

**Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
18 January 2017, 0930 Hours**

Mr. Lonnie Duke of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Team (IST) conducted the Restoration Program Manager's (RPM) teleconference meeting on 18 January 2017 at 0930 hours in Building 248 at Travis AFB, California. Attendees included:

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| Lonnie Duke | AFCEC/CZOW |
| Glenn Anderson | AFCEC/CZOW |
| Angel Santiago Jr. | AFCEC/CZOW |
| Milton 'Gene' Clare | AFCEC/CZOW |
| Monika O'Sullivan | AFCEC/CZOW |
| William Hall (via telephone) | AFCEC/CZR |
| Merrie Schilter-Lowe | Travis AFB 60 AMW/PA |
| Dezso Linbrunner (via telephone) | USACE-Omaha |
| Adriana Constantinescu (via telephone) | California Regional Water Quality Control Board (RWQCB) |
| Ben Fries (via telephone) | DTSC |
| Nadia Hollan Burke (via telephone) | USEPA |
| Indira Balkissoon (via telephone) | Techlaw, Inc. |
| Mike Wray | CH2M |

Handouts distributed at the meeting, discussions and presentations included:

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| Attachment 1 | Meeting Agenda |
| Attachment 2 | Master Meeting and Document Schedule |
| Attachment 3 | SBBGWTP Monthly Data Sheet (December 2016) |
| Attachment 4 | CGWTP Monthly Data Sheet (November/December 2016) |
| Attachment 5 | LF007C Monthly Data Sheet (November/December 2016) |
| Attachment 6 | ST018 Monthly Data Sheet (November/December 2016) |
| Attachment 7 | Presentation: Program Update |

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 16 November 2016 RPM meeting minutes were approved and finalized as written with the following exception. On page 5, 3rd paragraph, 4th sentence. Ms. Constantinescu requested the following sentence to read: “Ms. Constantinescu said that she would like to have a discussion regarding the SGC method; stating that the Water Board, Region 2, does not agree with the use of this methodology for testing the treated water. The SGC method removes both biogenic organic compounds and petroleum metabolites, and does not distinguish between the two. In addition, the SGC method is an additional cost to the extractable analysis.”

The revision noted above were made to the 16 November 2016 RPM meeting minutes.

B. Action Item Review.

Action items from November 2016 were reviewed.

Action item 1 is ongoing: Ms. O’Sullivan to provide updates on perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). 18 January 2017: Ms. O’Sullivan said that they are still in the process of getting the informal biological assessment from the contactor.

Action item 2 is closed: Mr. Duke to notify the regulatory agencies when SBBGWTP is back online. 18 January 2017: Update, Mr. Duke sent an email to the regulators over the holiday informing them that the treatment plant was restarted on 20 December 2016.

Action item 3 is closed: Mr. Wray will investigate why LF007CGWTP known for not being a TPHD/MO site, is getting TPHd detection when not using the SGC method. 18 January 2017: Update, Ms. Constantinescu suggested not to use SGC as it is an additional cost and the Water Board does not agree with this method. Mr. Wray said it appears that the TPHD/MO detections are still seen occasionally, and that if the Water Board agrees, the TPHD/MO hits will be documented as biogenic. Ms. Constantinescu said that the Water Board will support the explanation that this is not a known TPHD/MO site.

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 face-to-face meeting, which will be held on Wednesday, 15 February 2017, at 0930 hours.

