

**Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
19 October 2017, 1400 Hours**

Mr. Lonnie Duke of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Section (ISS) conducted the Restoration Program Manager's (RPM) meeting on 19 October 2017 at 1400 hours in Building 248 at Travis AFB, California. Attendees included:

Lonnie Duke	AFCEC/CZOW
Glenn Anderson	AFCEC/CZOW
Milton 'Gene' Clare	AFCEC/CZOW
Angel Santiago Jr.	AFCEC/CZOW
Merrie Schilter-Lowe	Travis AFB/PAO
Dr. Haekyung Kim	AFCEC/CZRW
Rafael Vazquez	AFCEC/CZRW
Dezso Linbrunner	USACE-Omaha
Adriana Constantinescu	RWQCB
Ben Fries	DTSC
Nadia Hollan Burke	USEPA
Indira Balkissoon (via telephone)	Techlaw, Inc
Jeff Gamlin	CH2M
David Bennett	CH2M
Mike Wray	CH2M

Handouts distributed prior to or at the meeting, discussions, and presentations included:

Attachment 1	Meeting Agenda
Attachment 2	Master Meeting and Document Schedule
Attachment 3	SBBGWTP Monthly Data Sheet (September 2017)
Attachment 4	CGWTP Monthly Data Sheet (September 2017)
Attachment 5	LF007C GWTP Monthly Data Sheet (September 2017)
Attachment 6	ST018 Monthly Data Sheet (September 2017)
Attachment 7	Presentation: Triad Discussion: Site TA500 Site Closure
Attachment 8	Presentation: 2017 Field Work Review

1. ADMINISTRATIVE**A. Previous Meeting Minutes**

The 20 September 2017 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from August 2017 were reviewed.

Action item 1 is ongoing: Ms. O'Sullivan to provide updates on perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). 19 October 2017 update: Mr. Duke provided an update in Ms. O'Sullivan's absence. The last four (4) samples will be collected on 23 October 2017, on the flightline during closure for rubber removal, as part of the Site Inspection (SI).

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 meeting will be a teleconference held on Wednesday 15 November, at 0930 hours.

Travis AFB Master Document Schedule

- Community Relations Plan (CRP): No change was made to the schedule. Travis will send the document to AFCEC Public Affairs for review before submitting the draft to the regulators.
- Work Plan for the Fourth Five-year Review: No change was made to the schedule. Travis AFB emailed RTCs to EPA on 18 October 2017.
- Amendment to the WABOU Soil ROD for Travis AFB ERP Sites DP039, SD043, and SS046: No change was made to the schedule.

- Potrero Hills Annex (FS, PP, and ROD): No change was made to the schedule. Mr. Anderson said the contractor is conducting additional sampling, installing four (4) new monitoring wells, and drilling one (1) borehole for soil sample analyses.
- Data Gap Investigation Results Technical Memorandum for Soil Sites SD033, SD043, and SS046: No change was made to the schedule, although EPA requested additional time for review.
- Data Gap Investigation Results Technical Memorandum for Soil Site SS016: Predraft to AF/Service Center date changed to 4 October 2017, to reflect the actual date; the rest of the dates were changed accordingly.
- Quarterly Newsletters (October 2017): No change was made to the schedule.
- 2016 Annual GRISR: No change was made to the schedule.
- 2016 Annual CAMU Monitoring Report: The Response to Comments, and Final due date was changed to 6 October 2017, to reflect the actual date.
- Site TS060 Removal Action Completion Report: No change was made to the schedule.
- POCO Evaluation/Closure Report for DERA-funded Oil/Water Separators OW051, OW053, and OW054: Response to Comments and Final Due dates were changed to 3 October 2017.
- POCO Evaluation/Closure Report for DERA-funded Oil/Water Separators OW040, OW047, OW048, OW049, OW052, OW050, OW052, OW055, OW056, and OW057. Draft to Agencies Due date was changed to 10 November 2017; the rest of the dates were changed accordingly.
- Site ST032 POCO Well Decommissioning and Site Closeout Technical Memorandum: Response to Comments and Final Due date changed to 27 September 2017 to reflect the actual date.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant, September 2017 (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.8% uptime, and 5.8 million gallons of groundwater were extracted and treated in September 2017. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 127.0 gallons per minute (gpm). Electrical power usage was 16,127 kWh, and approximately 12,734 pounds of CO₂ were created (based on DOE calculation). Approximately 1.58 pounds of volatile organic compounds (VOCs)

were removed in September. The total mass of VOCs removed since startup of the system is 490.9 pounds.

Optimization Activities for SBBGWTP: Based on two aquifer tests conducted in June 2017, it was determined that five (5) new extraction wells would be needed to optimize removal of residual 1,2-DCA at Site FT005. The well installations were started in September and will be completed in October 2017.

Central Groundwater Treatment Plant, September 2017 (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 79.7% uptime with approximately 1,249,160 gallons of groundwater extracted and treated in September 2017. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 34.1 gpm. Electrical power usage was 2,058 kWh for all equipment connected to the Central Plant, and approximately 2,411 pounds of CO₂ were generated. Approximately 2.59 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 11,473 pounds.

