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:	**October 29, 2015, 6:00 – 7:00 PM**

Meeting Participants:

LHAAP/BRAC:	Rose M. Zeiler
USACE:	Aaron Williams, Richard Smith
USAEC:	Nicholas Smith
AECOM:	Mark Heaston, Marwan Salameh
TCEQ:	April Palmie
USEPA Region 6:	Rich Mayer, Janetta Coats, Kent Becher (USGS liaison), Phil Harte (USGS liaison),
USFWS:	Paul Bruckwicki
RAB:	**Present:** Paul Fortune, Charles Dixon, Ted Kurz, Judy Vandeventer, Tom Walker, John Pollard, Jr., Lee Guice **Absent:** Ken Burkhalter, Robert Cargill, Carol Fortune, Judith Johnson, James Lambright, Richard LeTourneau, Nigel Shivers, Pickens Winters, Terry Britt
Public:	Caleb Brabham (Marshall Newspaper), Sharron McAvry, Dawn Orsak (CLI-TAG), Robert Speight

An agenda handout for the RAB meeting, fact sheets on the Groundwater Treatment Plant performance, Harrison Bayou and Goose Prairie Creek and Perimeter Well data in addition to a hard copy of the AECOM slide presentation were provided for the meeting.

Welcome and Introduction

The RAB Community Co-Chair (Paul Fortune) called the meeting to order and asked if there was anyone present that had not attended before.

Open Items

RAB Administrative Issues

Minutes
Dr. Zeiler asked if everyone received copies of the previous meeting's minutes and if there were any comments. The motion for approval of the June 2015 RAB meeting minutes was made by Judy Vandeventer and seconded by Charles Dixon.

Website Update
Dr. Zeiler advised that the upcoming sampling schedule information has been posted to the LHAAP website.

Mark Heaston encouraged everyone to look at the website. It includes RAB Meeting Information – Agenda, Minutes, Site Updates, etc.

1,4-Dioxane Fact Sheet
The 1,4-dioxane fact sheet was not provided in hard copy but was included in the slide presentation. 1,4-dioxane in groundwater was evaluated in the past at Longhorn and due to the high reporting limits, all the results were reported below detection. In response to renewed interest in it nationwide, TCEQ and EPA asked that Army conduct sampling to re-evaluate it. EPA has not promulgated Maximum Contaminant Level for 1,4-dioxane. However, the TCEQ has published standards. The 1,4-dioxane levels at the site are fairly low, but exceed the RRR industrial standard (which has been lowered) in some instances.

Defense Environmental Restoration Program (DERP) Update – AECOM (Mark Heaston)

<u>MNA Site Updates (LHAAP-37, 46, 50, 58, 67)</u>

- Completed LUCs recordation for all sites.
- RACRs for LHAAP-46 and LHAAP-58 are finished and all agree they are Final.
- Working to finalize RACRs for LHAAP-37, LHAAP-50 and LHAAP-67.
- Sampling being performed quarterly for all above sites except LHAAP-37 due to Bio-Plug work. Initiated geochemical condition sampling. Once geochemical conditions have rebounded to pre-BioPlug study conditions RA-O monitoring for MNA will be initiated.
- Year 1 RA-O Reports completed for LHAAP-46, 50, 58 and 67. Year 2 RA-O Reports currently being prepared for these sites.

<u>Other Active Sites</u>

- LHAAP-29 reverted to RI/FS phase. Field work completed, RI Addendum to document nature and extent under development.
- LHAAP-18/24 – AECOM, Army and Agencies have met extensively to discuss the PSI Report. The decision has been made to collect additional data now instead of waiting until the remedial design phase. 1,4-dioxane sampling is also planned in order to determine if it will require a separate remedy component.
- GWTP operation for LHAAP-18/24 and LHAAP-16.
    - Groundwater returned via sprinkler system because the treated groundwater was being tested for 1,4-dioxane before discharge to the HB could be initiated.
    - The blower was ordered during the second week of September but has not been shipped because there is a five-week backorder period.

Slide 11 presented the amount of water collected and treated through June 2015. The amount of water treated during the second quarter was larger than during the first quarter.

Slide 12 presented results of surface water sampling.

- May results were displayed. Sample GPW-1 had 0.156 μg/L (J-flagged) in May 2015.
- August – dry, no sampling

Slide 13 – 19: Technical presentation about 1,4-dioxane

- What is 1,4-dioxane? – Stabilizer for solvents, primarily 1,1,1-TCA and to a lesser extent for TCE and PCE.
- Chemical properties: colorless liquid, flammable, pleasant odor, completely soluble in groundwater, similar specific gravity and boiling point to water, no retardation in soil.
- Environmental Perspective: not significant issue when in air since it degrades in ultraviolet light, not retained in soil, travels quickly in water, doesn't volatilize from water, chemically stable/recalcitrant.
- Toxicity: see slide for details
- Why is 1,4-dioxane of interest to us?
    - 1,4-dioxane plume is longest in 21% of sites, same length at 17% of sites, shorter at 62% of sites
- Data collection at LHAAP-18/24 will provide us with this answer.
- Will be collecting 1,4-dioxane at all other sites.
- Not seeing much 1,4-dioxane except at Sites 16, 18/24 and 12.
- Treatment challenge: Technologies treating CVOCs do not treat 1,4-dioxane.
- Questions/Discussion:
    - Judy: Is this something we should be concerned about?
    - Rose, April, Rich: Most likely not but we do not know yet. This is why we are sampling.
    - Paul: Has it been tested for before?
    - April: Yes, but detection limits were high before; analytical methods have improved.
    - Fred: Have there been other sites in the U.S. and have they been treated?
    - Rich: Yes. Some sites have been treated but it is difficult.
    - April: It is stable and that is why.
    - Fred: Do TCEQ/EPA have standards?
    - Rich: EPA has an advisory limit.
    - April: TCEQ has promulgated cleanup levels.