Travis AFB Master Document Schedule

- Community Involvement Plan (CIP): No change to the schedule. Mr. Anderson is reviewing EPA RTCs. A teleconference has been proposed to discuss EPA RTCs in the afternoon on 19 January 2017. Mr. Fries asked if Travis AFB has received any comments from DTSC, Regional 1, Public Information Specialists. Mr. Anderson said they have not heard anything yet. Mr. Fries will follow-up with DTSC Specialists. Ms. Burke said she will be on leave starting 20 January 2017 returning on 9 February 2017 and if anything urgent arises to email Loren Henning/EPA.
- Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Mr. Anderson said that Travis AFB has had some dialogue with the Water Board representative and they are close to completing their cleanup and abatement order. Yemia Hashimoto did provide some text for Travis AFB to review. Ms. Constantinescu indicated the proposed tentative order will be released to Travis AFB sometime before the end of January 2017 and will have a 30 day review period.
- Site TS060 Removal Action Work Plan: The Response to Comments date and Final Date was changed to 23 February 2017. No other changes were made to the schedule. Travis AFB is working on EPA RTCs.
- Site LF044 Investigation Work Plan: No change was made to the schedule. Travis AFB is working on EPA RTCs.
- Site SS016 Risk Assessment Technical Memorandum: Predraft to AF/Service Center was changed to 28 March 2017, the rest of the dates were changed accordingly.
- Sites SD033, SD043, and SS046 Risk Assessment Technical Memorandum: New document: Predraft to AF/Service Center scheduled for 30 March 2017, the rest of the dates were populated accordingly.
- Site FT004 POCO Soil Data Gap Investigation Work Plan: Response to Comments Due and Final Due date changed to 28 February 2017. No other changes were made to the schedule.
- Quarterly Newsletters (January 2017): Draft to Agencies date updated to 10 January 2017 to reflect the first quarter 2017 newsletter, the rest of the dates were changed accordingly.
- 2016 Annual GRISR: New document, and all dates are to-be-determined (TBD).
- Site DP039 Remedial Action Construction Completion Report: Response to Comments Due and Final Due dates were changed to 27 January 2017. No other changes were made to the schedule. Mr. Anderson provided RTCs to EPA.

- Multi-Site Technology Demonstration Construction Completion Report: The AF/Service Center Comments Due date was changed to 13 January 2017. The rest of the dates were updated accordingly.
- 2016 Annual CAMU Monitoring Report: New document populated with all new dates.
- Site SD034 Technology Demonstration Construction Completion Report: New document populated with all new dates.
- POCO Evaluation/Closure Report for DERA-funded Oil/Water Separators OW051, OW053, and OW054: Draft to Agencies was changed to 19 January 2017, the rest of the dates were changed accordingly.
- Site ST028 POCO Well Decommissioning and Site Closeout Technical Memorandum: Draft to Agencies was changed to 13 January 2017 to reflect the actual date, the rest of the dates were changed accordingly.
- POCO Evaluation/Closure Report for DERA-funded Oil/Water Separators OW040, OW047, OW048, OW049, OW052, OW055, and OW057. New document, populated with all new dates.
- Site SS014 POCO Technology Demonstration Construction Completion Report: Predraft to AF/Service Center date updated to 24 February 2017, the rest of the dates were changed accordingly.
- Action Memorandum for Non-Time Critical Removal Action at Site TS060 (Old Skeet Range): Moved to history.
- Sites ST028 and ST032 POCO Well Decommissioning Work Plan: Moved to history.
- Site FT005 Technology Demonstration Construction Completion Report: Moved to history.
- 2015 Annual GRISR: Moved to history.
- Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum: Moved to history.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant, December 2016 (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 68.9% uptime, and 2.0 million gallons of groundwater were extracted and treated during the month of December 2016. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 91.3 gallons per minute (gpm).

Electrical power usage was 9,883 kWh, and approximately 7,313 pounds of CO₂ were created (based on DOE calculation). Approximately 0.55 pound of volatile organic compounds (VOCs) was removed in December. The total mass of VOCs removed since startup of the system is 482.4 pounds.

Optimization Activities for SBBGWTP: No optimization activities are reported for the month of December 2016.

Central Groundwater Treatment Plant, November 2016 (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1,419,000 gallons of groundwater extracted and treated during the month of November 2016. All treated water was discharged to the storm sewer. The average flow rate for the CGWTP was 35.1 gpm. Electrical power usage was 2,340 kWh for all equipment connected to the Central Plant, and approximately 2,620 pounds of CO₂ were generated. Approximately 2.43 pounds of VOCs were removed from groundwater by the treatment plant in November. The total mass of VOCs removed since the startup of the system is 11,449 pounds.

Optimization Activities for CGWTP: No optimization activities are reported for the month of November 2016.

Note: The Site DP039 bioreactor is currently undergoing an optimization effort to determine the most effective pulse mode duration to optimize distribution of TOC in the subsurface.

Central Groundwater Treatment Plant, December 2016 (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1,620,650 gallons of groundwater extracted and treated during the month of December 2016. All treated water was discharged to the storm sewer. The average flow rate for the CGWTP was 35.0 gpm. Electrical power usage was 2,721 kWh for all equipment connected to the Central Plant, and approximately 2,902 pounds of CO₂ were generated. Approximately 3.0 pounds of VOCs were removed from groundwater by the treatment plant in December. The total mass of VOCs removed since the startup of the system is 11,452 pounds.

