

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

18 February 2015, 0930 Hours

Mr. Mark Smith, of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Team (IST), conducted the Restoration Program Manager's (RPM) meeting, on 18 February 2015 at 0930 hours, in Building 248 at Travis AFB, California. Attendees included:

- Mark Smith AFCEC/CZOW
- Lonnie Duke AFCEC/CZOW
- Erin Hernandez Travis AFB 60 AMW/JA
- 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
- Mike Wray CH2M HILL
- Ashley Shaddy CH2M HILL

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 (January 2015)
- Attachment 4 CGWTP Monthly Data Sheet (January 2015)
- Attachment 5 ST018 Monthly Data Sheet (January 2015)
- Attachment 6 Presentation: OWS Work Plan
- Attachment 7 Presentation: DP039 RD/RA Work Plan
- Attachment 8 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 21 January 2015 RPM teleconference meeting minutes were approved as modified with the following suggestions. Ms. Burke suggested that the new action items 3 and 4 should be added to the discussions where applicable in the minutes. Ms. Constantinescu requested that a new action regarding the Notice of Violation (NOV) for Potrero Hills Annex be added to the action items list. No other comments were provided.

B. Action Item Review.

Action items from January 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. 18 February 2015: No updates.

Action item 2 is now closed: Mr. Smith provided a status update on programming efforts for soil characterization at Site SD031. Mr. Smith said this project was added to the FY2016 RI/FS work and that a ROD amendment to the existing 2006 Soil Sediment and Surface Water ROD needs to be presented. Mr. Smith added that accelerated funding in 2015 would expedite the effort and that it would be accomplished via a contract mod to the current PBC.

Action item 3 is open: Mr. Hall to determine the time requirements and signature process for getting the AFCEC signature on the upcoming ROD Amendments. The due date of 18 February 2015 was changed to TBD due to Mr. Hall's absence from the meeting.

Action item 4 is open: Mr. Hall to review the ASTM E2893 Standard Guide for Greener Cleanups and what historically has been done along the lines of GSR. The due date of 18 February 2015 was changed to TBD due to Mr. Hall's absence from the meeting.

Action item 5 is open: Mr. Hall to ask if we can use DERA funds for the beneficial reuse of treated groundwater under AFCEC's "net-zero energy policy". The due date of 18 February 2015 was changed to TBD due to Mr. Hall's absence from the meeting.

Action item 6 is closed: Ms. Constantinescu to provide the RQWCB site closure summary form to Mr. Smith for distribution. Ms. Constantinescu provided the site closure summary as well as an example to Travis AFB.

Action item 7 is open: Mr. Smith to provide updates on PFOS and PFOA as he becomes aware of them. The Air Force is implementing an enterprise wide preliminary assessment on AFFF use at its Bases. Non-fire training areas as well as fire training areas are being considered. Any area where AFFF was discharged into the environment. Mr. Smith questioned how a preliminary assessment can be

conducted when AFFF with PFCs is still being used. He has communicated that to AFCEC Leadership. The Air Force has begun these PAs in response to EPA concerns.

Action item 8 is closed: Ms. Constantinescu to ask for guidance from her management to see if any action is required from Travis AFB regarding the Potrero Hills cleanup order. Ms. Constantinescu said at this time the RWQCB does not have any expectations from Travis AFB. AutoLiv, the responsible party, has responded to the NOV and is coordinating with RWQCB agency. AutoLiv provided the RWQCB with a new due date for a revised work plan (WP) for the remedial investigation.

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 meeting held on 18 March 2015 at 10:00. Ms. Burke mentioned that the RPM Wednesday meetings conflict with a new project she was just assigned. Mr. Smith said he would schedule a teleconference before 13 March 2015 with the regulatory agencies, Mr. Linrunner and Mr. Wray to discuss the RPM schedule.

Travis AFB Master Document Schedule

- Travis Air Force Base Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP): The final due date was updated to 18 February 2015. No other changes were made to the schedule.
- Site SD037 GW Remedial Design/Remedial Action Work Plan: The Work Plan went final on 9 February 2015 and will be moved to history.
- Site SD036 Remedial Design/Remedial Action Work Plan: No changes to the schedule.
- Site SS016 GW Remedial Design/Remedial Action Work Plan: The response to comments due date and draft final due was changed to 2 March 2015, the final due was changed accordingly.
- Site SS015 GW Remedial Design/Remedial Action Work Plan: The agency comments due date was changed to 20 February 2015 and the RTC meeting date was changed to 26 February 2015. No other changes were made to the schedule.
- Community Involvement Plan: The draft to agencies date was changed to 27 February 2015, the rest of the dates were changed accordingly. Mr. Smith said that he would use the current community involvement plan as a base to build on. He asked Ms. Burke if she would be willing to act in an advisory capacity, because she attended a class on how to

make a document community friendly. Ms. Burke agreed. Mr. Smith is tasked to set a date with Ms. Burke to agree on new draft to agencies date.

- Site DP039 Remedial Design/Remedial Action Work Plan: The draft to agencies date was changed to 27 February 2015; the rest of the dates were changed accordingly.
- Proposed Plan for the Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision (ROD): Response to comment due date was changed to 2 March 2015, the rest of the dates were changed accordingly. Mr. Duke reminded the agencies that the Public Meeting for the Proposed Plan (PP) is scheduled to coincide with the April 2015 RAB.
- Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision: No changes to the schedule.
- Proposed Plan for the Amendment to the Soil Record of Decision for the WABOU: Response to comment due date was changed to 2 March 2015, the rest of the dates were changed accordingly.
- Amendment to the Soil Record of Decision for the WABOU: No changes to the schedule.
- Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Mr. Smith said that he, Mr. Duke and Mr. Anderson met with representatives from AutoLiv ASP, CDM Smith, UTC Aerospace Systems, and Yemia Hashimoto from the RWQCB on 29 January 2015 and took a tour of the Potrero Hills site.
- Site DP039 Lead Excavation Technical Memorandum: No changes to the schedule. Mr. Smith said that the reference to sampling was removed from the document at EPA's request. Mr. Wray asked if the document can go final. Ms. Burke agreed that the document is ready to go final. Final date will be updated in March's RPM meeting
- Site SD034 Data Gap Investigation: No changes made to the schedule.
- Site SS014 POCO Technology Demonstration Work Plan: No changes were made to the schedule.
- POCO Investigation Work Plan for Oil Water Separators: The draft to agencies date was updated to 6 February 2015 to reflect the actual date; the rest of the dates were changed accordingly.
- Old Skeet Range PAH Delineation Report: No change to the schedule.
- Site FT005 Technology Demonstration Work Plan: Predraft to AF/Service Center was updated to reflect the actual date; the rest of the dates were changed accordingly.
- POCO Site ST032 Soil Excavation Work Plan: New document, all new dates. Mr. Duke said that this site is in the middle of the flightline, not easily accessible, and might be a candidate for the low threat closure policy. Samples will be collected to verify if the screening levels fit within the low threat closure policy definition. Ms. Constantinescu asked if there is historical sample data. Mr. Duke said yes and that it will be included in the work plan (WP). Ms. Constantinescu advised that the RWQCB has environmental screening levels (ESL) and that the ESLs are very conservative. RWQCB accepts site

specific calculations based on site conditions. She gave an example of Mare Island, an industrial site, where the site cleanup levels are higher than the RWQCB ESLs. ESL cleanup level for TPHg is 200 ppb. The Mare Island site-specific ESLs cleanup level for TPHg in groundwater is 5000 ppb, and TPHd in soil is 5000 ppm. Ms. Constantinescu added that given the location and the challenges for remediation, Travis AFB should look at the historical sample data and calculate site-specific risk levels for Site ST032. The RWQCB will evaluate to determine if no further action will be required based on the existing data. Mr. Wray said that the groundwater has been characterized; however, the WP is tailored around the soil and vapor for the low threat closure policy. Ms. Constantinescu recommended a review of the existing data to calculate site-specific risk levels; there may not be a need for any further investigation. Mr. Duke said Travis AFB has soil data that is twenty years old, and suggested collecting additional soil samples. Ms. Constantinescu agreed with this approach. Mr. Smith asked if low threat closure based on site-specific ESLs at an industrial level would still require this site to be assigned land use controls (LUCs). Mr. Wray said that CH2M HILL is contractually obligated to clean up to residential levels, not industrial levels, and suggested the ESLs could be calculated based on residential levels. Ms. Constantinescu agreed with Mr. Wray's suggestion.

- Site CG508 Site Investigation/Site Closure Request Report: New document with all new dates.
- Site ST028 POCO Work Plan: New document with all new dates.
- SD031 Technology Demonstration Construction Completion Report: New document all new dates.
- Quarterly Newsletter (April 2015): New dates reflecting the second quarter.
- 2014 Annual CAMU Monitoring Report: No change to the schedule.
- 2014 Annual GRISR: No change to the schedule.
- Site ST018 POCO Work Plan Addendum: Moved to History.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 2.7 million gallons of groundwater were extracted and treated during the month of January 2015. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 77.91 gallons per minute (gpm). Electrical power usage was 8,400 kWh, and approximately 11,508 pounds of CO₂ were created (based on DOE calculation). Approximately 1.11 pounds of volatile

organic compounds (VOCs) were removed in January. The total mass of VOCs removed since startup of the system is 456 pounds.

Optimization Activities: No optimization activities are reported for the month of January.

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

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.07 million gallons of groundwater extracted and treated during the month of January 2015. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 30.8 gpm. Electrical power usage was 2,124 kWh for all equipment connected to the Central Plant, and approximately 2,910 pounds of CO₂ were generated. Approximately 2.66 pounds of VOCs were removed from groundwater by the treatment plant in January. The total mass of VOCs removed since the startup of the system is 11,393 pounds.

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

LF007C Groundwater Treatment Plant, January 2015

The LF007C Groundwater Treatment Plant was offline as of 2 December 2014, in accordance with the Biological Opinion from the US Fish and Wildlife Service, due to the presence of standing water in the vernal pools. As such, a monthly report was not prepared.

Site ST018 Groundwater (MTBE) Treatment Plant, January 2015 (see Attachment 5)

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 189,600 gallons of groundwater extracted and treated during the month of January 2015. All treated water was diverted to the sanitary sewer. The average flow rate for the ST018 GWTP was 4.21 gpm. Electrical power usage for the month was 118 kWh for all equipment connected to the ST018 GWTP, which equates to the creation of approximately 162 pounds of CO₂. Approximately 0.12 pounds of BTEX, MTBE and TPH were removed from groundwater in January from the treatment plant. Approximately 0.12 pounds of MTBE were removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 31.1 pounds. And the total MTBE mass removed since startup of the system is 6.8 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 extraction pumps in the system are all solar powered.

Optimization Activities for ST018: No optimization activities to report for the month of January.

Ms. Burke asked if there was any overflow with the recent storm in early February. Mr. Duke said that the motor starter for the pump that pushes water from the influent tank to the carbon vessels burned out, and it shut off the circuit panel. The sump pump in the secondary containment is on a different circuit, and it kept pumping. So the sump pump kept pumping into the influent tank and it just kept recirculating the groundwater with rainwater. A sample was collected from the secondary containment. The treatment plant has been rewired now so that if it were to happen again, the entire plant will shut down. Mr. Duke added that this will be in February's ST018 monthly data sheets.

Presentations:

Presentation: Oil/Water Separators – POCO Investigation Work Plan (see Attachment 6)

Ms. Shaddy reported on the Oil/Water separators – POCO investigation work plan. For details see attachment 6.

Ms. Shaddy began by showing a map of the 12 oil/water separators (OWSs) and their locations on Travis AFB. All 12 OWSs are all inactive. The objective is to remove all of the OWSs that are still in place, determine if any soil cleanup is necessary and perform cleanup of the soil to residential levels.

- All the OWSs are located in the industrial parts of the base.
- There are 4 OWSs with known exceedances. The remaining OWSs have no known exceedances in the historical data. Three of the OWSs have been removed or partially removed.
- Planned analyses: VOCs, SVOCs, TPHg, TPHd, and PAHs. Title 22 metals analyses will only be collected at the OWSs with known exceedances, or with no historical data.
- Slides 8 through 12 indicate the proposed soil boring locations in pink, red is the remedial investigation (RI) data, and blue is DERA investigation data.
- The maximum boring depths will be 15 to 20 ft. bgs.
- Post investigation activities: Prepare corrective action plan (CAP) for each OWS that requires removal and/or where soil contamination is present. If an OWS was previously removed and no contamination is present, prepare site closure request. Remove each OWS and excavate contaminated soil, if present. Prepare POCO evaluation closure request. This remedial action work is schedule to begin in 2016.

Mr. Fries asked what the plan is for the contaminated soil disposal, if present. Mr. Wray said that we are currently looking at “treat on site”. The corrective action plan will address soil disposal.

Presentation: Site DP039 Remedial Design/Remedial Action Work Plan (see Attachment 7)

Mr. Wray reported on the DP039 remedial design/remedial action work plan. Mr. Wray provided multiple site maps that included locations of wells, technology demonstrations, plume contours and wetlands (located just south of the DP039 plume).

DP039 Background:

- Site DP039 had a Battery and Electric shop located at building 755. Before 1978, battery acid solutions and chlorinated solvents were poured into a sink in building 755 and conveyed by pipeline less than 100 feet to a rock filled acid neutralization sump (the bioreactor was installed where the sump was located). This practice was discontinued in 1978, and the pipeline was dismantled and reconnected to the sanitary sewer line. In July 1993, the sump was excavated and disposed of off-base. Building 755 was demolished in 2009.
- The interim Groundwater ROD selected groundwater extraction and treatment (GET) and monitored natural attenuation (MNA) as the interim remedy. A GET system consisting of two (2) dual phase extraction wells in the source area operated from 2000 to 2008. MNA assessment was conducted for the distal portions of the plume where TCE concentrations were less than 100 µg/l. Two MNA assessments were conducted at DP039 which provided 10 years of data.
- The NAAR concluded that natural attenuation (NA) was occurring in the distal portion of the plume, however increasing concentrations in some of the monitoring wells indicated that NA alone would likely be inadequate to prevent future plume migration. In 2012 an aerobic chlorinated cometabolism enzyme study was conducted and concluded that cometabolic activity may be contributing to natural attenuation of the contaminants.
- In addition to the GET system installation and the MNA assessment, numerous technology demonstrations have been conducted at DP039: Phytoremediation study, reactive wall study (still in place, not involved with or affecting remediation), in situ bioreactor, and a technology demonstration of ERD treatment using an EVO permeable reactive barrier (PRB). In November 2008, the GET system was shut down for the installation of the in situ bioreactor.
- TCE, cis-1,2-DCE, and vinyl chloride are effectively being degraded within the biobarrier, and in situ ERD processes are achieving a high rate of VOC treatment efficiency.
- Travis AFB Groundwater ROD selected bioreactor, phytoremediation, EVO PRB, and enhanced attenuation (EA) as the final remedy for Site DP039.