Optimization Activities for CGWTP: No optimization activities are reported for the month of September 2017.

LF007C Groundwater Treatment Plant, September 2017 (see Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 18.8% uptime with approximately 38,772 gallons of groundwater extracted and treated in September 2017. All treated water was discharged to the Duck Pond for beneficial reuse. The average flow rate was 4.5 gpm. This plant operates on solar power only. Approximately 3.46×10^{-4} pound 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 174.38 pounds.

Optimization Activities for LF007C GWTP: No optimization activities are reported for the month of September 2017.

Note: On 6 September, the LF007C GWTP was shut down because of high pressures; the shutdown was not identified until 13 September when the system was planned to be shut down because of the potentially false-positive TPH exceedances. On 14 September, the system was restarted for 2 hours prior to collecting the additional confirmation samples. The system was shut down after the samples were collected, and remained off line for the remainder of the reporting period.

Mr. Wray followed up regarding the TPH exceedances saying that we collected samples for VOCs and SVOCs, and there was no fuel components reported, which

suggests there isn't a fuel problem. Ms. Constantinescu stated that the RWQCB recommendation is to verify groundwater quality to confirm if there is discharge from the groundwater to the creek. The RWQCB recommends collecting TPHD/MO from a background well where we know we do not have TPHD/MO as chemicals of concern (COC). Test for TPHD/MO with Silica Gel Cleanup (SGC) and without, and to include other monitoring wells in the area closer to the creek. Mr. Wray said that it will be difficult to find a background well to sample, because they are all downgradient from the landfill. Ms. Constantinescu countered that Title 27 states that there needs to be a background well near the landfill to check groundwater quality. Mr. Gamlin added that TPH analyses includes a lot of components that aren't petroleum, it could be bacteria or many other things. We analyzed for VOCs and SVOCs, looking for TPH components and got non-detects for BTEX and naphthalene, the chemicals you would normally find associated with petroleum. This suggests that it makes more sense to analyze for VOCs and SVOCs for the risk components associated with petroleum. Mr. Gamlin added that he looked at the chromatograms, and because the concentrations are so low, the curves look like some kind of natural biogenic material, but the curves aren't strong enough to conclusively confirm this.

ST018 Groundwater (MTBE) Treatment Plant, September 2017 (see Attachment 6)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 84.8% uptime with approximately 211,650 gallons of groundwater extracted and treated in September 2017. All treated water was discharged to the Fairfield – Suisun Sewer District. The average flow rate for the ST018 GWTP was 5.4 gpm. Electrical power usage for the month was 119 kWh for all equipment connected to the ST018 GWTP. The total CO₂ equivalent, including an estimate for the carbon change-out, equates to approximately 88 pounds. Approximately 0.50 pound of BTEX, MTBE and TPH was removed in September by the treatment plant, and approximately 0.13 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 42.7 pounds, and the total MTBE mass removed since startup of the system is 10.6 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 four groundwater extraction pumps in the system are all solar powered.

Optimization Activities for ST018 GWTP: No optimization activities to report for the month of September 2017.

Mr. Gamlin said that the pulsed mode study at ST018 GWTP has begun. All extraction wells, except for the one most downgradient extraction well (EW2019x18), were turned off for two weeks. The wells were then all turned back on and samples were collected on Monday, 16 October 2017. The pulsed mode is being conducted to determine if it captures more MTBE.

3. Presentations:

A) Triad Discussion: Site TA500 Data Gap Investigation (See Attachment 7)

Mr. Gamlin provided a Triad update on the Site TA500 Data Gap Investigation Update. See Attachment 7 for details. Highlights of the presentation include:

Note: This is a Compliance site, and therefore is not in the CERCLA program. In 1996 when the WABOU Remedial Investigation (RI) was completed, the conclusion in the RI was that this site was going to be addressed in the Compliance Program. This site is still in the RI phase.

This site is located off base, just outside the north gate.

TA500 Background, Drinking Water Storage and Treatment Site:

- Hydrofluorosilicic acid is used to fluoridate drinking water.
- Two hydrofluorosilicic acid spills occurred at this site: A pinhole leak in the 4,000 gallon above ground storage tank (AST) in 1989, and 53 gallons released from a drum that was punctured by a forklift in 1992.
- The AST was removed in 1992 and approximately 47 cubic yards of soil was excavated (DTSC issued a no further action (NFA) determination for the drum spill soil cleanup).

Fluoride Fate and Transport:

- The fluorosilicate anion is not expected to persist in the environment. It naturally attenuates over time.
- Readily dissociates to hydrogen gas, fluoride ions, and hydrated silica.
- Fluoride adsorbs to aluminum and iron oxides.
- Fluoride has low mobility due to adsorption and natural attenuation.

Fluoride Groundwater Concentration Considerations:

- USEPA MCL = 4 mg/L. Health risk: pain and tenderness of major joints.
- CA MCL = 2 mg/L. Cosmetic risk; tooth discoloration in children. Travis AFB is using CA MCL (2 mg/L) as a standard.
- Optimal drinking water level to prevent tooth decay is 1.2 mg/L. It was lowered in 2015 to 0.7 mg/L by the U.S. Department of Health and Human Services.