Optimization Activities for CGWTP: No optimization activities are reported for the month of December 2016.

Note: The Site DP039 bioreactor is currently undergoing an optimization effort to determine the most effective pulse mode duration to optimize distribution of TOC in the subsurface.

LF007C Groundwater Treatment Plant, November 2016 (see Attachment 5)

Subarea LF007C Treatment Plant (LF007CGWTP) performed at 87.33% uptime with approximately 104,895 gallons of groundwater extracted, treated and released to the Duck Pond during the month of November 2016. The average flow rate at the LF007C was 2.9 gpm. Electrical power use was 0 kWh for all the equipment connected to the LF007C plant; and 0 pounds of CO₂ was generated; this system is 100 percent off the power grid. Approximately 1.16×10^{-3} pound of VOCs was removed from the groundwater in November. The total mass of VOCs removed since the startup of the system is 174.36 pounds.

Optimization Activities for LF007CGWTP: No optimization activities are reported for the month of November 2016.

LF007C Groundwater Treatment Plant, December 2016 (see Attachment 5)

Subarea LF007C Treatment Plant (LF007CGWTP) performed at 62.5% uptime with approximately 44,691 gallons of groundwater extracted, treated and released to the Duck Pond during the month of December 2016. The average flow rate at the LF007C was 3.6 gpm. Electrical power use was 0 kWh for all the equipment connected to the LF007C plant, and 0 pounds of CO₂ was generated; this system is 100 percent off the power grid. Approximately 7.60×10^{-4} pound of VOCs was removed from the groundwater in December. The total mass of VOCs removed since the startup of the system is 174.36 pounds.

Optimization Activities for LF007CGWTP: No optimization activities are reported for the month of December 2016.

The LF007C Groundwater Treatment Plant was taken offline as of 11 December 2017, in accordance with the US Fish and Wildlife Service requirements, due to the presence of standing water in the vernal pools.

Ms. Balkissoon asked why acetone is not listed in table 4, but is listed in the GRISR.

Ms. Burke asked why total dissolved solids (TDS) are measured when there isn't any limitation. She also questioned how the uptime for December's GWTP is calculated, and why the restart day is missing in table 1.

Mr. Wray will investigate and report back during next month's RPM meeting.

ST018 Groundwater (MTBE) Treatment Plant, November 2016 (see Attachment 6)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 151,385 gallons of groundwater extracted and treated during the month of November 2016. All treated water was discharged to the sanitary sewer. The average flow rate for the ST018 GWTP was 3.7 gpm. Electrical power usage for the month was 91 kWh for all equipment connected to the ST018 GWTP. The total CO₂ equivalent,

including an estimate for the carbon change-out, equates to approximately 467 pounds. Approximately 0.26 pound of BTEX, MTBE and TPH was removed in November by the treatment plant and approximately 0.06 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 40.0 pounds, and the total MTBE mass removed since startup of the system is 9.8 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 ST018GWTP: No optimization activities to report for the month of November 2016.

ST018 Groundwater (MTBE) Treatment Plant, December 2016 (see Attachment 6)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 99.9% uptime with approximately 162,380 gallons of groundwater extracted and treated during the month of December 2016. All treated water was discharged to the sanitary sewer. The average flow rate for the ST018 GWTP was 3.4 gpm. Electrical power usage for the month was 96 kWh for all equipment connected to the ST018 GWTP. The total CO₂ equivalent, including an estimate for the carbon change-out, equates to approximately 471 pounds. Approximately 0.15 pound of BTEX, MTBE and TPH was removed in December by the treatment plant and approximately 0.04 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 40.1 pounds, and the total MTBE mass removed since startup of the system is 9.8 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 ST018GWTP: No optimization activities to report for the month of December 2016.

Presentation:

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

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

Newly Completed Documents: FT005 Technology Demonstration Construction Completion Report; Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum.

Newly Completed Fieldwork: Multi-site Bioaugmentation and EVO injection; SD034 Technology Demonstration Bioreactor Installation.

In-Progress Documents (CERCLA): Community Involvement Plan; Site DP039 Remedial Action Construction Completion Report; Site TS060 Removal Action Work Plan; Site LF044 Investigation Work Plan.

In-Progress Documents (POCO): Site FT004 POCO Soil Data Gap Investigation Work Plan; ST028 POCO Well Decommissioning/Site Closeout Technical Memorandum.

In-Progress Fieldwork (CERCLA): None.

