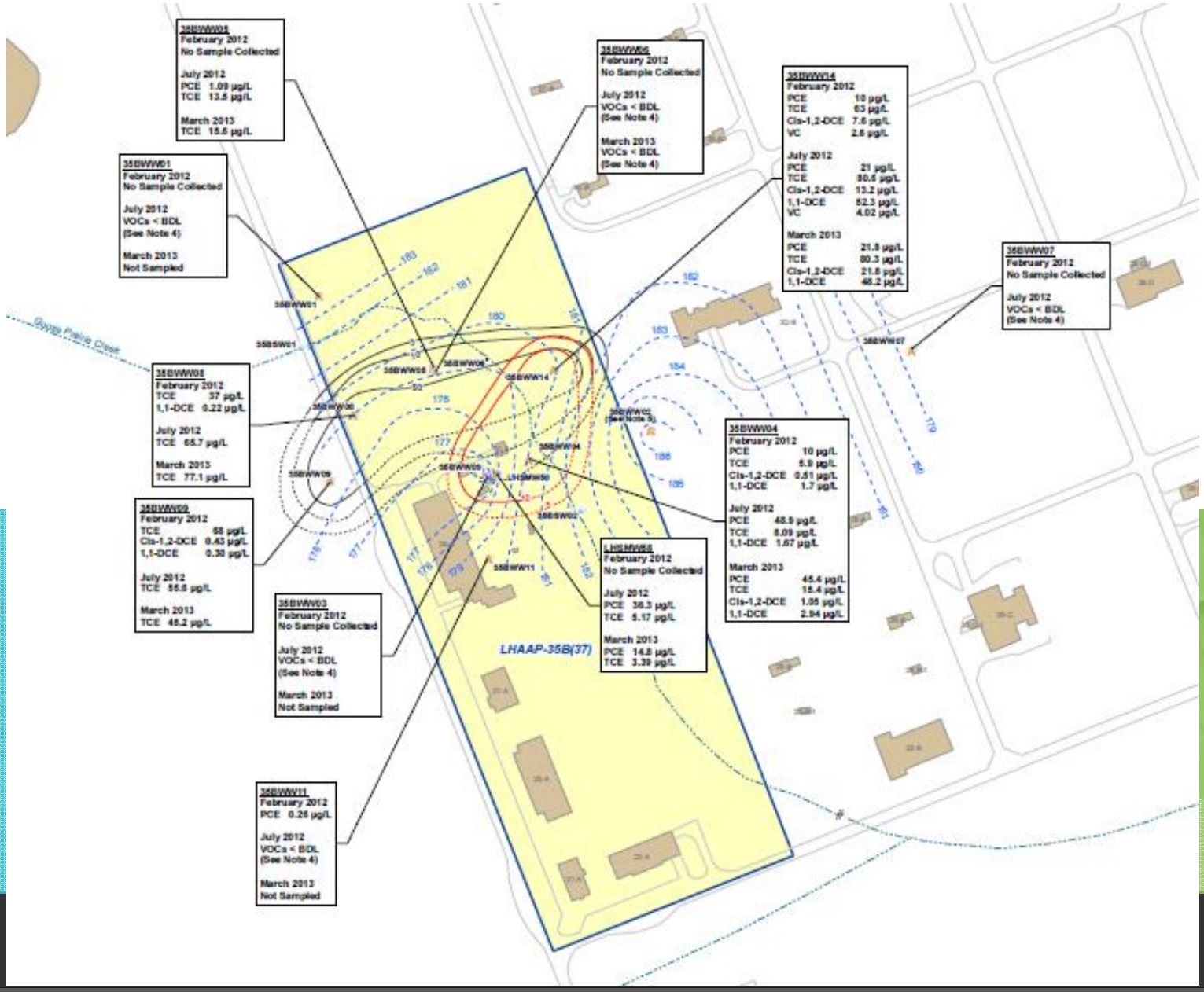
Chemical of Concern (COC)	Concentration (µg/L)	Basis
Trichloroethylene	5	MCL
Tetrachloroethylene	5	MCL
1,1-Dichloroethylene	7	MCL

Notes and Abbreviations:
µg/L – micrograms per liter
MCL – maximum contaminant level

Status of Environmental Sites (cont)



Status of Environmental Sites (cont)