Mr. Wray provided a map that showed the location of each of these remedies, a map of the plume concentrations, and the wetlands just beyond the footprint of the plume.

Conceptual Design:

- The conceptual design for the groundwater treatment is to optimize the existing bioreactor and phytoremediation components and supplement the existing EVO PRB in order to promote ERD throughout the portion of the groundwater plume where TCE concentrations exceed 500 µg/l. The existing bioreactor will be optimized by installing one (1) injection well and injecting EVO to promote greater distribution of total organic carbon (TOC) between the bioreactor and extraction well MW750x39.
- The phytoremediation system will be optimized by installing a gravel infiltration trench along the upgradient side of the phytoremediation system. Two extraction wells will be installed in portions of the plume where TCE concentrations exceed 500 µg/L. The groundwater will be conveyed to the infiltration trench. A second EVO PRB will be installed between the phytoremediation area and the existing EVO PRB. The new PRB will consist of 21 injection wells and will extend further to the northeast and to the southwest than the existing PRB, preventing TCE concentrations exceeding 500 µg/L from migrating beyond the ERD treatment area.
- Install 22 injection wells, 21 in the new PRB and 1 near the bioreactor (source area). The spacing of the injection wells within the new EVO PRB will be 30 feet based on an estimated EVO injection ROI of 15 feet. Each injection well will be drilled to consolidated bedrock. Two extraction wells, drilled to consolidated bedrock, will be installed to optimize the phytoremediation system. Six monitoring wells will be installed in the distal plume to expand the EA monitoring network. A gravel infiltration trench, approximately 75 feet long and 4 feet deep, will be installed along the upgradient edge of the phytoremediation system.
- Baseline groundwater sampling will be conducted prior to the EVO injections.

Ms. Burke questioned if this remedial design work plan deviates from the final remedy selected in the ROD. Ms. Constantinescu suggested installing two injection wells at the lower part of the plume and that would keep in spirit with what was selected in the ROD. Mr. Wray said that is a possibility, but placement is critical due to the vicinity of the wetlands.

Ms. Constantinescu gave an example of Professor John Cherry who conducted a study at a Canadian Military AFB by injecting TCE in clean soil. The study was conducted to see if a new cleanup method could be developed by knowing the subsurface geological components and the quantity of the TCE injected.

Program Update: Activities Completed, In Progress and Upcoming (see Attachment 8)

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: SD037 GW RD/RA Work Plan.

Newly Completed Field Work: SD031 Technology Demonstration Well Installation.

In-Progress Documents (CERCLA): TS060 Old Skeet Range PAH Delineation Report, Travis AFB UFP-QAPP, DP039 Lead Excavation Technical Memorandum, SD034 Data Gap Investigation Work Plan, SD036 RD/RA Work Plan, SS016 GW RD/RA Work Plan, SS015 GW RD/RA Work Plan, Proposed Plan for the Amendment to WABOU Soil ROD, Proposed Plan for the Amendment to NEWIOU Soil, Sediment, & Surface Water ROD.

In-Progress Documents (POCO): SS014 POCO Technology Demonstration Work Plan.

In-Progress Field Work: SD031 Trench Installation, SD031 EVO Injection.

Upcoming Documents (CERCLA): DP039 RD/RA Work Plan, Community Involvement Plan, FT005 Technology Demonstration Work Plan, 2014 Annual CAMU Monitoring Report, 2014 GRISR, SD031 Technology Demonstration Construction Completion Report.

Upcoming Documents (POCO): Oil-Water Separators POCO Evaluation Work Plan, ST032 POCO Soil Excavation Work Plan, GC508 Site Investigation/Site Closure Request Report, and ST028 POCO Work Plan.

Field Work Planned (CERCLA): SD031 EVO Injection (February), SD036 Well Installation (March), SD037 Well Installation (March), SD036 EVO Injection (April), SD037 EVO Injection (April), SS016 Well Installation (April, and GRIP Sampling (April).

Field Work Planned (POCO): ST018 Well/Trench Installation, and SS014 Site Investigation.

4. New Action Item Review

Mr. Smith to schedule a teleconference with the regulators, Mr. Linbrunner, and Mr. Wray regarding the RPM meeting schedule.

Mr. Smith to work with Ms. Burke/EPA regarding the design and contents of the community involvement plan and to agree on revised draft to agency date.

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. AFCEC is in agreement with using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero energy policy" for the Air Force for the beneficial reuse of treated groundwater. 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.	TBD	Open
2.	William Hall	Mr. Hall to determine the time requirements and signature process for getting the AFCEC signature on the upcoming ROD Amendments.	TBD	Open
3.	William Hall	Mr. Hall to review the ASTM E2893 Standard Guide for Greener Cleanups and what historically has been done along the lines of GSR.	TBD	Open
4.	William Hall	Mr. Hall to ask if we can use DERA funds for the beneficial reuse of treated groundwater under AFCEC's "net-zero energy policy".	TBD	Open
5.	Adrianna Constantinescu	Ms. Constantinescu to provide the RWQCB site closure summary form to Mr. Smith for distribution.	18 Feb 2015	Closed

6.	Mark Smith	Mr. Smith to provide updates on PFOS and PFOA as he becomes aware of them.	18 Mar 2015	Open
7.	Adrianna Constantinescu	Ms. Constantinescu to ask for guidance from her management to see if any action is required from Travis AFB regarding the cleanup order.	18 Feb 2015	Closed
8.	Mark Smith	Mr. Smith to schedule a teleconference with the regulators, Mr. Linbrunner, and Mr. Wray to review the RPM meeting schedule.	13 March 2015	New
9.	Mark Smith	Mr. Smith to work with Ms. Burke/EPA regarding the design and contents of the community involvement plan and to agree on revised draft to agency date.	18 March 2015	New

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING
BLDG 248 Conference Room
18 February 2015, 9:30 A.M.
AGENDA

1. ADMINISTRATIVE

- A. PREVIOUS MEETING MINUTES
- B. ACTION ITEM REVIEW
- C. MASTER MEETING AND DOCUMENT SCHEDULE REVIEW

2. CURRENT PROJECTS

- A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE
- B. COMMUNITY INVOLVEMENT PLAN

3. PRESENTATIONS

- A. OWS WORK PLAN
- B. DP039 RD/RA WORK PLAN
- C. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

NOTES: AFTER THE RPM MEETING WE WILL HOLD A SEPARATE MEETING ON THE MMRP PAH DELINEATION REPORT AND PATH FORWARD AS WELL AS RTC MEETINGS ON SD036 RD/RA WP, SS015 RD/RA WP. ALL PARTICIPANTS ARE WELCOME TO ATTEND.

(2015)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting¹ (Begins at 9:30 a.m.)	RPM Teleconference (Begins at 10:00 a.m.)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
01-21-15	—	—
02-18-15	—	—
—	03-18-15	—
04-23-15 (Thursday 2:00 PM)	—	04-23-15
—	05-27-15	—
06-17-15	—	—
—	07-15-15	—
08-19-15	—	—
—	09-16-15	—
10-22-15 (Thursday 2:00 PM)	—	10-22-15
—	11-18-15	—
—	—	—

¹ Note: Meetings will be held the third Wednesday of each month unless otherwise noted.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Travis Air Force Base Uniform Federal Policy-Quality Assurance Project Plan Travis, Glenn Anderson CH2M HILL, Bernice Kidd	Site SD037 GW Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Site SD036 Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	05-30-14	04-25-14	08-23-14
AF/Service Center Comments Due	06-13-14	05-08-14	09-05-14
Draft to Agencies	07-22-14	08-13-14	01-16-15
Draft to RAB	07-22-14	08-13-14	01-16-15
Agency Comments Due	08-20-14	09-12-14	02-16-15
Response to Comments Meeting	10-23-14	09-17-14	02-18-15
Agency Concurrence with Remedy	NA	NA	NA
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA
Response to Comments Due	11-14-14	01-09-15	03-04-15
Draft Final Due	11-14-14	01-09-15	03-04-15
Final Due	02-18-15	02-09-15	04-06-15

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS				
Life Cycle	Site SS016 GW Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Site SS015 GW Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Community Involvement Plan Travis AFB, Mark Smith CH2M HILL, Tricia Carter	Site DP039 Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	10-31-14	11-20-14	NA	01-15-14
AF/Service Center Comments Due	11-17-14	12-08-14	NA	01-29-15
Draft to Agencies	12-03-14	01-20-15	02-27-15	02-27-15
Draft to RAB	12-03-14	01-20-15	02-27-15	02-27-15
Agency Comments Due	01-08-15	02-20-15	03-30-15	03-30-15
Response to Comments Meeting	01-21-15	02-26-15	04-23-15	04-09-15
Agency Concurrence with Remedy	NA	NA	NA	NA
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA
Response to Comments Due	03-02-15	03-04-15	05-25-15	04-23-15
Draft Final Due	03-02-15	03-04-15	05-25-15	04-23-15
Final Due	04-01-15	04-03-15	06-25-15	05-25-15

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS				
Life Cycle	Proposed Plan for the Record of Decision Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision Travis AFB, Glenn Anderson CH2M HILL, Tricia Carter	Record of Decision Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Proposed Plan for the Record of Decision Amendment to the Soil Record of Decision for the WABOU Travis AFB, Glenn Anderson CH2M HILL, Tricia Carter	Record of Decision Amendment to the Soil Record of Decision for the WABOU Travis AFB, Glenn Anderson CH2M HILL, Loren Krook
Scoping Meeting	NA	TBD	NA	TBD
Predraft to AF/Service Center	11-05-14	05-25-15	11-05-14	05-25-15
AF/Service Center Comments Due	11-26-14	06-24-15	11-26-14	06-24-15
Draft to Agencies	12-19-14	07-08-15	12-19-14	07-08-15
Draft to RAB	12-19-14	07-08-15	12-19-14	07-08-15
Agency Comments Due	01-19-15	08-07-15	01-19-15	08-07-15
Response to Comments Meeting	01-21-15	08-19-15	01-21-15	08-19-15
Agency Concurrence with Remedy	NA	10-02-15	NA	10-02-15
Public Comment Period	4-15-15 to 5-15-15	NA	4-15-15 to 5-15-15	NA
Public Meeting	4-23-15	NA	4-23-15	NA
Response to Comments Due	03-02-15	09-02-15	03-02-15	09-02-15
Draft Final Due	03-02-15	09-02-15	03-02-15	09-02-15
Final Due	04-01-15	10-02-15	04-01-15	10-02-15

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Potrero Hills Annex Travis, Glenn Anderson		
	FS	Proposed Plan	ROD
Scoping Meeting	180 days after Water Board Order Rescinded	+470 days	+735 days
Predraft to AF/Service Center	+ 270 days	+530 days	+ 915 days
AF/Service Center Comments Due	+ 300 days	+560 days	+ 975 days
Draft to Agencies	+330 days	+590 days	+ 1035 days
Draft to RAB	+ 330 days	+590 days	+ 1035 days
Agency Comments Due	+390 days	+650 days	+ 1095 days
Response to Comments Meeting	+ 405 days	+665 days	+ 1110 days
Agency Concurrence with Remedy	NA	NA	+ 1130 days
Public Comment Period	NA	+735 to 765 days	NA
Public Meeting	NA	+745 days	NA
Response to Comments Due	+430 days	+695days	+ 1190 days
Draft Final Due	+430 days	+695 days	+ 1190 days
Final Due	+460 days	+725 days	+ 1250 days

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS				
Life Cycle	Site DP039 Lead Excavation Technical Memorandum Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Site SD034 Data Gap Investigation Work Plan Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	Site SS014 POCO Technology Demonstration Work Plan Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	POCO Investigation Work Plan for Oil Water Separators Travis AFB, Lonnie Duke CH2M HILL, Ashley Shaddy
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	06-02-14	10-01-14	12-05-14	01-05-15
AF/Service Center Comments Due	06-16-14	10-15-14	12-19-14	01-19-15
Draft to Agencies	07-01-14	11-06-14	02-04-15	02-06-15
Draft to RAB	07-01-14	11-06-14	02-04-15	02-06-15
Agency Comments Due	07-31-14	12-05-14	03-06-15	03-09-15
Response to Comments Meeting	10-23-14	12-19-14	03-18-15	03-18-15
Response to Comments Due	TBD	02-17-15	04-01-15	04-03-15
Draft Final Due	NA	NA	NA	NA
Final Due	TBD	02-17-15	04-01-15	04-03-15
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS			
Life Cycle	Old Skeet Range PAH Delineation Report Travis AFB, Glenn Anderson Bay West, Steve Thornton	Site FT005 Technology Demonstration Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	POCO Site ST032 Soil Excavation Work Plan Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	11-24-14	02-18-15	02-03-15
AF/Service Center Comments Due	12-02-14	03-04-15	02-17-15
Draft to Agencies	01-13-15	03-17-15	03-03-15
Draft to RAB	01-13-15	03-17-15	03-03-15
Agency Comments Due	02-12-15	04-16-15	04-02-15
Response to Comments Meeting	02-18-15	04-23-15	04-23-15
Response to Comments Due	03-04-15	05-07-15	05-12-15
Draft Final Due	NA	NA	NA
Final Due	03-04-15	05-07-15	05-12-15
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS			
Life Cycle	Site CG508 Site Investigation/Site Closure Request Report Travis AFB, Lonnie Duke CH2M HILL, Ashley Shaddy	Site ST028 POCO Work Plan Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick	SD031 Technology Demonstration Construction Completion Report Travis AFB, Lonnie Duke CH2M HILL, Ashley Shaddy
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	03-16-15	03-09-15	04-14-15
AF/Service Center Comments Due	03-30-15	03-23-15	04-28-15
Draft to Agencies	04-13-15	04-06-15	05-12-15
Draft to RAB	04-13-15	04-06-15	05-12-15
Agency Comments Due	05-13-15	05-06-15	06-11-15
Response to Comments Meeting	05-27-15	05-27-15	06-17-15
Response to Comments Due	06-10-15	06-12-15	07-01-15
Draft Final Due	NA	NA	NA
Final Due	06-10-15	06-12-15	07-01-15
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Quarterly Newsletters (April 2015) Travis, Glenn Anderson	2014 Annual CAMU Monitoring Report Travis AFB, Lonnie Duke CH2M HILL, Ashley Shaddy	2014 Annual GRISR Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	NA	02-26-15	03-30-15
AF/Service Center Comments Due	NA	03-12-15	04-13-15
Draft to Agencies	03-24-15	03-26-15	04-27-15
Draft to RAB	NA	03-26-15	04-27-15
Agency Comments Due	04-10-15	04-27-15	05-27-15
Response to Comments Meeting	TBD	05-27-15	05-27-15
Response to Comments Due	04-13-15	06-08-15	06-10-15
Draft Final Due	NA	NA	NA
Final Due	04-13-15	06-08-15	06-10-15
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

HISTORY	
Life Cycle	Site ST018 POCO Work Plan Addendum Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer
Scoping Meeting	NA
Predraft to AF/Service Center	09-09-14
AF/Service Center Comments Due	09-23-14
Draft to Agencies	10-16-14
Draft to RAB	10-16-14
Agency Comments Due	11-14-14
Response to Comments Meeting	11-19-14
Response to Comments Due	01-13-15
Draft Final Due	NA
Final Due	01-13-15
Public Comment Period	NA
Public Meeting	NA

South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 173

Reporting Period: 30 December 2014 – 23 January 2015

Date Submitted: 12 February 2015

This monthly data sheet presents information regarding the South Base Boundary Groundwater Treatment Plant (SBBGWTP) and associated remedial process optimization (RPO) activities.

