

**Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes**

5 November 2015, 1400 Hours

Mr. Mark Smith, of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Team (IST), conducted the Restoration Program Manager's (RPM) on 5 November 2015 at 1400 hours in Building 248 at Travis AFB, California. Attendees included:

- Mark Smith AFCEC/CZOW
- Glenn Anderson AFCEC/CZOW
- Lonnie Duke AFCEC/CZOW
- Captain Alexi Fong Travis AFB 60 AMW/JA
- Kurt Grunawalt Travis AFB 60 AMW/JA
- William Hall AFCEC/CZRW
- Dezso Linbrunner USACE-Omaha
- Adriana Constantinescu California Regional Water Quality Control Board (RWQCB)
- Ben Fries California Department of Toxic Substances Control (DTSC)
- Nadia Hollan Burke United States Environmental Protection Agency (USEPA)
- Indira Balkissoon Techlaw, Inc
(via telephone)
- Mike Wray CH2M
- Jeff Gamlin CH2M
(via telephone)
- Renee Delisle CH2M

Handouts distributed at the meeting, discussions and presentations included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting and Document Schedule
- Attachment 3 SBBGWTP Monthly Data Sheet (October 2015)
- Attachment 4 CGWTP Monthly Data Sheet (October 2015)
- Attachment 5 Subarea LF007C Monthly Data Sheet (October 2015)
- Attachment 6 ST018 Monthly Data Sheet (October 2015)

- Attachment 7 Presentation: Program Update: Activities Completed, In Progress and Upcoming
- Attachment 8 Presentation: Multi-Site Bioaugmentation Technology Demonstration

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 16 September 2015 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from September were reviewed.

Action item 1 will remain open: AFCEC's Travis Restoration Support Team and Travis AFB will continue to pursue opportunities for the beneficial reuse of treated water. Due date will remain TBD to ensure this action item remains visible. 05 November 2015: No update.

Action item 2 is ongoing: Mr. Smith to provide updates on PFOS and PFOA as he becomes aware of them. 05 November 2015: AFCEC is in the process of putting together a Performance Work Statement. The work statement will request a site inspection and assessment, which will include collecting some samples.

Action item 3 is closed: Ms. Constantinescu will schedule a site visit of the twelve (12) oil water separator sites (OWS) when she is available. 05 November 2015: closed.

Action item 4 is open: Travis AFB to provide Ms. Constantinescu/RWQCB one week notification via email before construction begins at Site SS014 Bioreactor Installation. 05 November 2015: The work is tentatively scheduled for December 2015, weather permitting.

Action item 5 is closed: Extend an invite to the RAB members for the Travis AFB site tour. 05 November 2015: closed.

C. Master Meeting and Document Schedule Review (see Attachment 2)

The Travis AFB Master Meeting and Document Schedule (MMDS) was discussed during this meeting (see Attachment 2).

Travis AFB Annual Meeting and Teleconference Schedule

The next RPM meetings will be face to face meetings, held on Wednesday, 20 January 2016 at 0930, and 17 February 2016 at 0930.

Travis AFB Master Document Schedule

- Community Involvement Plan: Draft to Agencies date was changed to 02 December 2015 the rest of the dates were changed accordingly. This will allow Mr. Smith time to discuss the community involvement plan with the new RAB members.
- Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Mr. Anderson said that Camp Dresser and McKee (CDM) is scheduled to submit their annual groundwater monitoring report next week. The report will include the groundwater sample results from this past summer's field activities. CDM will issue a "report of findings" next month which will include vegetation and soil sample results, as well as an exposure assessment. Ms. Constantinescu said she received confirmation that the report will be released to the RWQCB on 05 December 2015; after RWQCB reviews the report a decision by the RWQCB will be made if additional investigation work needs to be conducted. Adding that her section leader will be issuing a revised site cleanup order in 2016 to establish a regulatory frame, with very clear due dates, and if not met, enforcements will be place.
- Corrective Action Plan for DERA-Funded Oil Water Separators (POCO): No change to the schedule.
- Technical Memoranda for Soil Sample Collection to Support Risk Assessment, Sites SD033, SD043 and SS016: New documents, populated with all new dates.
- Site SD031 Remedial Investigation Work Plan: New document, all dates are to be determined (TBD).
- Site CG508 Well Abandonment Work Plan (POCO): New document, all dates are TBD.
- Site SD034 Technology Demonstration Work Plan: New document, all dates are TBD.
- Quarterly Newsletter (October 2015): No change to the schedule.
- 2014 Annual GRISR: No change to the schedule. Travis AFB is responding to EPA comments.
- Sites SD036 and SD037 Remedial Action Construction Completion Report: No change made to the schedule. Travis AFB received EPA's comments.
- Site ST018 POCO Construction Completion Report: Response to Comments Due date and Final Due Date were changed to 23 September 2015 to reflect the actual date.
- Site SS016 Groundwater Remedial Action Construction Completion Report: Response to Comments Due Date and Final Due Date were changed to 20 November 2015. DTSC and RWQCB indicated they will not have any comments on this document.
- Site SS015 Remedial Action Construction Completion Report: Draft to agencies date was changed to 25 September 2015 to reflect the actual date. The rest of the dates were

changed accordingly. DTSC and RWQCB indicated they will not have any comments on this document.