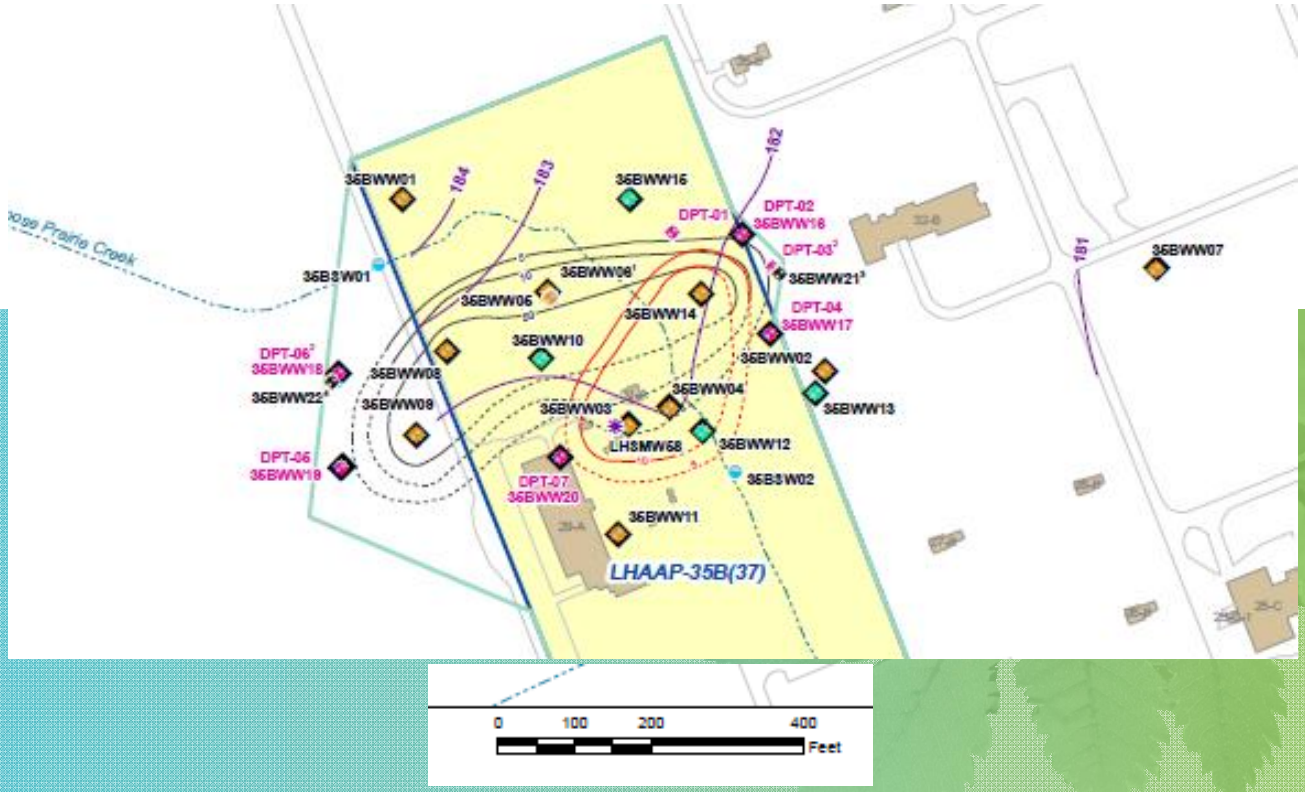


AECOM

Status of Environmental Sites (cont)

– LHAAP-35B (37) –

- Remedial Action Work Plan Complete
- Plan to Install Wells, Complete Quarterly Sampling and perform Monitored Natural Attenuation Evaluation over the next two years. Shallow and intermediate plumes below:



Status of Environmental Sites (cont)

– LHAAP-50 – Former Sump Water Tank
  - Industrial waste production sump water received from throughout the plant at this site which also had a 47,000 gallon AST

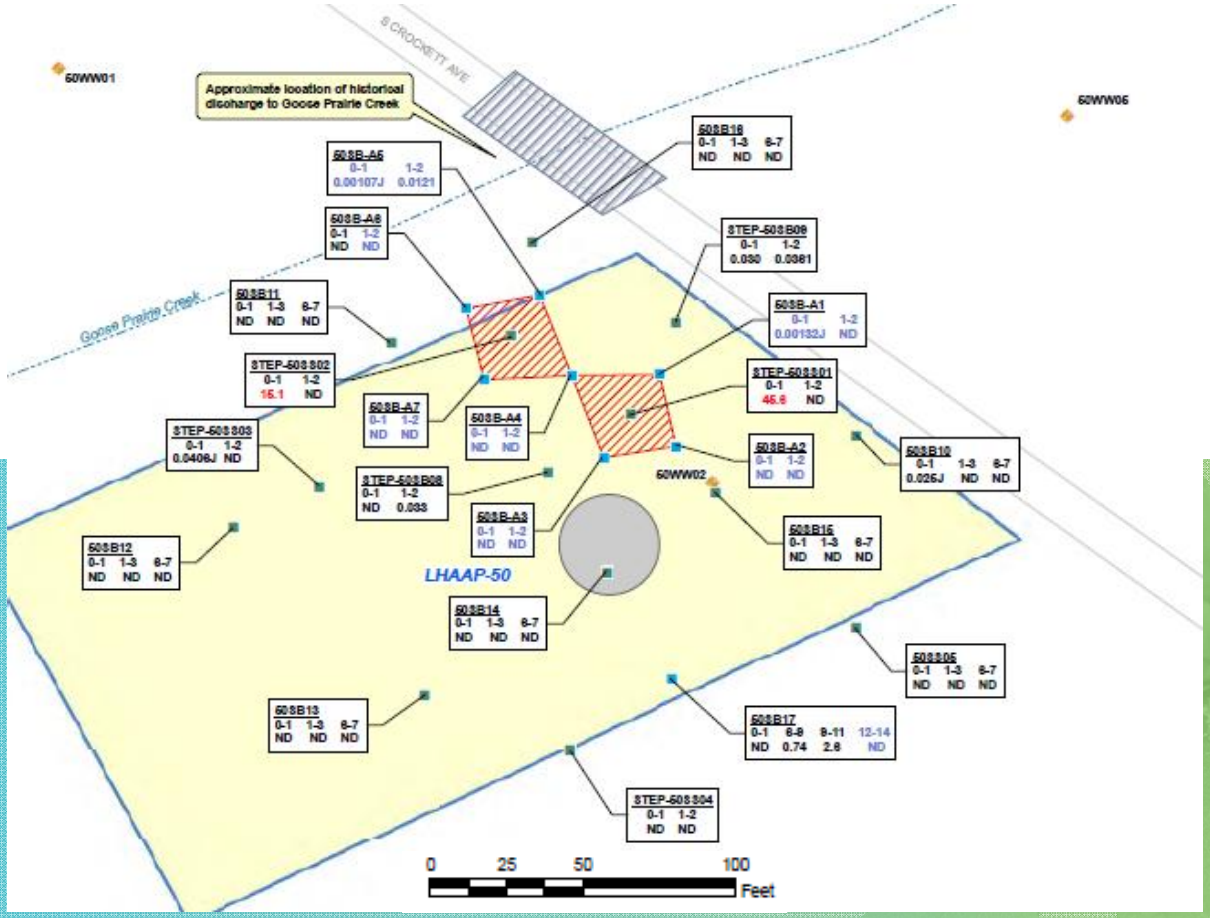
Table 1-1: Cleanup Levels

Chemical of Concern (COC)	Concentration	Basis
Soil (µg/kg)		
Perchlorate	7,200	GWP-Ind
Groundwater (µg/L)		
Tetrachloroethylene	5	MCL
Trichloroethylene	5	MCL
1,1-Dichloroethylene	7	MCL
1,2-Dichloroethane	5	MCL
Cis-1,2-dichloroethylene	70	MCL
Vinyl chloride	2	MCL
Perchlorate	72	GW-Ind
Surface Water (µg/L)		
Perchlorate	26	GW-Res