In-Progress Fieldwork (POCO): None.

Planned Documents (CERCLA): Multi-site Technology Demonstration Construction Completion Report (January); 2016 Annual CAMU Monitoring Report (March); SD034 Technology Demonstration Construction Completion Report (April); SD033, SD043, SS046 Risk Assessment Tech Memo (April); SS016 Risk Assessment Technical Memorandum (April); 2016 Annual GRISR (TBD); SD031 Background Soil Study Work Plan (TBD).

Planned Documents (POCO): POCO Evaluation/Closeout Report for DERA-funded oil/water separators OW051, OW053 and OW054 (January); Site SS014 POCO Technology Demonstration Construction Completion Report (March); POCO Evaluation/Closure Report for DERA-funded Oil/Water Separators OW040, OW047, OW048, OW049, OW052, OW055, and OW057 (March).

Fieldwork Planned (CERCLA): Site LF044 Sediment Sampling (2017); Site TS060 Removal Action (2017); DP039 Installation of Down-gradient Monitoring Wells (2017); SD031 Background Soil Sampling (2017).

Fieldwork Planned (POCO): Site FT004 POCO Soil Data Gap Investigation (2017); OW055 Sidewalk Repairs (2017); OW056 Site Excavation/Closure (2017).

Technology Demonstration Projects:

- SS014: Recycled Drywall SBGR.
 - Evaluate the effectiveness of sulfate (gypsum from crushed drywall) to enhance anaerobic biodegradation of petroleum in groundwater.
 - Installation to be completed November 2016.
 - Too early to evaluate performance data.
- Multisite Bioaugmentation: EVO and KB-1 Plus.
 - Evaluate if addition of bioaugmentation substrate to an EVO injection will increase the rate of CVOC degradation.
 - Injections not complete yet (Nov 2016).

- Too early to evaluate performance data.
- SD034: Washboard SBGR.
 - Evaluate the effectiveness of an oxygen-enhanced aerobic SBGR on reducing TPH as diesel (TPH-D) in groundwater.
 - Installation to be completed November 2016.
 - Installed six (6) SBGR trenches, In process of evaluating need/constructability of installing the 7th trench.
 - Too early to evaluate performance data.
- FT005: Distribution of EVO and KB-1 Plus.
 - Evaluate total organic carbon (TOC) dispersion distances and rates for optimizing the remediation of 1,2-dichloroethane (DCA) in groundwater.
 - Installation completed May 2016.
 - Too early to evaluate performance data.
- FT004: Distribution of EVO via SBGR and/or Groundwater Extraction.
 - Determine effectiveness of TOC distribution through two different enhanced reductive dechlorination (ERD) approaches: (1) groundwater TOC recirculation using a combination EVO injection, infiltration SBGR trenches, and groundwater extraction; and (2) EVO injection with groundwater extraction.
 - Installation completed April 2016.
 - Too early to evaluate performance data.
- SD031: EVO distribution via Gravel Chimneys.
 - Determine if EVO injection and recirculation of groundwater through gravel chimneys can effectively distribute TOC horizontally in the subsurface to support ERD of 1,1-dichloroethene (DCE).
 - Installation completed in April 2015.
 - Early indications:
 - Reducing conditions have initiated as expected throughout the TD area and are supporting anaerobic degradation.
 - TOC concentrations are increasing at several wells.
 - 1,1-DCE (primary COC) concentrations have reduced by 57% (sum of key wells within TD area).
 - Total Molar concentration (sum of CVOCs) has reduced by 49% (sum of key wells within TD area).
 - Recirculation through chimneys has been successful relative to our design assumptions.

4. New Action Item Review

- Mr. Wray will investigate 1) Why acetone is not listed in table 4 of the South Base Boundary GWTP Report, but it is listed in the GRISR. 2) Why is total dissolved solids (TDS) measured when there isn't any discharge limitation. 3) The uptime calculation for December's LF007C GWTP, and the restart date is missing in table 1.

5. PROGRAM/ISSUES/UPDATE

None.

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 |
| 2. | Mike Wray | Mr. Wray will investigate 1) Why acetone is not listed in table 4 of the South Base Boundary GWTP, but it is listed in the GRISR. 2) Why is total dissolved solids (TDS) measured when there isn't any limitation. 3) The uptime calculation for December's LF007C GWTP Monthly Data Sheet, and the restart date is missing in table 1. | 15 February 2017 | Open |