- Site SS030 Remedial Action Construction Completion Report: Predraft to AF/Service Center was changed to 09 October 2015, the rest of the dates were changed accordingly.
- Site FT004 Technology Demonstration Construction Completion Report: New document, populated with all new dates.
- Site FT005 Technology Demonstration Construction Completion Report: New document, all dates are TBD.
- Site SD031 Technology Demonstration Construction Completion Report: Moved to History.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant, September 2015 (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 69.6% uptime, and 2.77 million gallons of groundwater were extracted and treated during the month of September 2015. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 80.06 gallons per minute (gpm). Electrical power usage was 11,520 kWh, and approximately 15,782 pounds of CO₂ were created (based on DOE calculation). Approximately 1.17 pounds of volatile organic compounds (VOCs) were removed in September. The total mass of VOCs removed since startup of the system is 466.1 pounds.

Optimization Activities for SBBGWTP: A new extraction well, EW2174x30, was installed and plumbed into the existing SBBGWTP during August and September 2015. On 10 September 2015, extraction well EW2174x30 was brought on line at a flow rate of approximately 11 gpm. This well continued to operate throughout the remainder of September 2015. EW2174x30 is expected to help capture lingering TCE contamination in the off-base portion of the Site SS030 plume.

Central Groundwater Treatment Plant, September 2015 (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.24 million gallons of groundwater extracted and treated during the month of September 2015. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 26.0 gpm. Electrical power usage was 2,760 kWh for all equipment connected to the Central Plant, and approximately 3,781 pounds of CO₂ were generated. Approximately 2.72 pounds of VOCs were removed

from groundwater by the treatment plant in September. The total mass of VOCs removed since the startup of the system is 11,416 pounds.

Optimization Activities for CGWTP: No optimization activities are reported for the month of September 2015.

LF007C Groundwater Treatment Plant, September 2015 (see Attachment 5)

Subarea LF007C Treatment Plant (LF007CGWTP) performed at 100% uptime with approximately 174,627 gallons of groundwater extracted and treated during the month of September 2015. The average flow rate at the LF007CGWTP was 3.67 gpm, and electrical power use was 0 kWh for all the equipment connected to the plant; and 0 pounds of CO₂ was generated; this electrical system is 100 percent off of the power grid. Approximately 4.61×10^{-3} pounds of VOCs were removed from the groundwater in September. The total mass of VOCs removed by the North Groundwater Treatment Plant and LF007CGWTP combined is 174.35 pounds.

Optimization Activities for LF007CGWTP: No optimization activities to report for the month of September 2015.

ST018 Groundwater (MTBE) Treatment Plant, September 2015 (see Attachment 6)

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 224,319 gallons of groundwater extracted and treated during the month of September 2015. All treated water was diverted to the sanitary sewer. The average flow rate for the ST018 GWTP was 4.7 gpm. Electrical power usage for the month was 125 kWh for all equipment connected to the ST018 GWTP, which equates to approximately 171 pounds of CO₂. Approximately 0.52 pound of BTEX, MTBE and TPH was removed from groundwater in September by the treatment plant. Approximately 0.21 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 33.1 pounds, and the total MTBE mass removed since startup of the system is 8.0 pounds.

Note: Electrical power use at the ST018 GWTP is only for the alarm system and a pump that pushes water through the GAC vessels for treatment. The extraction pumps in the system are all solar powered.

Optimization Activities for ST018GWTP: No optimization activities to report for the month of September 2015.

Program Update: Activities Completed, In Progress and Upcoming (see Attachment 7)

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. Updates from the briefing this month included:

Newly Completed Documents: ST018 POCO Construction Completion Report.

Newly Completed Field Work: FT005 Baseline Sampling, DP039 Well Installation, Well Development, Baseline Sampling.

In-Progress Documents (CERCLA): 2014 Annual GRISR, Sites SD036 and SD037 Remedial Action Construction Completion Report, and Site SS016 Groundwater Remedial Action Construction Completion Report, Site SS015 Groundwater Remedial Action Construction Completion Report.

In-Progress Documents (POCO): None.

In-Progress Field Work: FT004 EVO Injection, SS014 Bioreactor Installation, FT004 Trench/Conveyance/Power Installation, DP039 Infiltration Trench Installation.

Upcoming Documents (CERCLA): Community Involvement Plan (December), Site SS030 Remedial Action Construction Completion Report (November), Site FT004 Technology Demonstration Construction Completion Report (December), Site FT005 Technology Demonstration Construction Completion Report (TBD), Tech Memo for Soil Sample Collection to Support Risk Assessment; Sites SD033, SD043, and SS016 (January), Site SD034 Technology Demonstration Work Plan (TBD), Site SD031 Soil Remedial Investigation Work Plan (TBD), Site CG508 Well Abandonment Work Plan (TBD).