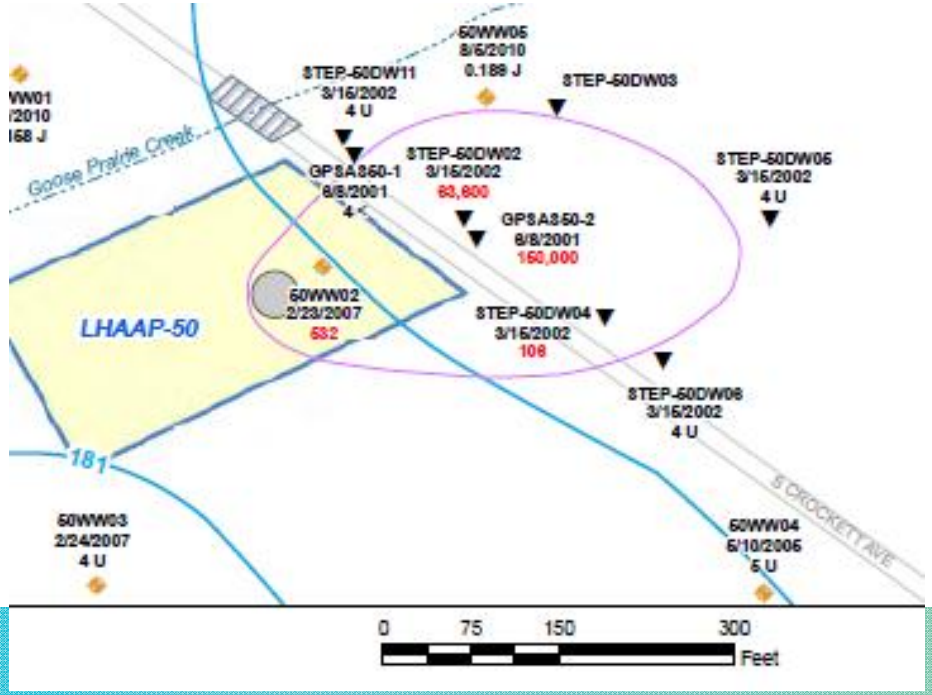
Notes and Abbreviations:
µg/kg – micrograms per kilogram
µg/L – micrograms per liter
GW-Ind – Groundwater MSC for industrial use for perchlorate
GW-Res – Groundwater MSC for residential use for perchlorate
GWP-Ind – Soil MSC for industrial use based on groundwater protection
MCL – maximum contaminant level

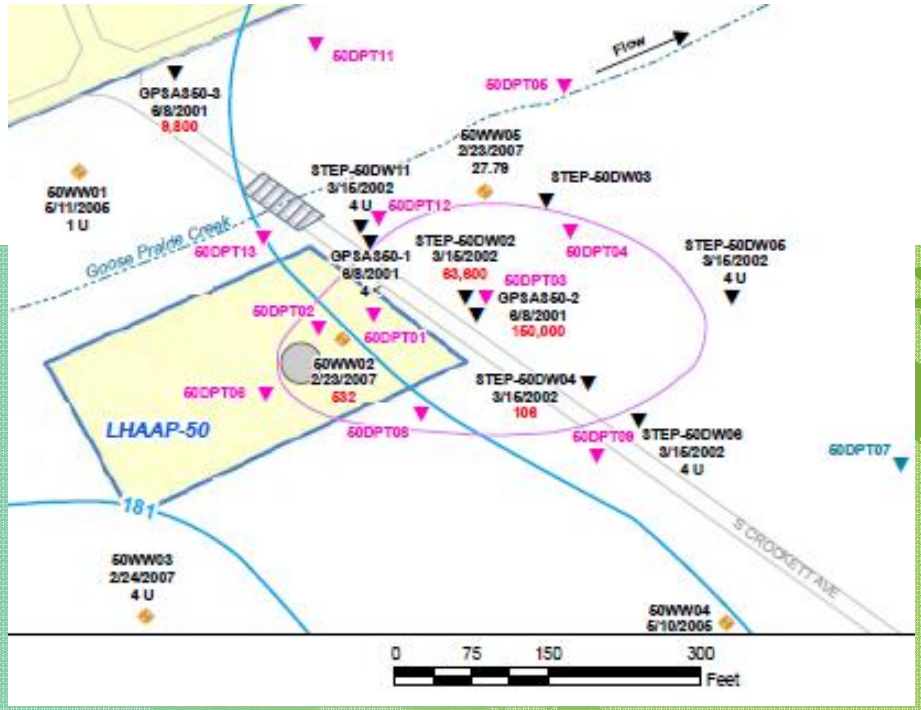
Status of Environmental Sites (cont)

– LHAAP-50 – Former Sump Water Tank
  - Area of soil contamination



Status of Environmental Sites (cont)





AECOM

Status of Environmental Sites (cont)