System Metrics

Table 1 presents operational data from the January 2015 reporting period.

Table 1 – Operations Summary – January 2015				
Initial Data Collection:		12/30/2014 13:30	Final Data Collection:	1/23/2015 13:00
Operating Time:		Percent Uptime:	Electrical Power Usage:	
SBBGWTP:	575 hours	SBBGWTP:	100%	SBBGWTP: 8,400 kWh (11,508 lbs CO ₂ generated ^a)
Gallons Treated: 2.7 million gallons			Gallons Treated Since July 1998: 881 million gallons	
Volume Discharged to Union Creek: 2.7 million gallons				
VOC Mass Removed: 1.11 lbs^b			VOC Mass Removed Since July 1998: 456 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$4,994 ^c				
Monthly Cost per Pound of Mass Removed: \$2,830				
lbs = pounds				
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.				
^b Calculated using January 2015 EPA Method SW8260B analytical results.				
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.				

Table 2 presents individual extraction well flow rates along with the average system flow during the monthly reporting period.

Table 2 – SBBGWTP Average Flow Rate (gpm) ^{a,b}							
FT005 ^b				SS029		SS030	
EW01x05	2.3	EW736x05	Offline	EW01x29	2.0	EW01x30	7.2
EW02x05	1.7	EW737x05	Offline	EW02x29	2.0	EW02x30	2.3
EW03x05	Offline	EW742x05	Offline	EW03x29	2.0	EW03x30	3.0
EW731x05	Offline	EW743x05	Offline	EW04x29	8.1	EW04x30	Offline ^d
EW732x05	Offline	EW744x05	Offline	EW05x29	11.9	EW05x30	1.3
EW733x05	Offline	EW745x05	Offline	EW06x29	4.5	EW06x30	Dry
EW734x05	1.5	EW746x05	Offline	EW07x29	1.2	EW711x30	2.4
EW735x05	1.3						
FT005 Total: 6.8				SS029 Total: 31.7		SS030 Total: 16.2	
SBBGWTP Average Monthly Flow ^c : 77.91 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month.							
^b Most extraction wells at FT005 were taken offline in accordance with the 2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.							
^c The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period.							
^d Extraction well EW04x30 was offline during January 2015 due to a failure of the well pump.							
gpm – gallons per minute							
SBBGWTP – South Base Boundary Groundwater Treatment Plant							

Table 3 presents a summary of system shutdowns during the monthly reporting period.

Table 3 – Summary of System Shutdowns					
Location	Shutdown^a		Restart^a		Cause
	Date	Time	Date	Time	
SBBGWTP	None	NA	None	NA	
-- = Time not recorded ^a Shutdown and restart times estimated based on field notes. NA = not applicable SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Analytical data from the January 2015 sampling event are presented in Table 4. The total VOC concentration (49.58 µg/L) in the influent sample increased from the December 2014 sample results (38.7 µg/L). Chloroform (0.28 J µg/L), cis-1,2-DCE (2.8 µg/L), TCE (46.5 µg/L), and total suspended solids (TSS) (5 J mg/L) were detected at the influent sampling location. 1,1-DCA (0.59 µg/L) and cis-1,2-DCE (1.7 µg/L) were detected at the midpoint sampling location; no other contaminants were detected in the midpoint sample. The concentration of cis-1,2-DCE has increased at the midpoint location since the December 2014 sampling event (from 0.91 µg/L). The detections of cis-1,2-DCE at the midpoint location are indicative of approaching breakthrough conditions. Maintenance service for the GAC will be initiated for cleanout of the lead vessel. Arsenic (8.03 J µg/L) was detected at the effluent sample location; no other contaminants were detected at the effluent sample.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. The average flow rate at the SBBGWTP increased in January 2015 to 77.91 gpm from the December 2014 flowrate of 76.4 gpm.

Arsenic was detected in the October 2014 (12.2 µg/L) effluent sample, exceeding the inorganic effluent limitation of 10 µg/L, thus starting an arsenic trigger study. Arsenic was detected in the effluent sample in January 2015 at a concentration of 8.03 J µg/L, which is below the inorganic effluent limit. The January 2015 sample was the final arsenic sample to be collected at the effluent location in order to complete the trigger study. Results of the arsenic trigger study are presented in Table 5.

Extraction well EW04x30 was offline during January 2015 due to a failure of the well pump. Troubleshooting that will occur in February 2015 will include verifying the integrity of the power wiring, locating the problem area, and reinstalling a new pump. The pump assembly at extraction well EW02x29 was removed on 2 January 2015 due to failure of the pump. The drop pipe was assembled with wiring, safety rope, and fittings, and also included a weep hole drilled near the pump outlet for freeze protection. A new check valve was also installed, and the pump assembly was reinstalled at the well. On 7 January 2015, extraction well EW02x29 was brought back online to normal operation.

Optimization Activities

No optimization activities were performed in January 2015.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as taking extraction pumps off line that are no longer necessary for contaminant plume capture.

Figure 2 presents the historical GHG production from the SBBGWTP. The SBBGWTP produced approximately 11,508 pounds of GHG during January 2015. This amount is typical for the SBBGWTP with uptime at or around 100 percent; 10,686 pounds of GHG was produced in December 2014, which also had an uptime of 100 percent.

TABLE 4

Summary of Groundwater Analytical Data For January 2015 – South Base Boundary Groundwater Treatment Plant

8 January 2015 (µg/L)						
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	0.28 J	ND	ND
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	0.59	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	2.8	1.7	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	46.5	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	5 J	NM	NM

* In accordance with Appendix B of the Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual (CH2M HILL, 2004).

Notes:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

mg/L = milligrams per liter

N/C = number of samples out of compliance with discharge limits

ND = not detected

NE = not established

NM = not measured

µg/L = micrograms per liter

Table 5

Summary of 2014 – 2015 Arsenic Analytical Data in the Effluent Sample - SBBGWTP

Constituent	Trigger Limit ^a (µg/L)	October 2014 (µg/L)	November 2014 (µg/L)	December 2014 (µg/L)	January 2015 (µg/L)
Arsenic	10	12.2	9.78 J	5.73 J	8.03 J

^a Effluent limitation provided as concentration limit (µg/L) based on most recent general NPDES permit No. CAG912002, Order No. R2-2012-0012 (March 2012).

Notes:

µg/L = micrograms per liter

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

Figure 1
SBBGWTP Total VOC Influent Concentrations and Average Flowrate
Twelve Month History
Travis Air Force Base, California

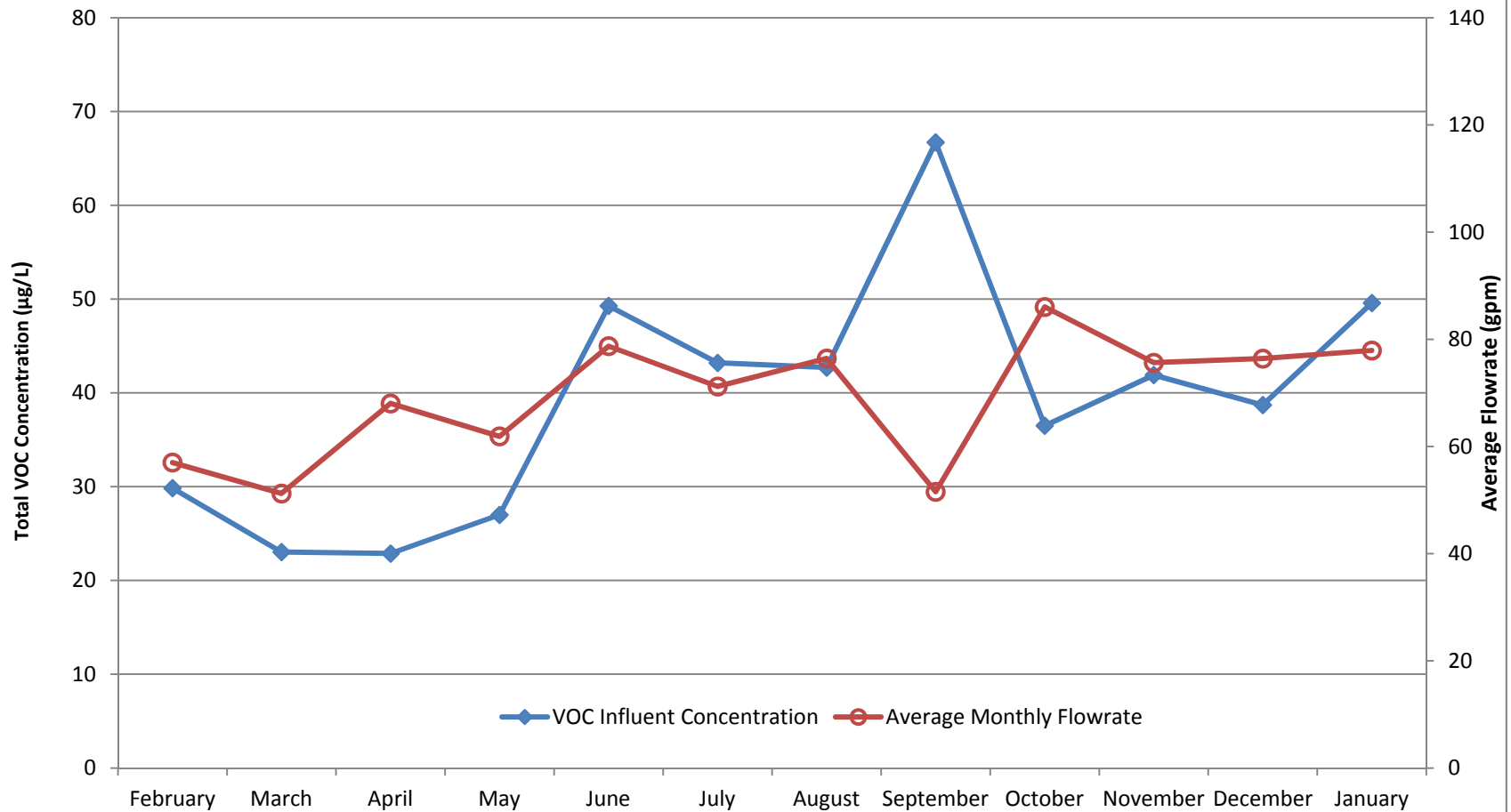
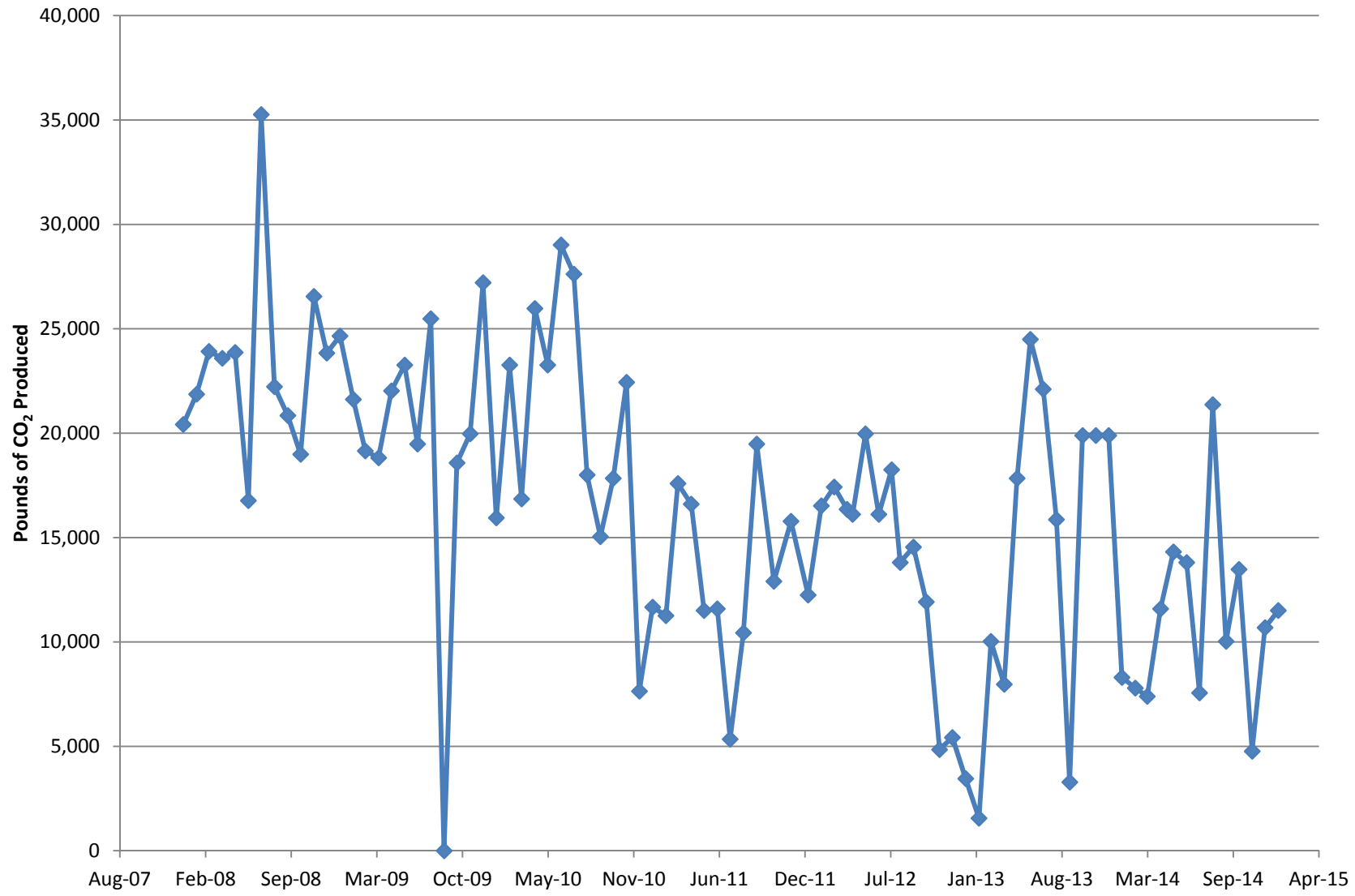


Figure 2

Equivalent Pounds of CO₂ Produced by the South Base Boundary Groundwater Treatment Plant



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 186

Reporting Period: 30 December 2014 – 23 January 2015

Date Submitted: 12 February 2015

This monthly data sheet presents information regarding the Central Groundwater Treatment Plant (CGWTP) and its associated technology demonstrations. The ongoing technology demonstrations related to the CGWTP include various emulsified vegetable oil (EVO) injections and two (2) bioreactor treatability studies.