Upcoming Documents (POCO): Corrective Action Plan for DERA-Funded Oil Water Separators.

Field Work Planned (CERCLA): FT005 EVO Injection (November), DP039 EVO Injection (November), SD031 Soil Remedial Investigation (TBD), TA500 Groundwater Sampling (TBD), SD034 Technology Demonstration Installation (TBD).

Field Work Planned (POCO): Oil Water Separators (12) Removal (TBD), CG508 Well Abandonment (TBD).

Presentations:

Presentation: Multi-Site Bioaugmentation Technology Demonstration (see Attachment 8)

Mr. Gamlin presented on the Multi-Site Bioaugmentation Technology Demonstration. For details see attachment 8.

Bioaugmentation technology demonstration rationale:

- Travis AFB is continually looking for ways to expedite treatment and to reduce life cycle costs. This demonstration is to see if there is value by adding bioaugmentation when doing the emulsified vegetable oil (EVO) injections.
- The cost of bioaugmentation is coming down significantly, and Travis AFB has more EVO injections scheduled.
- Bioaugmentation typically accounts for ~1-3% of total injection costs, based on that it is worth conducting a demonstration.

Demonstration Concept:

- Inject bioaugmentation culture, KB-1 Plus, in a portion of a site where EVO has been injected, and in a portion of a site where it is not. First look at the decay rates for the chemicals of concern (COC), primarily TCE, to see if the decay rates increase. Do we get improved rates of degradation in the TCE portion of the site where we injected the bioaugmentation culture? Can the data definitively show reduction in life cycle costs following the bioaugmentation to the magnitude where this is something we should be looking at for all EVO injection sites?
- Evaluate if first order decay rates increase to the point where we can definitively show a life cycle cost reduction following bioaugmentation.
- Evaluate bioaugmentation starting on a smaller scale, we chose two sites: one site with previous EVO injection (SD036) and a site without any previous EVO injections (ST027).

Demonstration Decision Logic:

- Does bioaugmentation reduce life cycle costs? If first order decay rates increase following bioaugmentation, we can do a cost benefit analysis to assess for future use.
- If first order decay rates do not increase then continue future injections with just EVO.

Mr. Gamlin provided a map of the plan for site SD036: We will monitor dehalococcoides (before and after treatment) at site SD036 at the proposed monitoring wells and injections wells shown on the map. For Site SD036:

- Monitor two monitoring wells with EVO only; conduct baseline sampling and collect samples again one year later for the dehalococcoides population.
- Inject KB-1 Plus in three injection wells; conduct baseline sampling and collect samples again one year later for dehalococcoides population.

Site ST027 is a small TCE plume with no history of EVO injections. This site is currently an MNA site. Conducting EVO injections does change the selected remedy so if we decide that this demonstration works and we want to apply this technology at this site, we would have to do a ROD amendment. (map also provided, see attachment 8). For Site ST027:

- Install two new upgradient injection wells and one new monitoring well, in which we would we would inject EVO only.
- Install two downgradient injection wells and use an existing monitoring well for the injecting the KB-1 Plus in conjunction with the EVO. The same data collection will apply here as with site SD036.

Ms. Constantinescu asked if there are any concern of cross migration, and if the two locations have the same subsurface conditions. Mr. Gamlin said that the EVO only study area is on the upgradient side of the site, so there is no concern for migration, and the subsurface is the same for both areas.

4. New Action Item Review

None.

5. PROGRAM/ISSUES/UPDATE

None.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Travis AFB	AFCEC's Travis Restoration Team and Travis AFB will continue to pursue opportunities for the beneficial reuse of treated water. Current possibilities include: Rerouting treated water from the central plant to the duck pond or as irrigation as an energy reduction project with the intent of reducing on-base water usage. Due date will remain TBD to ensure this action item remains visible. Update: Mr. Duke informed the group that Travis AFB is considering the use of treated water during EVO injection at Site FT005 as opposed to potable water. New Action Item 5 added as a	TBD	Open

		follow-up.		
2.	Mark Smith	Mr. Smith to provide updates on PFOS and PFOA as he becomes aware of them. Update: Mr. Smith stated that he has received the final preliminary assessment report from AFCEC. Direction from AFCEC for follow on steps has not yet been provided.	Ongoing	Open
3.	Adriana Constantinescu	Ms. Constantinescu will schedule a site visit of all the oil water separator sites (OWS), when she is available.	TBD	Closed
4.	Travis AFB	Provide Ms. Constantinescu/RWQCB one week notification via email before construction begins at Site SS014 Bioreactor Installation	TBD	Open
5.	Mr. Smith	Extend an invite to the RAB members for the Travis AFB site tour.	23 Oct 2015	Closed