– LHAAP-58 Shops Area –

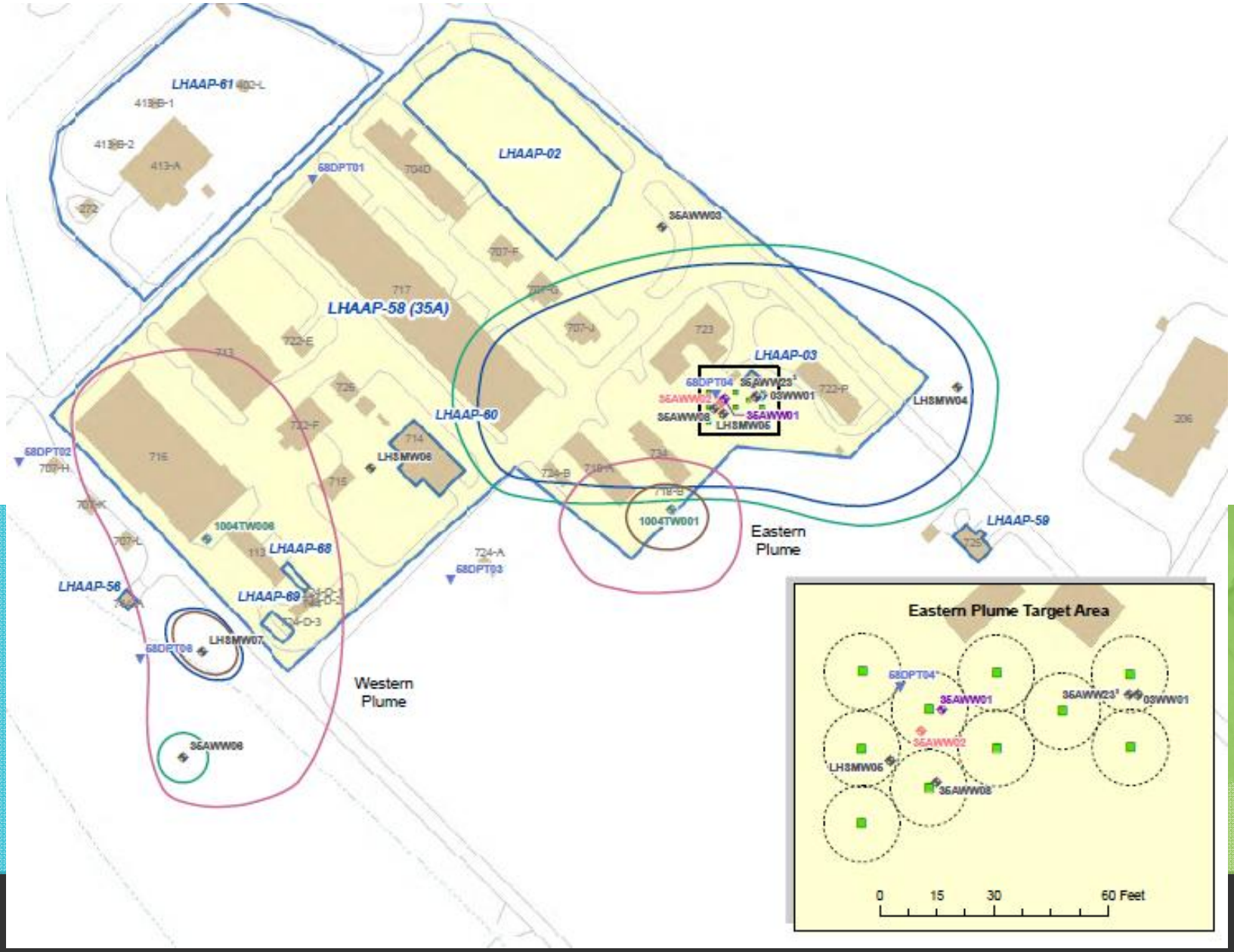
- Plant operated laundry, automotive, woodworking, metal working, painting, refrigeration, and electrical services operated in this area

Table 1-1: Cleanup Levels

Chemical of Concern (COC)	Concentration	Basis
Groundwater (µg/L)		
Tetrachloroethene	5	MCL
Trichloroethylene	5	MCL
1,1-Dichloroethene	7	MCL
Cis-1,2-dichloroethene	70	MCL
Trans-1,2-dichloroethene	100	MCL
Vinyl chloride	2	MCL
1,1,2-trichloroethane[(a)]	5	MCL
1,1-dichloroethane[(a)]	10,000	GW-Ind
Chloroethane[(a)]	41,000	GW-Ind
Arsenic[(b)]	10	MCL