System Metrics

Table 1 presents operational data from the January 2015 reporting period.

Table 1 – Operations Summary – January 2015				
Initial Data Collection:		12/30/2014 14:00	Final Data Collection:	1/23/2015 16:00
Operating Time:		Percent Uptime:		Electrical Power Usage:
CGWTP:	578 hours	CGWTP:	100%	CGWTP: 2,124 kWh (2,910 lbs CO ₂ generated ^a)
WTTP:	Water: 0 hours Vapor: 0 hours	WTTP:	Water: 0% Vapor: 0%	WTTP: 0 kWh
Gallons Treated: 1.07 million gallons		Gallons Treated Since January 1996: 506 million gallons		
VOC Mass Removed:		VOC Mass Removed Since January 1996:		
2.66 lbs^b (groundwater only)		2,707 lbs from groundwater		
0 lbs (vapor only)		8,686 lbs from vapor		
Rolling 12-Month Cost per Pound of Mass Removed: \$1,214 ^c				
Monthly Cost per Pound of Mass Removed: \$1,016				
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.				
^b Calculated using January 2015 EPA Method SW8260B analytical results.				
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the CGWTP and are reported based on the calendar month.				

Table 2 presents individual extraction well flow rates during the monthly reporting period.

Table 2 – CGWTP Average Flow Rates ^a		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	17.2 ^c	Offline
EW02x16	7.0 ^c	Offline
EW03x16	1.0 ^c	Offline
EW605x16	6.8 ^c	Offline
EW610x16	2.8 ^c	Offline
CGWTP	30.8	--
WTTP	-- ^b	Offline
^a Flow rates calculated by dividing total gallons processed by system operating time for the month. ^b No soil vapor was treated in January 2015. ^c Flow rate based on instantaneous, end of the month reading for January 2015. gpm = gallons per minute -- = not applicable/not available scfm = standard cubic feet per minute		

Table 3 presents a summary of shutdowns during the monthly reporting period.

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (Groundwater)					
	None	NA			
WTTP					
	None	NA			
-- = Time not recorded a Shutdown and restart times estimated based on field notes CGWTP = Central Groundwater Treatment Plant NA = not applicable WTTP = West Transfer Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 8 January 2015. Sample results are presented in Table 4. The total VOC concentration (299.10 µg/L) in the January 2015 influent sample has decreased since the December 2014 sample (310.62 µg/L) was collected. Concentrations of 1,1-DCE (0.75 µg/L), 1,2-dichlorobenzene (0.33 J µg/L), 1,3- dichlorobenzene (0.33 J µg/L), acetone (2.9 J µg/L), cis-1,2-DCE (49.2 µg/L), PCE (0.5 µg/L), trans-1,2-DCE (2.9 µg/L), and TCE (242 µg/L) were detected at the influent sampling location. None of these constituents were detected at the midpoint or effluent sampling locations.

Vinyl chloride was detected in the influent sample (0.19 J µg/L), after the first carbon vessel (0.26 J µg/L), which was an increase since the December 2014 sampling event (0.19 J µg/L), and after the second carbon vessel (0.4 J µg/L). Vinyl chloride was not detected in the system effluent sample location. Travis Air Force Base will continue to monitor contaminant concentrations at the CGWTP for breakthrough in the primary vessel.

Figure 1 presents a plot of influent concentrations (total VOCs) and the influent flow rate at the CGWTP versus time for the past twelve (12) months. The average flow rate through the treatment plant increased in January 2015 from the flow rate measured in December 2014 (from 28.9 gpm to 30.8 gpm).

The Site DP039 bioreactor continues to operate in a “pulsed mode” in order to improve the rate of remediation and to preserve the amount of total organic carbon being produced within the bioreactor. The “pulsed mode” operation continued on a two (2) week transition schedule in January 2015, and was brought back on line from 16 January to 29 January 2015, then turned off again.

Optimization Activities

No optimization activities occurred at the CGWTP in January 2015.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as bioreactors and EVO injection well networks.

Figure 2 presents the historical GHG production from the systems associated with the CGWTP. The CGWTP produced approximately 2,910 pounds of GHG during January 2015. This is a slight increase from the amount produced in December 2014 (approximately 2,896 pounds) which is the result of ten hours more of total system runtime.

TABLE 4

Summary of Groundwater Analytical Data for January 2015 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	8 January 2015 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	49.2	ND	ND	ND
1,1-Dichloroethane	5.0	0.5	0	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	0.75	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
MTBE	1.0	0.5	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.5	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND	ND
Trichloroethene	5.0	0.19	0	242	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	2.9	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.19 J	0.26 J	0.4 J	ND
Non-Halogenated Volatile Organics							
Benzene	1.0	0.17	0	ND	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND	ND
Total Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND	ND
Other							
Total Dissolved Solids (mg/L)	NA	10	0	NM	NM	NM	NM

* In accordance with Appendix G of the *Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual* (URS Group, Inc., 2002).

Notes:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

N/C = number of samples out of compliance with discharge limits

ND = not detected

NM = not measured

µg/L = micrograms per liter

mg/L = milligrams per liter

Table 5 presents a twelve month summary of the Site DP039 bioreactor recirculation well pulsing dates.

Table 5 – Summary of DP039 Bioreactor “Pulsed Mode” Operations		
Location	Pulse On Start Date	Pulse Off Start Date
MW750x39	17 January 2014	31 January 2014
	18 February 2014	28 February 2014
	14 March 2014	28 March 2014
	22 April 2014	28 April 2014
	12 May 2014	12 May 2014
	6 June 2014	20 June 2014
	3 July 2014	24 July 2014
	01 August 2014	15 August 2014
	01 September 2014	12 September 2014
	26 September 2014	30 September 2014 ^a
	24 October 2014	7 November 2014
	21 November 2014	4 December 2014
	19 December 2014	January 2, 2015
	16 January 2015	29 January 2015
^a = DP039 Bioreactor turned off on 30 September 2014 to replace hose. CGWTP = Central Groundwater Treatment Plant MW = Monitoring Well		

Figure 1
CGWTP Total VOC Influent Concentrations and Average Flowrate
Twelve Month History
Travis Air Force Base, California

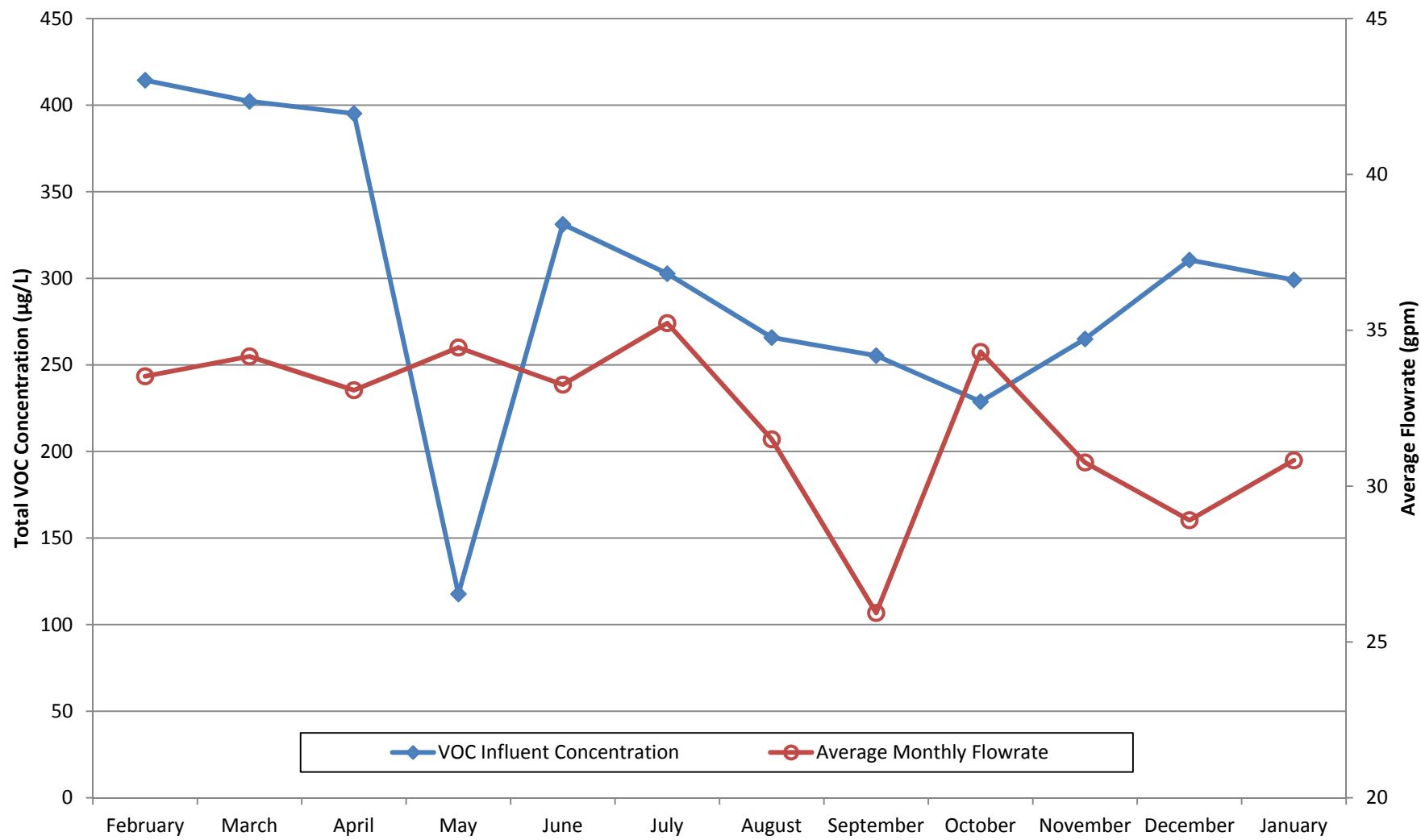
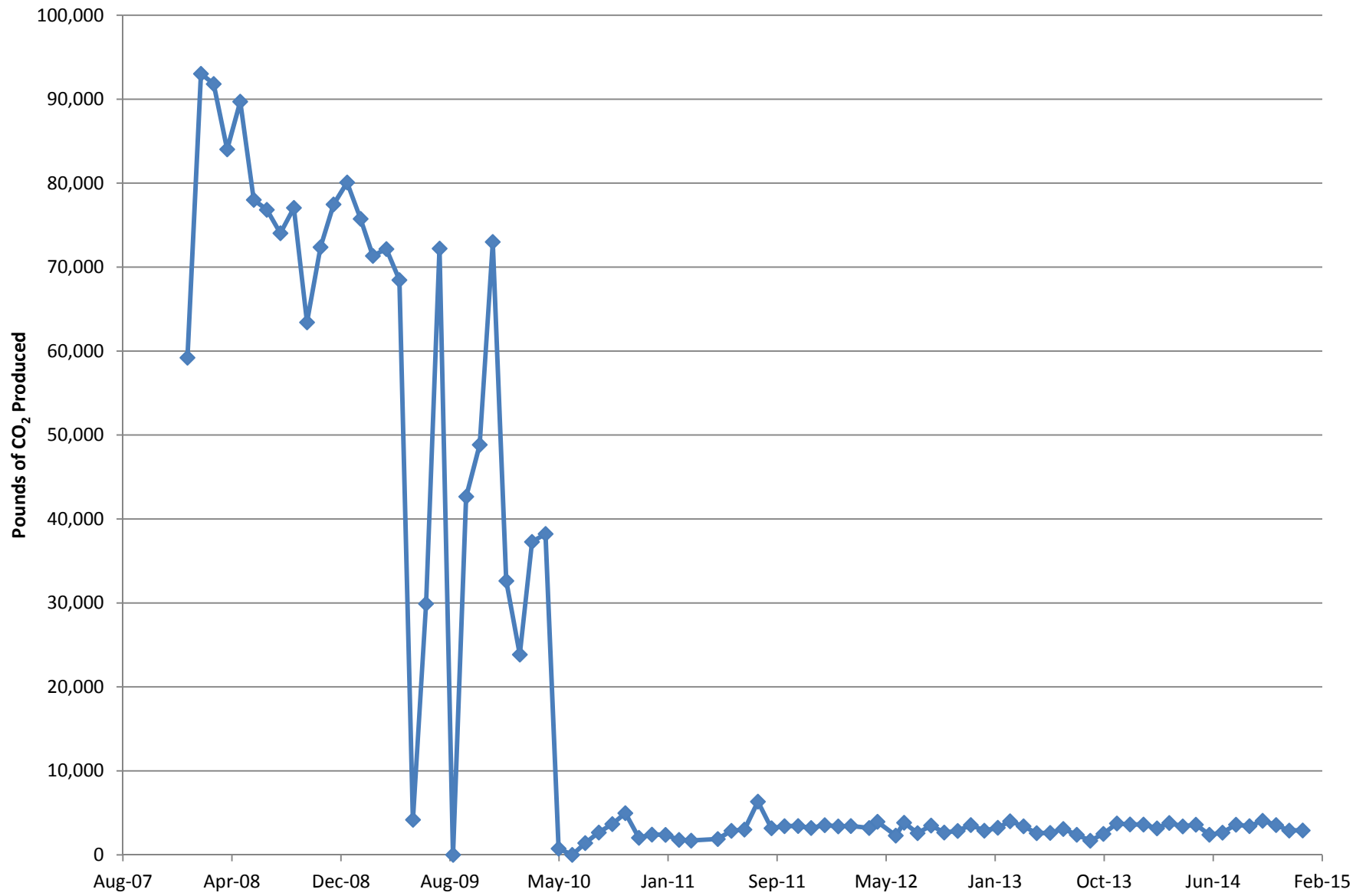


Figure 2

Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 047

Reporting Period: 30 December 2014 – 30 January 2015

Date Submitted: 12 February 2015

This monthly data sheet presents information regarding the Site ST018 Groundwater Treatment Plant (ST018GWTP).