Rich introduced Phil Harte with USGS.

- Phil: Will give a less technical presentation. USGS is happy to support EPA.
- Outline: Try to explain variability in wells, assess hydrogeology, focused/limited effort.
    - Completed two types of sampling:
        1. Standard purge sampling and extended purge sampling.
        2. Discrete sampling (passive sampling).
            a. Well profiling using different tools – gamma, caliper
            b. Surface resistivity surveys – looks at formation in the ground
    - Slide showing displays of two sampling methods

        - Diffusive samples for two weeks to equilibrate
        - Installed a string of diffusive samplers to detect vertical variations
    - Borehole logging
    - Photo of surface resistivity – direct current measures voltage received

- Slide showing site and test wells
- Example of extended purge data at 18CPTMW03SW
- Slide showing purge concentrations vs. passive sampling concentrations
    - Perchlorate concentration with depth at AWD-3
- Displayed logging results for 18CPTMW03
    - Gamma and electromagnetic tool picked up clay at 40 to 50 feet.
- Similar slide for MW-14
    - Discussed fluid logs
    - Discussed conductivity
- Slide showing resistivity lines
- Slide showing NW-2 line resistivity data – resistivity decrease, conductivity increase
- Questions/Discussion:
    - Ted: Do you know if this changes all the time?
    - Phil: We only did this once.
- Conclusion Slide
    - New sampling method told us where the contamination is.
    - Methods implemented work at this site.

Mark Heaston presented a summary slide of future field work events, Monthly Managers Meetings and RAB Meetings.

Rose proposed the next RAB meeting be held on January 21, 2016 (the 3rd Thursday of the month). There were no objections.

Mark Heaston presented a summary slide of the documents AECOM is currently working on.

<u>Dispute Status Update</u>

- Judy inquires about the status of the dispute.
- Rose: Same as before.
- Judy: Is there nothing that can be done at this time or are we choosing not to do work?
- Rose: We continue to work. We monitor Site 16, which is in dispute, and the GWTP. Army went to EPA asking for concurrence on implementing the groundwater remedies at several sites while awaiting resolution of the dispute, but this approach was overcome by events for both parties.
- Rich: If EPA prevails in the dispute, it applies to three groundwater constituents (manganese (Mn), nickel (Ni), and perchlorate) and none in the soil.
- Rose: If level is lower, we have to find a new edge of plume.
- Rich: On the two metals no problem. I see a problem with perchlorate.

- Rose: Metals and risk re-evaluation (human health) pretty much means starting over. Mn going from 14,000 to 1,100 in TRRP is substantial. Dinitrotoluene (DNT) going to TRRP is one order lower than RRR, so impact is large.
- Judy: This is my concern – we are at a standstill. Can we do anything?
- Rich: OMB met with EPA and asked EPA questions.
- Judy: I was just concerned.
- Rich: We agree 100%. We tried to push them RAB is concerned.
- April: We have been doing good work.
- Paul: Don't want to be negative here, but Army said approximately 10 years to complete. How long will it be?
- Rich: People simplified the conditions then but it is more complex.
- April: When we have groundwater issues things take a long time, unlike soil.
- Rich: At a site in Dallas soil was replaced with clean fill and downgradient wells are still impacted.
- Paul: No one has an answer?
- Rich: Maybe with technology advancement.
- April: Plumes are not spreading even on idle sites.
- Ted: How do you know that?
- April: Because we sample and look at perimeter wells and surface water data. It is contained.
- Ted: Not disputing but map showed plume expansion.
- April: No, that was the resistivity log. We sample Harrison Bayou.
- Ted: I know. I trust you guys.
- Paul: February call from USGS wanting to sample. Does USGS normally do that?
- Kent: Yes, we serve all industries/entities.

Adjourn – Motion to adjourn made by Paul, seconded by Judy.

October Meeting Attachments and Handouts:

- *Meeting Agenda*
- *AECOM PowerPoint Presentation*
- *GWTP Treated Groundwater Volumes Handout*
- *Surface Water Sampling Results Handout*
- *LHAAP Perimeter Well Sampling Results Handout*

Acronyms

AECOM	AECOM Technical Services, Inc.
BRAC	Base Realignment and Closure
CLI	Caddo Lake Institute
CVOC	Chlorinated Volatile Organic Compounds
DERP	Defense Environment Response Program
DNT	Dinitrotoluene
GWTP	Groundwater Treatment Plant
LHAAP	Longhorn Army Ammunition Plant
LUCs	Land Use Controls
MNA	Monitored Natural Attenuation
OMB	Office of Management and Budget
PCE	Tetrachloroethene
PSI	Post Screening Investigation
RAB	Restoration Advisory Board
RACR	Remedial Action Completion Report
RA-O	Remedial Action Operations
RI/FS	Remedial Investigation/Feasibility Study
RRR	Risk Reduction Rule
TAG	Technical Assistance Grant
TCA	Trichloroethane
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
TRRP	Texas Risk Reduction Program
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
Ni	Nickle
Mn	Manganese