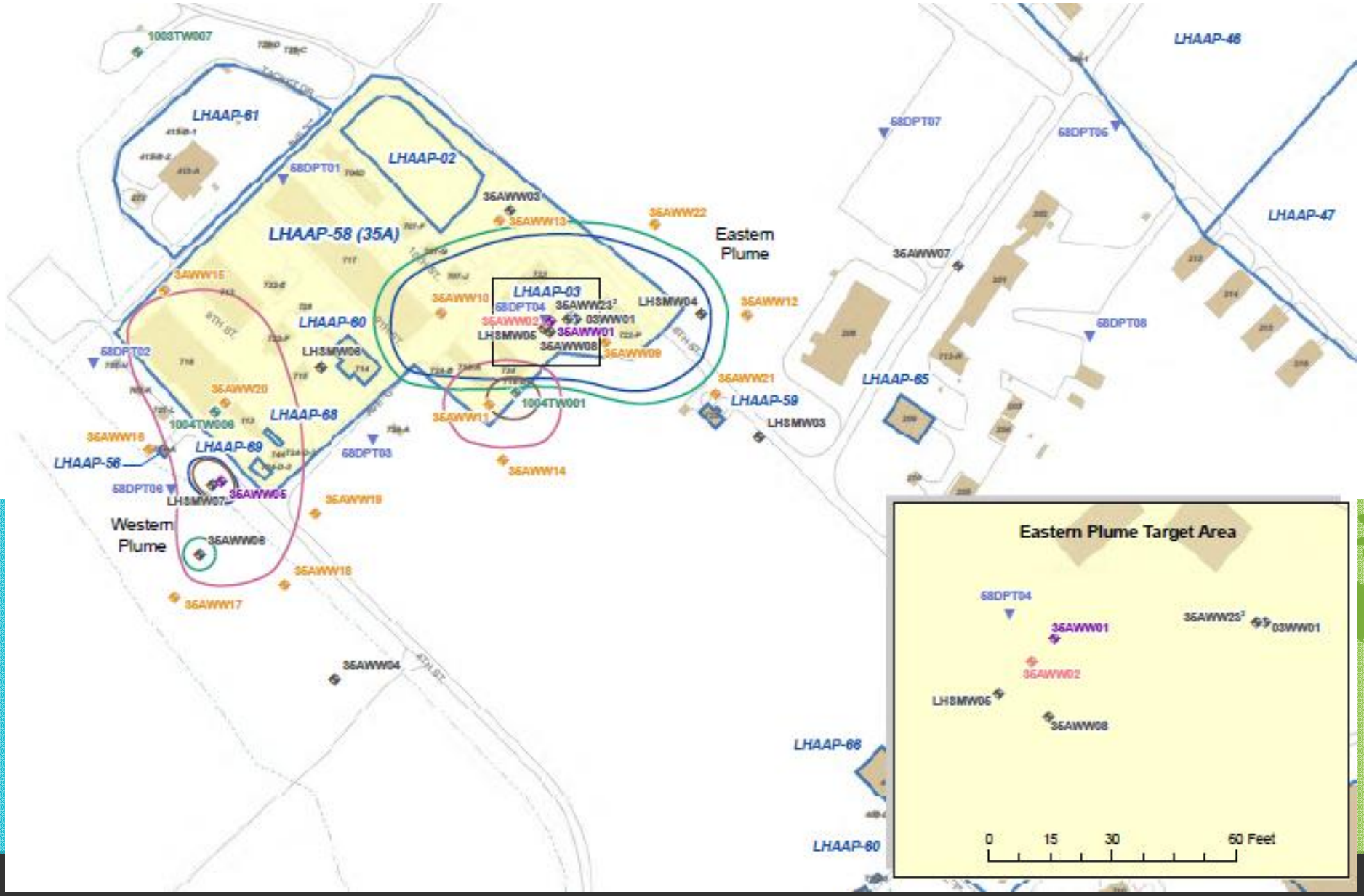
Notes and Abbreviations:
[(a)] Not currently classified as a constituent of concern, but will be included in the list of chemicals for Long-Term Monitoring (see ROD section 2.12.2)
(b) Arsenic is not a COC at the site as stated in the ROD. The paragraph below this table discusses monitoring for arsenic, and Table 4-4 identifies wells planned to be monitored for arsenic. The arsenic MCL of 10 µg/L will be used to compare arsenic data in site groundwater during arsenic monitoring.
µg/L – micrograms per liter
GW-Ind – Texas Commission on Environmental Quality groundwater medium-specific concentration for industrial use, since no MCL exists
MCL – maximum contaminant level

Status of Environmental Sites (cont)



AECOM

Status of Environmental Sites (cont)



AECOM

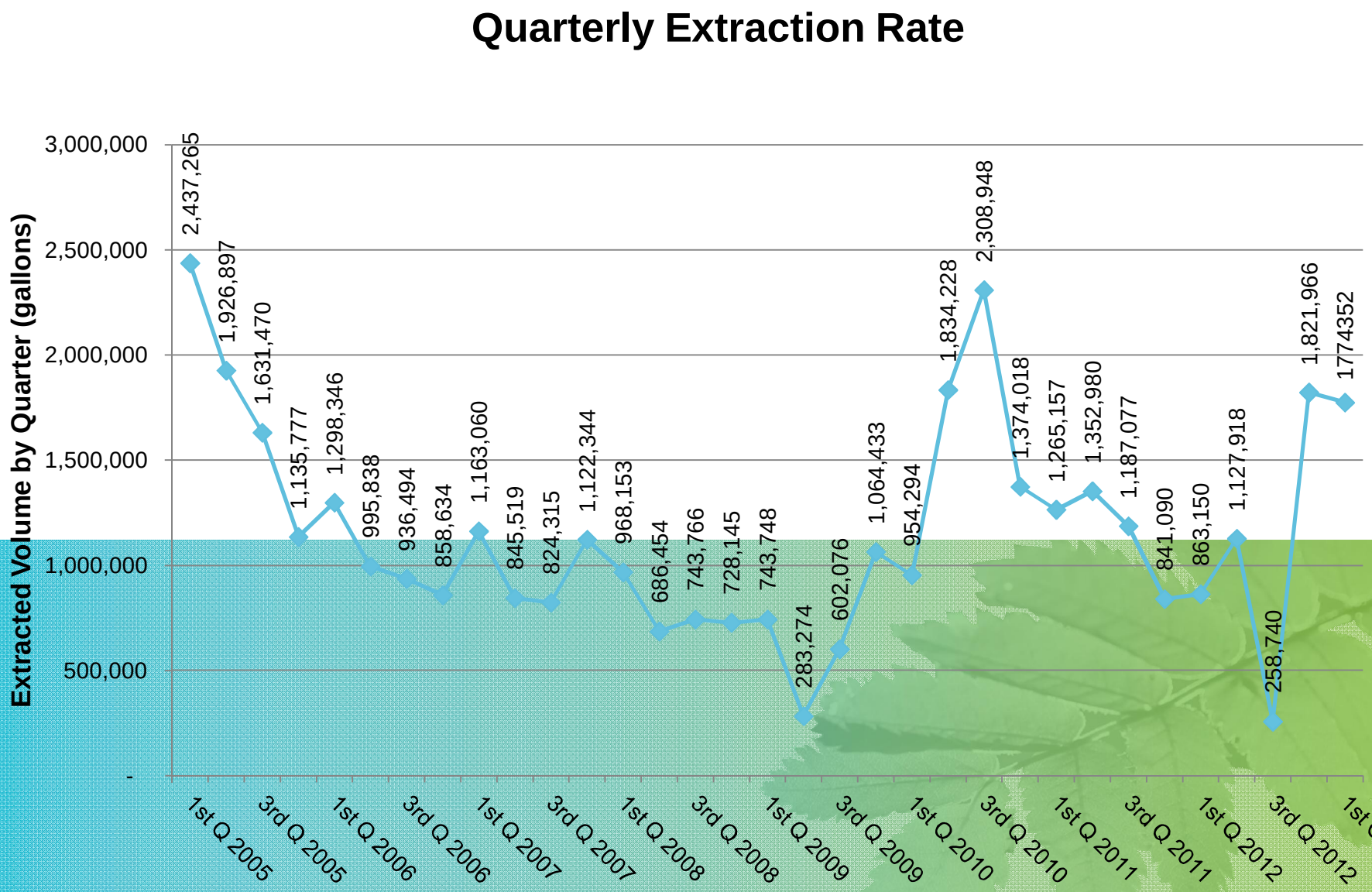
Status of Environmental Sites (cont)