System Metrics

Table 1 presents operation data from the January 2015 reporting period.

Table 1 – Operations Summary – January 2015			
Initial Data Collection:	12/30/2014 15:00	Final Data Collection:	01/30/2015 17:33
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 751 hours		ST018GWTP: 100%	ST018GWTP: 118 kWh (162 lbs CO ₂ generated ^a)
Gallons Treated: 189,600 gallons		Gallons Treated Since March 2011: 6.62 million gallons	
Volume Discharged to Sanitary Sewer: 189,600 gallons		Final Totalizer Reading: 2,535,690 gallons	
BTEX, MTBE, TPH Mass Removed: 0.12 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 31.1 lbs	
MTBE (Only) Removed: 0.12 lbs^b		MTBE (Only) Mass Removed Since March 2011: 6.8 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$9,009 ^c			
Monthly Cost per Pound of Mass Removed: \$20,855 ^d			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using January 2015 effluent EPA Method SW8260B analytical results.			
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.			
^d Value slightly inflated due to small influent concentration in the denominator when determining the cost per pound of mass removed.			
lbs = pounds			

Table 2 presents individual extraction well flow rates along with the average system flow during the monthly reporting period.

Table 2 – ST018GWTP Average Flow Rates		
Location	Average Flow Rate Groundwater (gpm)^a	Hours of Operation
EW2014x18	2.5	751
EW2016x18	2.6	751
EW2019x18	2.6	751
Site ST018 GWTP	4.21	751
^a Flow rates calculated by dividing total gallons processed by the hours of operation, from the totalizer and hour meter at each location. gpm = gallons per minute ST018GWTP = Site ST018 Groundwater Treatment Plant		

Table 3 presents a summary of shutdowns during the monthly reporting period.

Table 3 – Summary of System Shutdowns					
Location	Shutdown^a		Restart^a		Cause
	Date	Time	Date	Time	
ST018GWTP	NA	NA			
^a Shutdown and restart times estimated based on field notes NA = not applicable ST018GWTP = Site ST018 Groundwater Treatment Plant					

Summary of O&M Activities

The ST018GWTP system was taken offline from October to early December 2014, in order to reroute the treatment plant discharge line from the storm drain to the sanitary sewer (SS). The system was brought back online after restart samples, taken on 24 November 2014, indicated that the system would operate within discharge limits. Influent samples that were previously collected on a quarterly basis in accordance with the National Pollutant Discharge Elimination System (NPDES) permit are now taken on a monthly basis, since monitoring requirements are now based on sewer district guidelines, and the NPDES permit no longer applies.

Monthly groundwater treatment samples were collected at the ST018GWTP on 8 January 2015. Results are presented in Table 4. The influent concentration for MTBE during the January 2015 sampling was 74.3 µg/L, which is an increase from the December 2014 sample (68.7 µg/L). Benzene (0.73 µg/L), TPH-g (71 µg/L), 1,2-dichloroethane (0.33 µg/L), ethylbenzene (1.3 µg/L), and m,p-Xylene (1.2 µg/L) were also detected in the influent sample. No other contaminants were detected at the influent sample location during the sampling event.

Figure 1 presents plots of flow rate and influent total VOC (TPH-g, TPH-d, MTBE, and BTEX) and MTBE concentrations at the ST018GWTP versus time. TPH-g was detected at the midpoint (35 µg/L), but no contaminants were detected at the effluent sampling location during January 2015 sampling.

As shown on Figure 1, the average flow rate through the ST018GWTP has been seasonally variable with a slight increasing trend since the battery upgrade in 2013. TPH-g, TPH-d and TPH-mo were not detected in the January 2015 influent sample.

Optimization Activities

No optimization activities were performed in January 2015.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as the solar arrays employed to power the ST018GWTP system.

The ST018GWTP produced 162 pounds of GHG during January 2015, which was an increase of GHG produced in December 2014 (89 pounds). The amount of water treated in January 2015 was higher than that of the December 2014 treatment (125,060 gallons in December 2014 and 189,600 gallons in January 2015). The amount of GHG produced during January was representative of typical values observed during high performance operation. Figure 2 presents the historical GHG production from the ST018GWTP. The overall GHG generation has been decreasing since a 2014 peak in March, and remains considerably lower than traditional GWTPs since the system is predominantly powered by solar arrays. The previous increasing GHG production reflected an inverse relationship between solar exposure in the fall and winter relative to GHG production.

TABLE 4

Summary of Groundwater Analytical Data for January 2015 – Site ST018 Groundwater Treatment Plant

8 January 2015 (µg/L)							
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	Influent	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	74.3	NM	ND	ND
Benzene	5	0.17	0	0.73	NM	ND	ND
Ethylbenzene	5	0.22	0	1.3	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	1.2	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	71	35 J	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	ND	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	ND	ND	NM	ND

* In accordance with the National Pollutant Discharge Elimination System (NPDES) Effluent Limitations

Laboratory data available on request

µg/L = micrograms per liter

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

N/C = number of samples out of compliance with discharge limits

ND = not detected above method detection limit

NM = not measured this month

Figure 1
ST18GWTP Total VOC and MTBE Influent Concentrations
Quarterly History
Travis Air Force Base, California

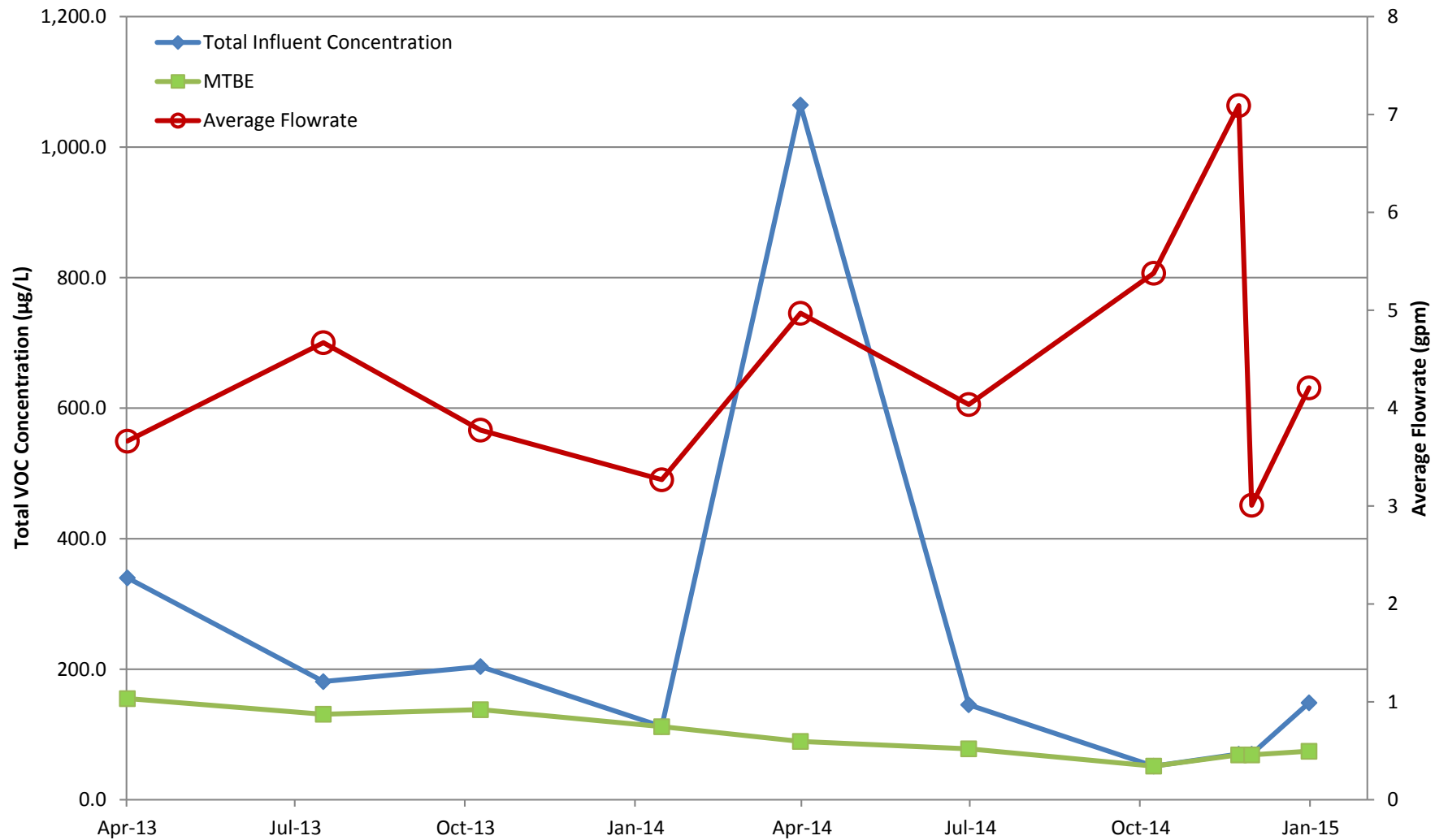
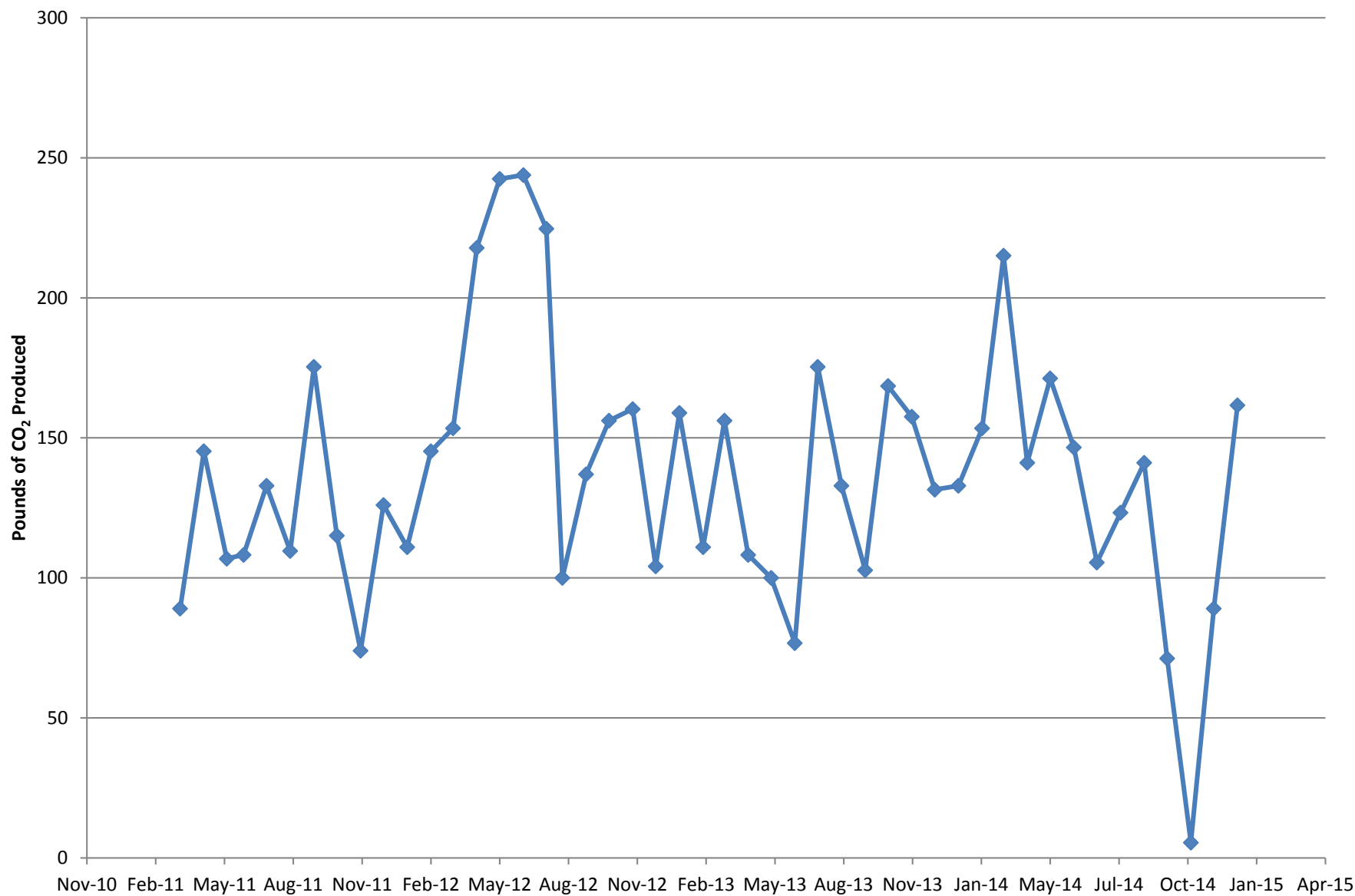