TA Investigation History:

- Investigated as part of the WABOU RI in 1996. Soil Fluoride concentrations 552 to 4,470 mg/kg outside of the excavation area.

- 2009 DPT Investigation. Maximum groundwater concentrations of 109 J and 547 J mg/L, in one spot, on north side of the building near historical releases.
- Non-detect or low J-flagged values up gradient and cross gradient.
- Immediately downgradient from the release the detection was 1.1 mg/L. Indicating that Fluorosilicate is not mobile.

TA500 Data Gaps Investigations 2015 – 2017:

- Refine vertical and horizontal extent of contamination.
- Drilled nine (9) soil borings.
- Installed six (6) monitoring wells.
- Analyzed for fluoride and pH (pH as indicator, because it was an acid release).

All the soil samples from the data gap investigation were below the RSL of 3,100 mg/kg. The highest fluoride concentration was 280 mg/kg. The initial groundwater results were all below California MCL of 2 mg/L. We planned to sample during a wet season to confirm the low detections, and then we proceeded into a period with one of the wettest winters in the past century.

Quarterly sampling completed through 2016-2017. Monitoring wells MW2226x500 and MW2229x500 had minor exceedances, all other wells were non-detect. In January 2017, the groundwater elevation increased by 6 ft. in the saturated vadose zone. See all fluoride dataset results in Attachment 7.

TA500 Aquifer Conditions:

Note: An aquifer test was conducted in well MW2229x500 to get a better idea of aquifer properties at the site. After the pumping test was completed, the last sample collected was below the MCL 2.0 mg/L.

- Shallow bedrock (outcrops at the northern end of this site).
- Thin alluvial zone above the water table.
- Residual fluoride is within bedrock adjacent to the historical releases with minimal migration potential.
- Low hydraulic conductivity and minimal groundwater production capacity.

TA500 Aquifer Test at MW2229x500:

- Minimal groundwater production capacity (~0.25-0.35 gallons per minute).
- Low hydraulic conductivity (2 ft. per day) limits potential for migration of residual fluoride.
- Decreasing concentrations during test. Fluoride concentrations was 1.8 mg/L at the end of this test. If there was a hotspot of concentration, the fluoride concentration would be expected to go up, not down. We ended up with a lower concentration than we started with, and it was below the California MCL of 2.0 mg/L.

TA500 95% UCL Evaluation:

- The site is very small with six (6) monitoring wells in close proximity to each other. It is appropriate to evaluate the data set using 95% upper confidence limit (UCL) methods.
- The calculated 95% UCL concentration is 1.623 mg/L, which is below the CA MCL of 2 mg/L.

Based on multiple lines of evidence using available data and the conceptual site model, the results of the investigation lead to the conclusions that NFA is required and TA500 should be closed.

Mr. Fries asked if there is a domestic well nearby, and if so, how close is it to TA500? Mr. Anderson said there is one private well across the street, across the groundwater gradient, and fairly far away. The resident uses it for cooking, showers, etc.

Mr. Gamlin said we are still technically in the RI phase with this site. So we would need to submit a Final RI Report. He asked the following questions: Based on what you've seen, is this enough data? Do we need to do another wet season? Mr. Fries asked how many gallons were released. Mr. Gamlin answered 53 gallons total. Ms. Constantinescu asked if pH levels were collected, stating that the RWQCB goal is in range of 6.5 to 8.0. Mr. Gamlin said he didn't know the value off the top of his head, but it was in that range, high 6's.

Ms. Burke stated she was not sure if it was taken out of CERCLA or just if the remedy deferred for further investigation. If it was taken out of CERCLA, then it would be RWQCB decision. Mr. Gamlin said the 1996 WABOU RI states that it will be removed from CERCLA and placed into Compliance. Ms. Constantinescu said we do have 8 quarters of data, samples were collected during the draught and during a very wet season, and she thinks this should be a sufficient number of sample data-points. She added that she will consider what was presented, and be ready to discuss this topic next month. Right now, it looks like it is ready for NFA.

B) 2017 Field Work Review (See Attachment 8)

Mr. Wray reported on the Field Work conducted during the 2017 field season. Please refer to Attachment 8 for details.

C) Program Update: Activities Completed, In Progress, and Upcoming (see Attachment 9)

Mr. Wray reported on the status of fieldwork and documents which are completed, in progress, and upcoming. Please refer to Attachment 9 for the full briefing.

4. New Action Item Review

No new action items were identified during the October RPM meeting.

5. PROGRAM/ISSUES/UPDATE

Mr. Fries reported that he is being trained on the Department of Defense - State Memorandum of Agreement (DSMOA), which was supposed to be completed by 28 September 2017. He noted that he will be responsible for multiple sites of varying complexity, Travis AFB will be the last one he does, because it is the most complex.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Monika O'Sullivan	Ms. O'Sullivan to provide updates on PFOS and PFOA as she becomes aware of them.	Ongoing	Open