- LHAAP-37, LHAAP-50, LHAAP-58
  - RAWPs approved, fieldwork mobilized July 9
  - Completing DPT, well installation and groundwater sampling for MNA for groundwater
  - Completing soil excavation at LHAAP-50 (~150 cubic yards)
- CERCLA 5 Year Review Process for Multiple Sites
  - TCEQ and EPA review later this month
- LHAAP-03
  - ROD in progress, EPA and TCEQ reviewing, planned excavation in late fall
- LHAAP-12/LHAAP-16
  - Completing O&M mowing, sign maintenance, etc…
  - Repaired Areas Requiring Additional Soil
  - Maintenance of Wells (painting, fixing locks and hinges)

Groundwater Treatment Plant Operations and Management

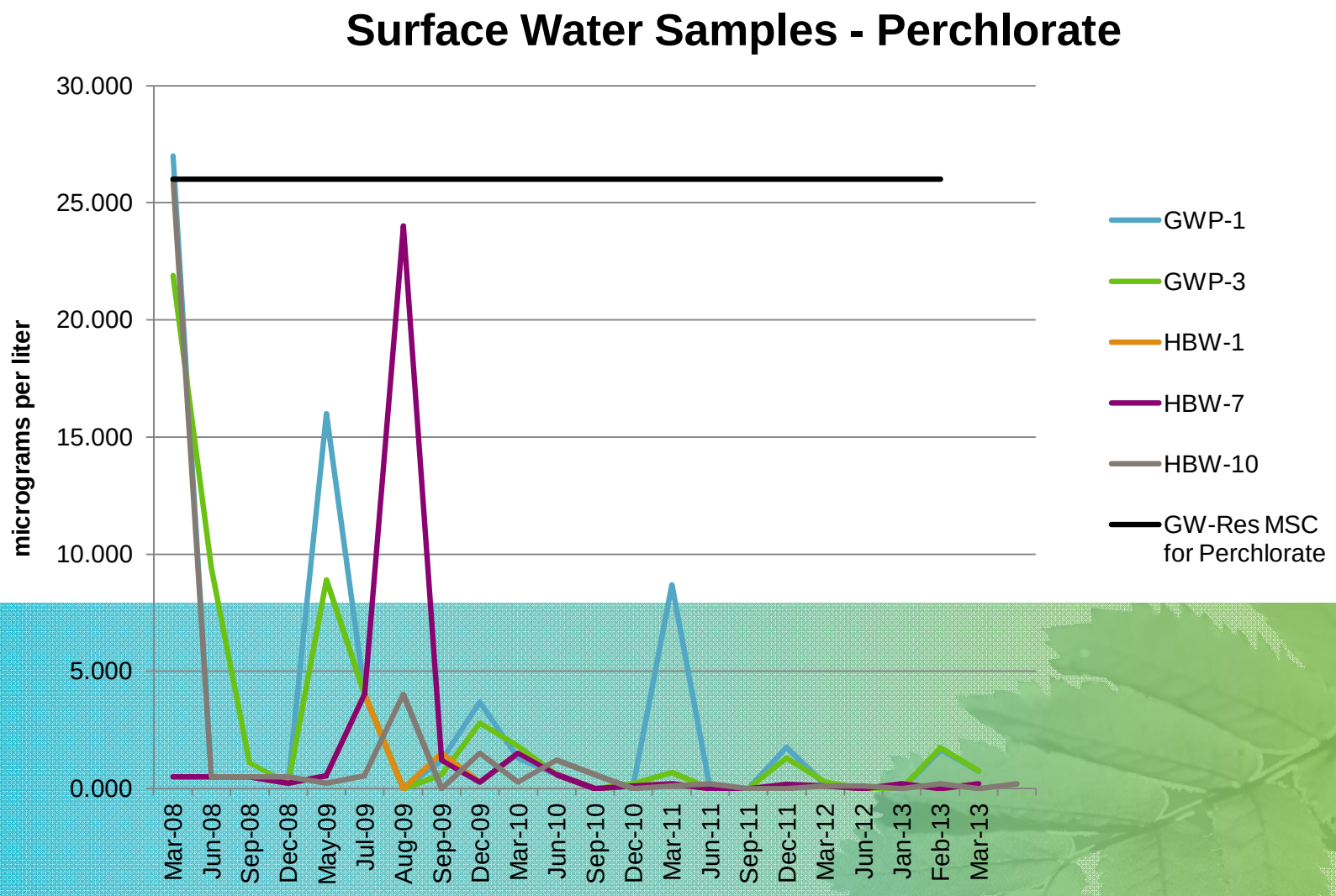
- The Groundwater Treatment Plant continues to operate to contain the plume at LHAAP-18/24 and LHAAP-16
- Water continues to be returned to LHAAP-18/24 or into Harrison Bayou depending on the amount of water in the bayou
- Compliance monitoring continues per existing sampling plan
- Maintenance and repairs of wells, pumps, tanks, and ancillary equipment is on-going