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant

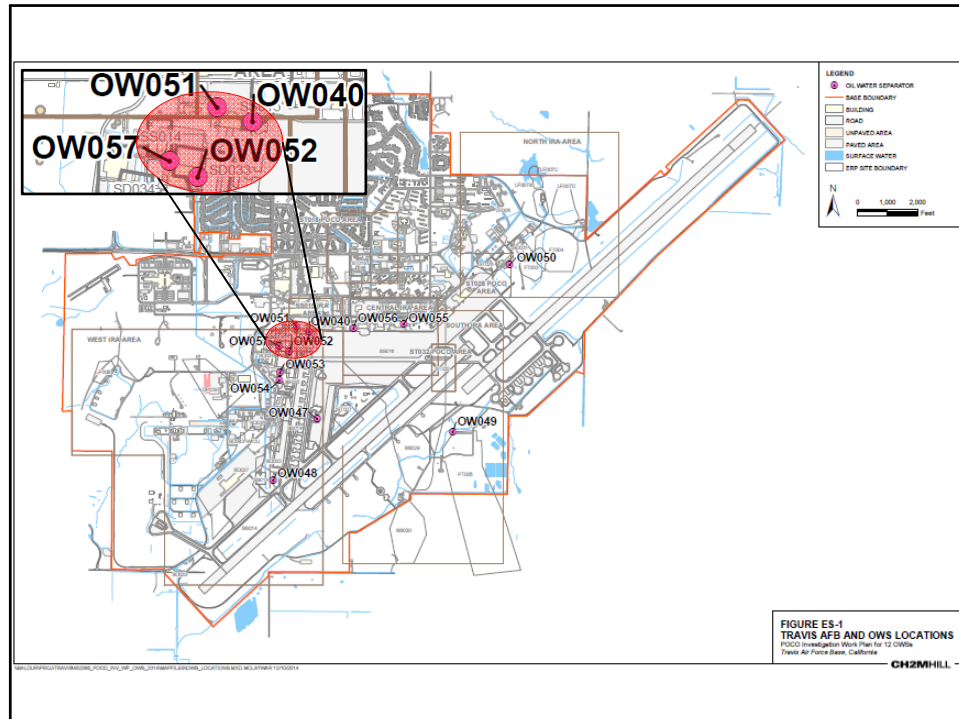


Oil/Water Separators - POCO Investigation Work Plan Travis AFB, California

February 18, 2015

OW051

Oil/Water Separators Overview



Oil/Water Separators Background

OWS Status	
OWS ID	Status
OW040	Inactive
OW047	Inactive
OW048	Inactive
OW049	Inactive
OW050	Inactive/Removed (2009)
OW051	Inactive/Removed (Unknown)
OW052	Inactive
OW053	Inactive
OW054	Inactive
OW055	Inactive
OW056	Inactive
OW057	Inactive/Removed-Partial (2007)

- All 12 OWSs are inactive.
- Objective is to remove all of the OWSs that are still in place, determine if any soil cleanup is necessary, and perform cleanup of soil to residential levels.

Investigation Analyses

OWS ID	Historical Analyses	Planned Analyses
OW040	VOCs, TPH-D, and TPH-G (2011 DERA Evaluation); PAHs (2003 soil removal action); and for VOCs, SVOCs, TPH-E, TPH-P, and metals (1995 EIOU RI)	VOCs; SVOCs; TPH-G; TPH-D/MO; PAHs; Title 22 Metals (for OWS locations with no previous metals data or historical Tier 1 ESL exceedances for metals)
OW047	VOCs, TPH-D, and TPH-G (2011 DERA Evaluation); SVOCs, TPH-D, TPH-G, TPH-MO, metals, and JP-4 (1996 WIOU RI)	
OW048; OW049; OW051; OW055	VOCs, TPH-D, and TPH-G (2011 DERA Evaluation)	
OW050	TPH-D, TPH-G, metals, and BTEX (2009 removal action)	
OW052	SVOCs, TPH-G, and metals (1996 WIOU RI); VOCs, SVOCs, metals, TPH-E, and TPH-P (1992 FFA)	
OW053	VOCs, TPH-D, and TPH-G (2011 DERA Evaluation); SVOCs, TPH-D, TPH-G, TPH-MO, JP-4, and metals (1996 WIOU RI)	
OW054	VOCs, TPH-D, and TPH-G (2011 DERA Evaluation); SVOCs, TPH-D, TPH-G, TPH-MO, JP-4, and metals (1996 WIOU RI)	
OW056	VOCs, TPH-D, and TPH-G (2011 DERA Evaluation); VOCs, SVOCs, PCBs, TPH-E, TPH-P, and metals (1995 EIOU RI)	
OW057	VOCs, SVOCs, TPH-D, TPH-G, TPH-MO, PCBs, oil and grease, and metals (2003 removal action); SVOCs, TPH-D, TPH-G, TPH-MO, JP-4, and metals (1996 WIOU RI)	

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Oil/Water Separators Background

OWS Location Historical Tier 1 ESL Exceedances in Subsurface Soil

OWS ID	Chemical	Historical Maximum (mg/kg)	Tier 1 ESL (mg/kg) ^a	OWS ID	Chemical	Historical Maximum (mg/kg)	Tier 1 ESL (mg/kg) ^a
OW040	Barium	1,400 J+	750	OW053	None	--	--
	Cobalt	31.4	23	OW054	None	--	--
	TPH-D	2,100	100	OW055	None	--	--
OW047	None	--	--	OW056	None	--	--
OW048	None	--	--	OW057	Antimony	65.1 J-	20
OW049	None	--	--		Barium	1,830 J	750
OW050	None	--	--		Benzo(a)anthracene	0.9640	0.38
OW051	TPH-G	270	100		Benzo(a)pyrene	0.5940	0.038
	Antimony	65.6 J-	20		Benzo(b)fluoranthene	0.9970 J	0.38
	Cadmium	40.9	12		Benzo(k)fluoranthene	0.9970 J	0.38
OW052	Cobalt	27.1	23		Cadmium	38.2	12
	Lead	1,420 J-	80		Molybdenum	56.8	40
	Molybdenum	61	40		Silver	108	20
	Silver	115	20		TPH-D	2,300	100
	Vanadium	228	200		TPH-G	3,800	100
					TPH-MO	2,000	100

^a Tier 1 ESLs (Water Board, 2013).

Notes:

J = estimated value (data flag)

J- = estimated value, biased low (data flag)

J+ = estimated value, biased high (data flag)

mg/kg = milligram(s) per kilogram

TPH-D = total petroleum hydrocarbons as diesel

TPH-G = total petroleum hydrocarbons as gasoline

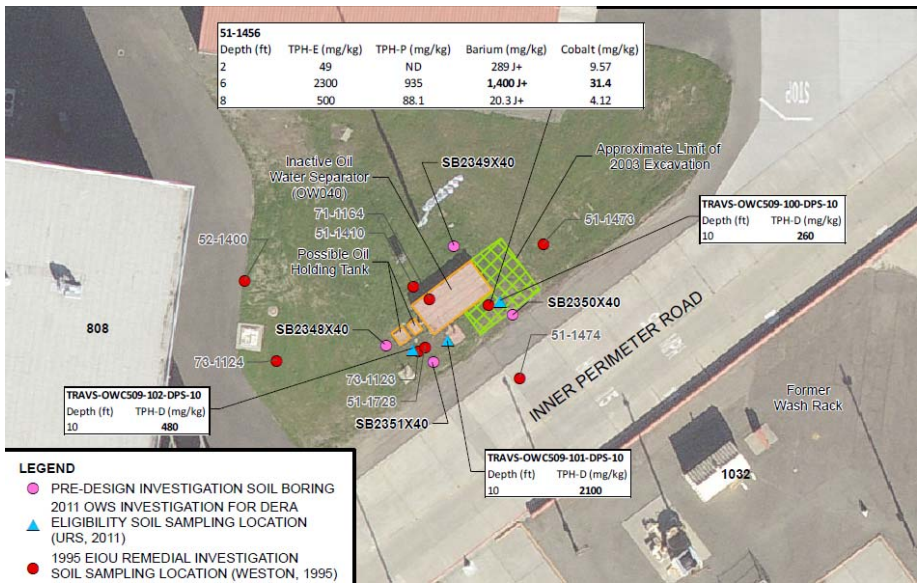
TPH-MO = total petroleum hydrocarbons as motor oil

Oil/Water Separators Investigation

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OW040

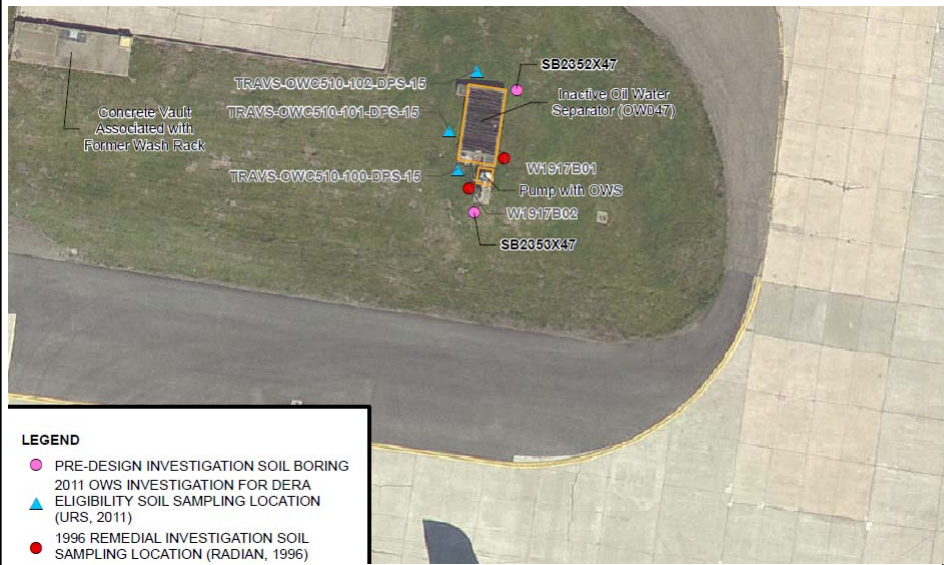
Max. Boring Depth:
15 feet below ground
surface (bgs)



8

OW047

Max. Boring Depth:
15 feet bgs



OW048

Max. Boring Depth:
15 feet bgs



OW049

Max. Boring Depth:
15 feet bgs



OW050

Max. Boring Depth:
15 feet bgs



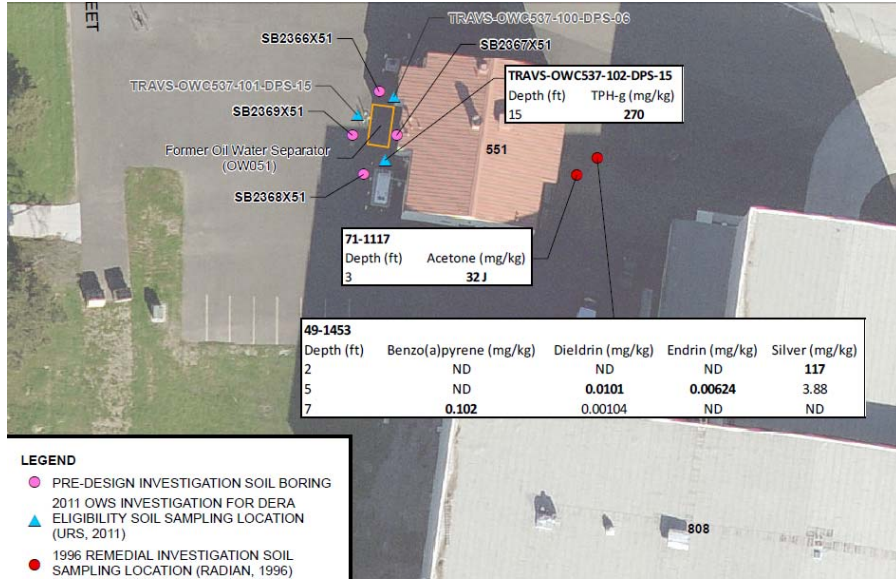
LEGEND
● PRE-DESIGN INVESTIGATION SOIL BORING
□ SITE FEATURE

Note:
Samples were collected from the stockpile of soil excavated during the removal of OW050 (EMSL, 2009). There were no detections in excess of Tier 1 ESLs (Water Board, 2013).

12

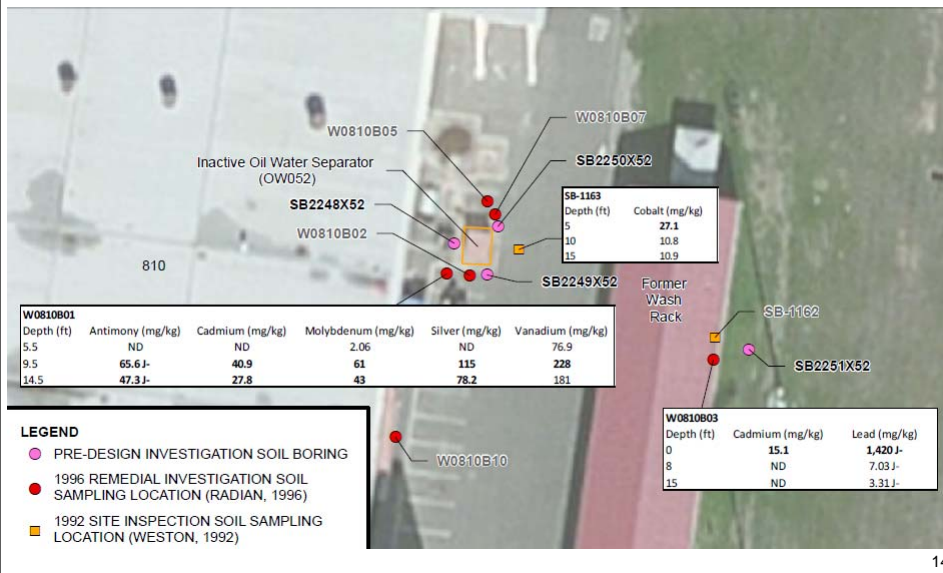
OW051

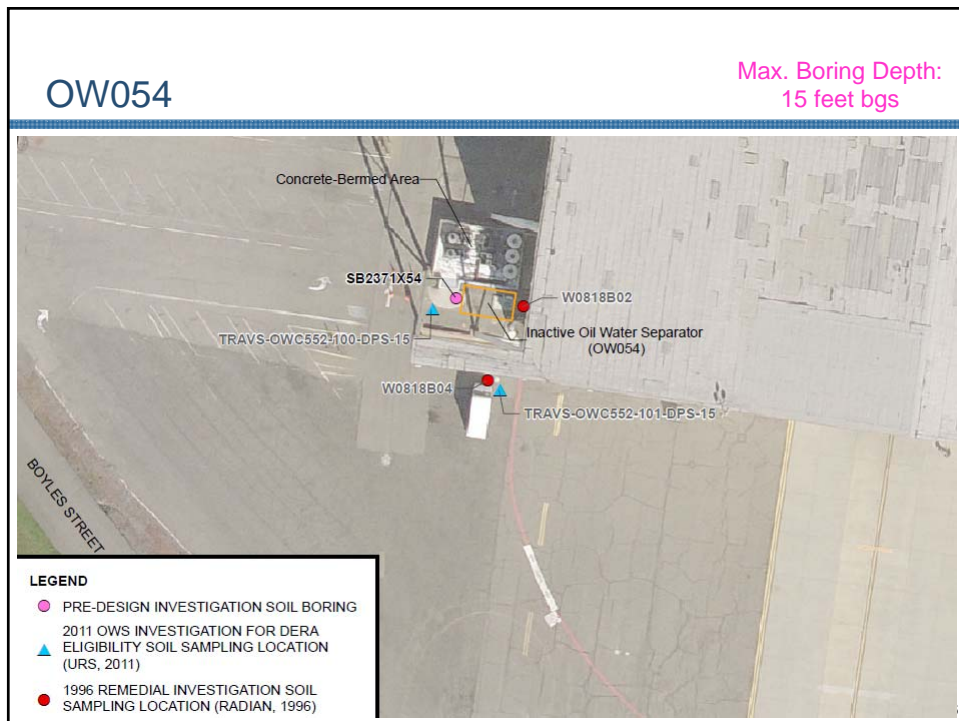
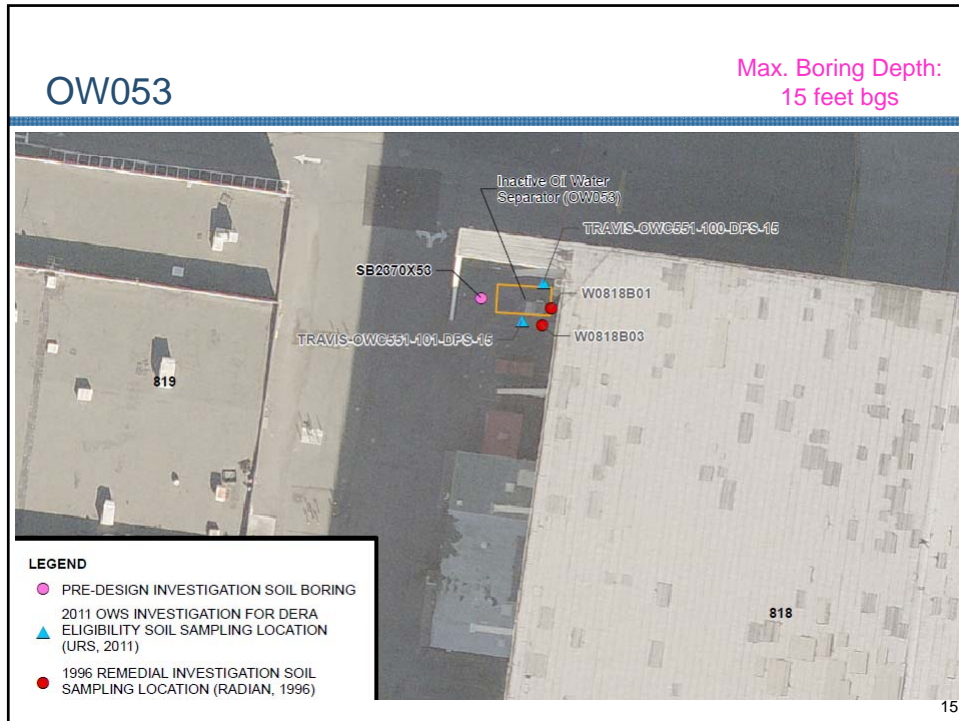
Max. Boring Depth:
20 feet bgs



OW052

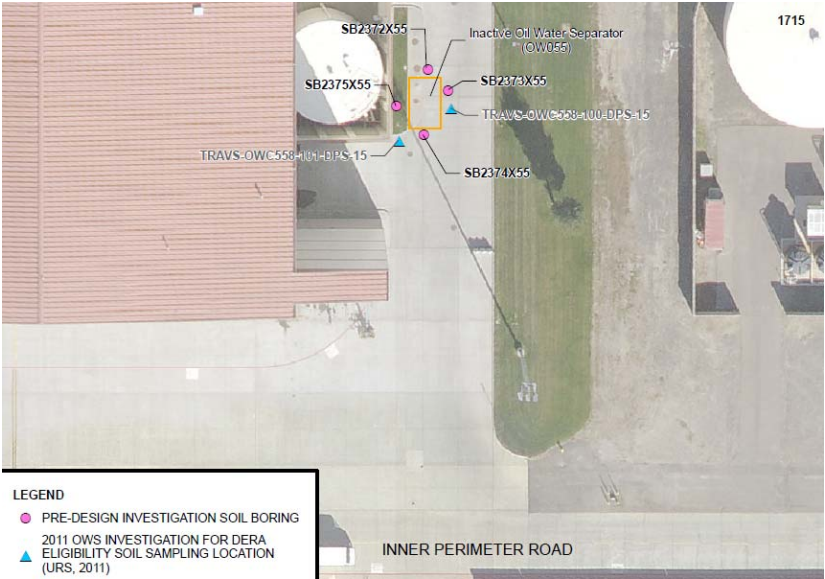
Max. Boring Depth:
20 feet bgs





OW055

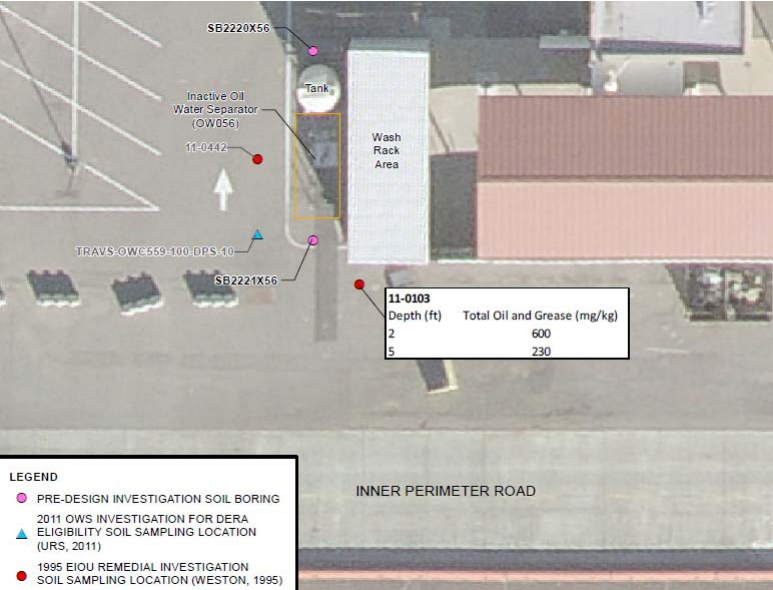
Max. Boring Depth:
15 feet bgs



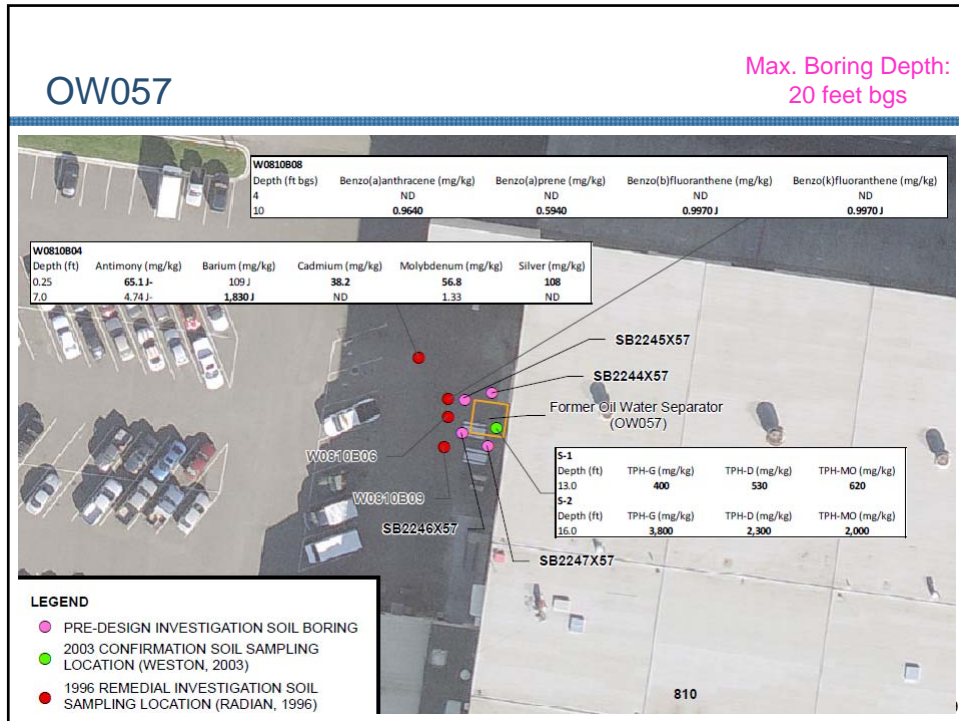
17

OW056

Max. Boring Depth:
15 feet bgs



18



Post-Investigation Activities

- ☐ Prepare Corrective Action Plan (CAP) for each OWS that requires removal and/or where soil contamination is present.
- ☐ If an OWS was previously removed and no contamination is present, prepare site closure request.
- ☐ Remove each OWS and excavate contaminated soil, if present.
- ☐ Prepare POCO Evaluation/closure requests.

Discussion

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Site DP039 Remedial Design/Remedial Action Work Plan

RPM Meeting
February 18, 2014

Agenda

- Background
- Work Plan Objectives
- Conceptual Design
- Injection Wells
- Extraction Wells
- Monitoring Wells
- Infiltration Trench
- EVO Injection
- Groundwater Monitoring
- Reporting



Background

- Site DP039 primarily consists of former Building 755, which had been the Travis AFB Battery and Electric Shop.
- Before 1978, battery acid solutions and chlorinated solvents were poured into a sink within Building 755 and conveyed by a pipeline less than 100 feet to a rock-filled acid neutralization sump.
- This practice was discontinued in 1978, when the pipeline was dismantled and reconnected to the sanitary sewer line.
- In July 1993, the sump was excavated and disposed offbase.
- Building 755 was demolished in 2009, and the lot is currently vacant.

Background

- GET and MNA Assessment were selected as the interim remedies as part of the WABOU Interim Groundwater ROD.
- A GET system, 2 dual phase extraction wells in the source area was operated from 2000 to 2008.
- The MNA Assessment was conducted for the distal portions of the plume where TCE concentrations were less than 100 micrograms per liter ($\mu\text{g/L}$).
- Two MNA Assessments were conducted at Site DP039.
 - From 2000-2001, as documented in DP039 Natural Attenuation Assessment Workplan.
 - In 2009, as documented in Natural Attenuation Assessment Report (NAAR)

Background

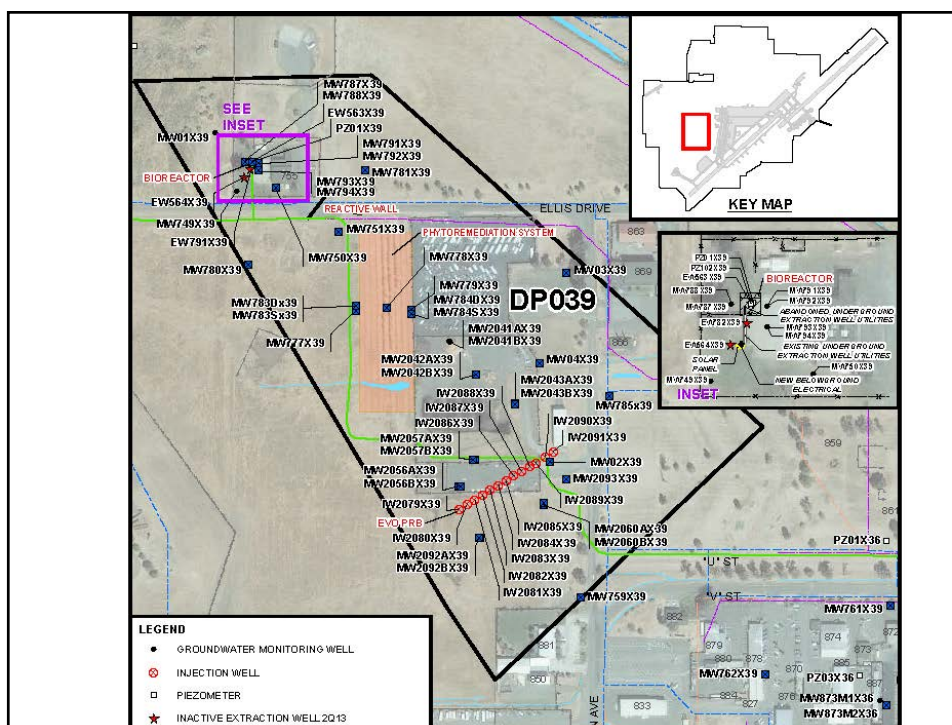
- The NAAR concluded that natural attenuation was occurring in the distal portion of the plume; however, increasing concentrations in some monitoring wells indicated that natural attenuation alone would likely be inadequate to prevent future plume migration.
- A 2012 aerobic chlorinated cometabolism enzyme study concluded that cometabolic activity may be contributing to contaminant natural attenuation at Site DP039.

Background

- In addition to the GET system and the MNA Assessment, numerous technology demonstrations have been conducted at Site DP039.
 - A Phytoremediation study initiated in August 1998 to hydraulically control and remove VOC contamination from groundwater. After 14 years of study, it was demonstrated that phytoremediation can be a viable component of groundwater remediation at the site.
 - A reactive wall study was performed from 2000 to 2002 to assess the effectiveness of using injected iron filings to provide an in situ treatment zone. However, this study was not successful; only a small fraction of groundwater passed through the wall.
 - In November 2008 the GET system at Site DP039 was shutdown for the installation of an in situ bioreactor in the location of the former sump near Building 755.
 - Through 2nd quarter 2013, total molar reductions of chlorinated volatile organic compounds (CVOCs) of more than 99 percent have occurred in the aquifer within 30 feet of the bioreactor.