GWTP O&M (cont)



AECOM

Surface Water Sample Results



GPW – Goose Prairie Creek
HBW – Harrison Bayou

Continued Discussion of In-Situ Bioremediation

- Treatability Study (TS) at LHAAP-58
  - Groundwater was collected from monitoring well 35AWW08 and a soil sample was collected near the well using direct push technology.
  - One lactate based carbon source (e.g. sodium lactate) and one vegetable oil based carbon source (e.g. emulsified vegetable oil (EVO)) were evaluated during the TS.
  - The following environments were constructed in the laboratory:
    - Anaerobic sterile control
    - Anaerobic active control
    - Treatment microcosm with lactate-based carbon source
    - Treatment microcosm with EVO-based carbon source.
  - Seven post-baseline events were performed to document the progress of the TS. These included:
    - Microcosm Sampling
    - Chemicals of concern
    - pH
    - Chlorinated volatile organic compound and dissolved hydrocarbon gasses
    - Anion parameters
    - Volatile fatty acids
    - Total organic carbon

Continued Discussion of In-Situ Bioremediation Cont.

- Treatability Study (TS) at Site 58
  - The results of the TS indicated that both treatment microcosms achieved completed dechlorination (reduction of PCE/TCE to ethene). The chlorinated VOCs in the control microcosms remained stable as expected. Similarly, reductions in sulfate concentrations were observed in both treatment microcosms.
  - The lactate-based amendment is a relatively fast substrate compared to the EVO-type substrates as evidenced by the TS data and is proposed for use as a carbon source during remedial action for LHAAP-58 groundwater, as needed.

Upcoming Fieldwork, Meetings, and Documents

1. Surveying of wells and DPT locations and IDW mgmt at LHAAP-18/24, 46, and 67.

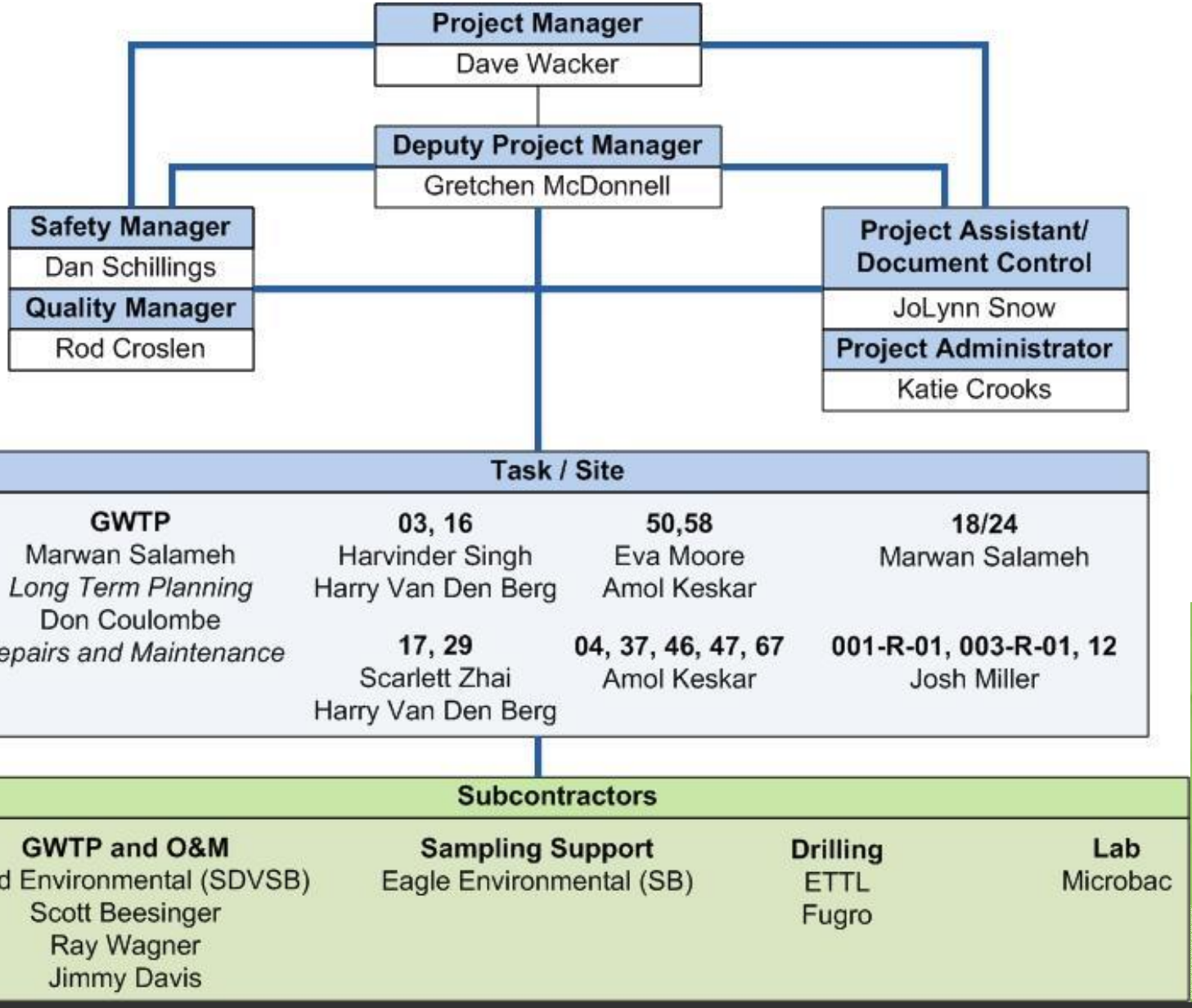
2. Well installation and Direct Push Technology at LHAAP-37, 50, 58.

3. Excavation at LHAAP-50

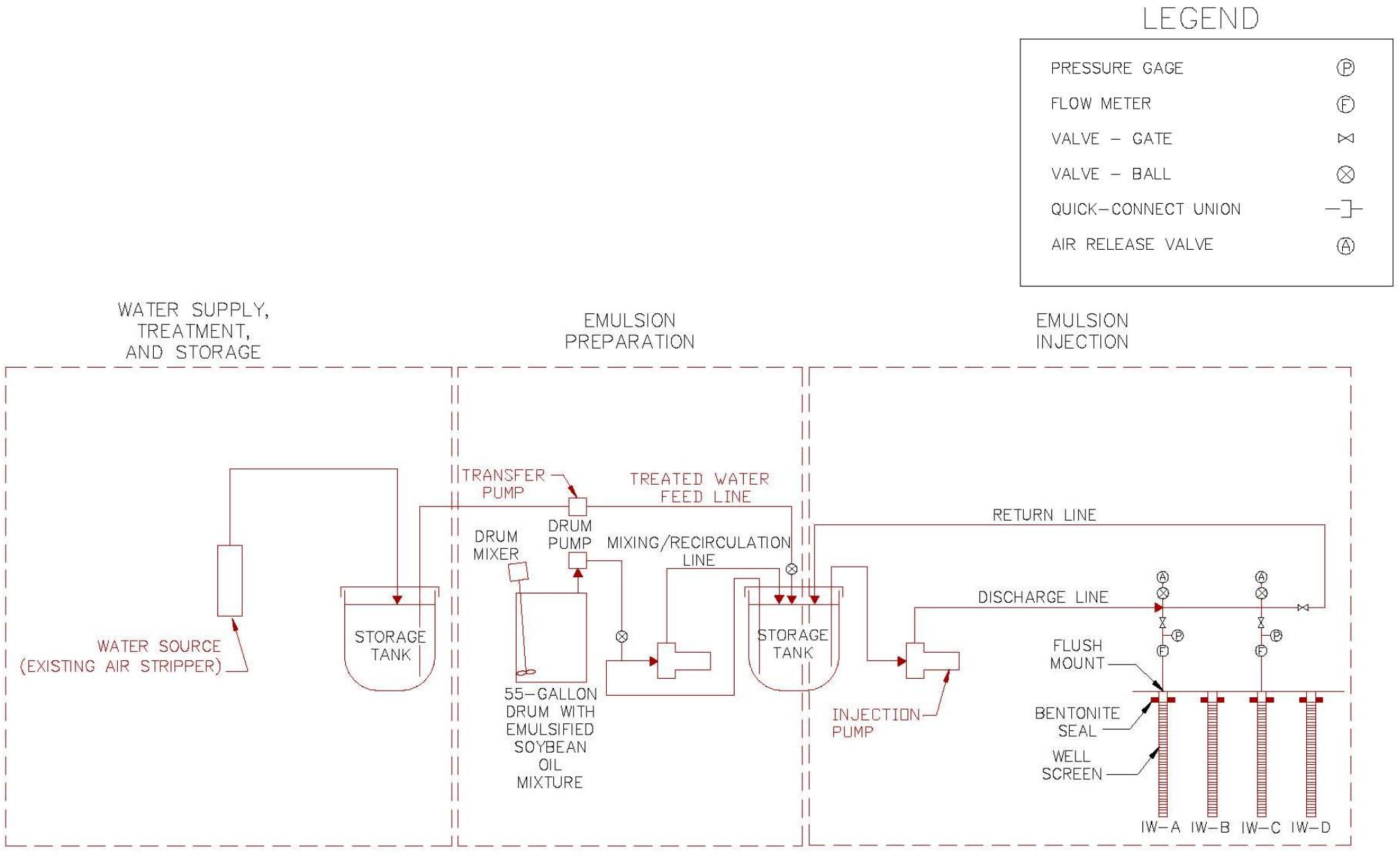
4. EISB at LHAAP-58

Back-up Slides

AECOM Longhorn Project Organization Chart



In-situ Bioremediation



Groundwater Treatment Plant - Treated Groundwater Volumes

The amount of groundwater treated is determined by measuring the number of gallons of treated water returned to LHAAP-18/24, released to the INF Pond, or discharged to Harrison Bayou. The Army is currently completing a study to confirm flow numbers and material balance for the Groundwater Treatment Plant. This sheet will be updated with any new findings.

Treated Water Data

(in gallons)

Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
1,041,491	848,356	804,822	792,148	665,883	818,872	791,306	568,812	776,904	748,377	690,052	617,199

Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09
655,059	619,274	726,118	552,299	598,144	433,800	488,807	526,958	387,644	0	414,853	735,716

Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10
808,322	636,306	727,492	391,898	695,343	802,656	894,731	962,121	1,257,977	1,314,924	1,041,495	1,136,547

Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11
956,567	705,805	849,712	811,679	668,281	1,090,348	817,325	900,338	916,552	784,369	652,524	733,456

Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12
748,102	658,250	684,903	865,453	725,000*	730,000*	980,000*	630,000*	0	0	0	349,012

Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13
617,037	607,610	560,436	869,710	751,213	641,708	699,776	746,885	392,719

* Indicates estimate

Figure ES-3

Water Treated Monthly from October 2007 through March 2013