Background

- A technology demonstration of ERD treatment using an EVO permeable reactive barrier (PRB) was initiated in 2010.
- The EVO PRB intercepted the mid-portion of the plume at the 500 µg/L TCE isocontour. The EVO PRB consists of 13 injection wells arranged linearly, in a wall configuration.
- TCE, cis-1,2-DCE, and vinyl chloride are effectively being degraded within the biobarrier and in situ ERD processes are achieving a high rate of CVOC treatment efficiency.
- The Travis AFB Groundwater ROD selected bioreactor, phytoremediation, EVO PRB, and enhanced attenuation (EA) as the final remedy for Site DP039.



Work Plan Objectives

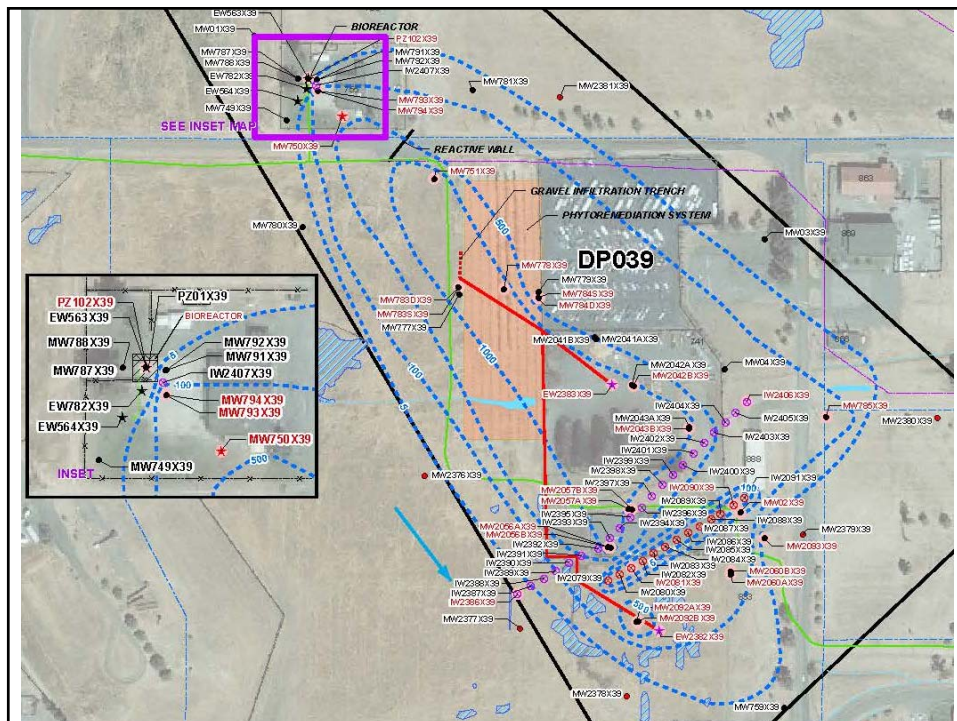
- Implement the selected groundwater remedy at Site DP039 and enhance the reduction of contaminant mass within the portion of the plume where TCE concentrations exceed 500 µg/L.

Conceptual Design

- The conceptual design for groundwater treatment at Site DP039 is to optimize the existing bioreactor and phytoremediation components and supplement the existing EVO PRB in order to promote ERD throughout the portion of the Site DP039 groundwater plume where TCE concentrations exceed 500 µg/L.
- The existing bioreactor will be optimized by installing 1 injection well (IW2140x39) and injecting EVO to promote greater distribution of total organic carbon (TOC) between the bioreactor and extraction well MW750x39.

Conceptual Design

- The phytoremediation system will be optimized by installing a gravel infiltration trench along the upgradient side of the phytoremediation system. Two extraction wells (EW2382x39 and EW2383x39) will be installed in portions of the plume where TCE concentrations exceed 500 µg/L. The groundwater will be conveyed to the infiltration trench.
- A second EVO PRB will be installed between the phyto area and the existing EVO PRB. This new PRB will consist of 21 injection wells (IW2386x39 through IW2406x39) and will extend further to the northeast and to the southwest than the existing PRB, preventing TCE concentrations exceeding 500 µg/L from migrating beyond the ERD treatment area.



Injection Wells

- 22 injection wells will be installed at Site DP039 (21 in the new PRB, and 1 near the bioreactor).
- The spacing of the injection wells within the new EVO PRB will be 30 feet based on an estimated EVO injection ROI of 15 feet.
- Each injection well will be drilled to consolidated bedrock.
- The injection wells will be 2-inch diameter PVC and will consist of 20 feet of 0.020-inch prefabricated slot screen with the bottom of the screen located just above the consolidated bedrock.

Extraction Wells

- Two extraction wells will be installed to optimize the phytoremediation system.
- Each extraction well will be drilled to consolidated bedrock.
- The extraction wells will consist of 6-inch diameter PVC and 40 feet of 6-inch diameter stainless steel wire wrap screen.
- The extraction wells will be screened in the lower portion of the aquifer, approximately 30 to 70 feet below ground surface (bgs).

Monitoring Wells

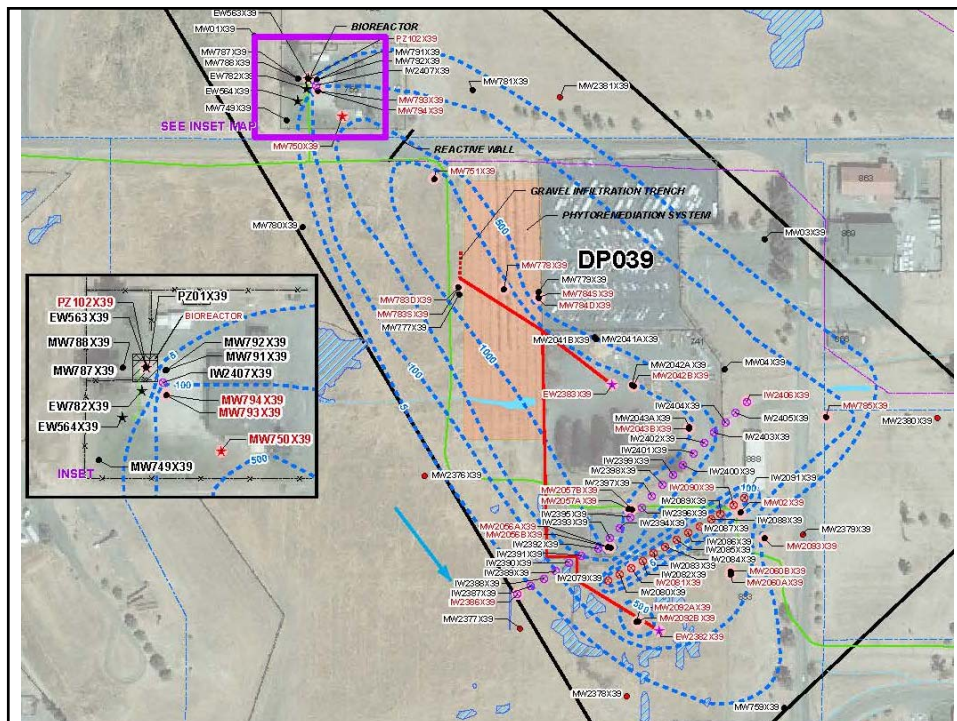
- Six monitoring wells will be installed in the distal plume to expand the EA monitoring network.
- Each monitoring well will be drilled to consolidated bedrock.
- The monitoring wells will be 2-inch diameter PVC and will consist of 10 feet of 0.010-inch prefabricated slot screen with the bottom of the screen located just above the consolidated bedrock.

Infiltration Trench

- A gravel infiltration trench, approximately 75 feet long and 4 feet deep, will be installed along the upgradient edge of the phytoremediation system.
- The trench will be filled with a mixture of 80 percent 0.5- to 1.5-inch rounded gravel and 20 percent organic material, such as tree bark mulch, and will be completed with an impermeable surface layer such as clay or geosynthetics.

EVO Injection

- It is anticipated that approximately 46,350 pounds of EVO will be injected at Site DP039.
- A Dosatron proportional feed system (high precision injection pump) will be used to dilute the concentrated EVO to the approximately 3.6 percent design injection concentration.



Groundwater Monitoring

- Baseline groundwater sampling will be conducted prior to the injection of EVO to establish the initial contaminant concentrations.
- Post-injection monitoring will be conducted in 29 performance monitoring wells.
 - Performance monitoring wells include MW02x39, PZ102x39, MW750x39, MW751x39, MW778x39, MW783Sx39, MW783Dx39, MW784Sx39, MW784Dx39, MW785x39, MW793x39, MW794x39, MW2042Bx39, MW2043Bx39, MW2056Ax39, MW2056Bx39, MW2057Ax39, MW2057Bx39, MW2060Ax39, MW2060Bx39, IW2081x39, IW2090x39, MW2092Ax39, MW2092Bx39, MW2093x39, EW2382x39, EW2383x39, IW2386x39, and IW2406x39.
- Post-injection monitoring will be conducted semi-annually for 1 year and annually thereafter.

Reporting

- Results of the implementation of the Remedial Action/Remedial Design (RD/RA) Work Plan and the baseline sampling will be reported in a Remedial Action Construction Completion Report (RACCR).
- Analytical results of post-injection monitoring at Site DP039 will be presented in the annual Groundwater Remediation Implementation Status Reports (GRISR).

Questions

Travis AFB Restoration Program

Program Overview

*RPM Meeting
February 18, 2015*

Completed Documents

- Vapor Intrusion Assessment Update Technical Memorandum
- 2012 CAMU Annual Report
- Old Skeet Range Action Memorandum
- 3rd Five-Year Review
- 2012 Annual Groundwater Remediation Implementation Status Report (GRISR)
- Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan
- Pre-Design Site Characterization of SS029 Report
- Old Skeet Range Removal Action Work Plan
- 2013 CAMU Inspection Annual Report
- Groundwater Record of Decision (ROD)
- CG508 POCO Work Plan
- 2013 Annual GRISR
- FT004 Technology Demonstration Work Plan
- Kinder Morgan LF044 Land Use Control Report
- SD031 Technology Demonstration Work Plan
- TA500 Data Gap Investigation Work Plan
- ST018 POCO Work Plan Addendum
- **SD037 GW RD/RA Work Plan**

Completed Field Work

- Replace battery banks at ST018 Groundwater Treatment Plant
- Annual Groundwater Remediation Implementation Program (GRIP) Sampling event
- Well Decommissioning (9 Wells)
- Electrical repairs to FT005 extraction system (well EW01x05)
- Electrical repairs to Site SS029 extraction system
- Site ST018 carbon vessels upgrade
- 2014 GRIP Semiannual Sampling Event
- Pump repairs to Site SS016 well (EW610x16)
- Subsite LF007C optimization upgrades
- 2014 Annual GRIP Sampling Event
- Biological Resource Assessment
- Site CG508 Site Investigation
- Old Skeet Range Characterization Sampling
- 4Q Semiannual GRIP Sampling Event
- ***SD031 Technology Demonstration Well Installation***

3

Documents In-Progress

CERCLA

- ***Oil-Water Separators POCO Evaluation Work Plan***
- ***TS060 Old Skeet Range PAH Delineation Report***
- Travis AFB UFP-QAPP
- DP039 Lead Excavation Technical Memo
- SD034 Data Gap Investigation Work Plan
- SD036 RD/RA Work Plan
- SS016 GW RD/RA Work Plan
- SS015 GW RD/RA Work Plan
- Proposed Plan for ROD Amendment to WABOU Soil ROD
- Proposed Plan for ROD Amendment to NEWIOU Soil, Sediment, & Surface Water ROD

POCO

- ***SS014 POCO Technology Demonstration Work Plan***

4

Field Work In-Progress

- ***SD031 Trench Installation***
- ***SD031 EVO Injection***

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Documents Planned

CERCLA

- | | |
|---|-------------------|
| • DP039 RD/RA Work Plan | Feb |
| • Community Involvement Plan | Feb |
| • FT005 Technology Demonstration Work Plan | Mar |
| • 2014 Annual CAMU Monitoring Report | Mar |
| • 2014 Annual GRISR | Apr |
| • <i>SD031 Technology Demonstration Construction Completion Report</i> | <i>May</i> |

POCO

- | | |
|--|-------------------|
| • ST032 POCO Soil Excavation Work Plan | Mar |
| • <i>CG508 Site Investigation/Site Closure Request Report</i> | <i>Apr</i> |
| • <i>ST028 POCO Work Plan</i> | <i>Apr</i> |

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Field Work Planned

CERCLA

- SD037 Well Installation Feb
- SD036 Well Installation Mar
- SD036 EVO Injection Apr
- SD037 EVO Injection Apr
- SS016 Well Installation Apr
- GRIP Sampling (annual) Apr
- **SS015 Well Installation Apr**

POCO

- ST018 Well/Trench Installation Apr
- SS014 Site Investigation Apr

Note: Travis will try to notify
regulatory agencies via email
approximately one week in
advance of planned field work

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Completed Documents (Historical1)

- Basewide Health & Safety Plan (HSP)
- Action Plan
- 2007/2008 GSAP Annual Report
- LF007C RPO Work Plan
- LF008 Rebound Study Work Plan
- SS014 Tier 1 POCO Evaluation Work Plan
- ST027B Site Characterization Work Plan
- SS030 RPO Work Plan
- ST032 POCO Technical Memo
- DP039 Bioreactor Work Plan
- 2008 Annual GWTP RPO Report
- Passive Diffusion Bag (PDB) Technical Memo
- RD/RA QAPP Update
- ST032 Tier 1 POCO Evaluation Work Plan
- Phytostabilization Demonstration Technical Memo
- Model QAPP
- LF008 Rebound Test Technical Memo
- Comprehensive Site Evaluation Phase II Work Plan
- Field Sampling Plan (FSP)
- SS016 RPO Work Plan
- ST018 POCO RA Work Plan
- Vapor Intrusion Assessment Report
- GSAP 2008/2009 Annual Report
- FT005 Data Gap Work Plan
- First, Second, & Third Site DP039 Sustainable Bioreactor Demonstration Progress Reports
- DP039 RPO Work Plan
- SD036/SD037 RPO Work Plan
- ST027B Site Characterization Report
- 2009 GWTP RPO Annual Report
- Natural Attenuation Assessment Report (NAAR)
- Union Creek Sites SD001 & SD033 Remedial Action Report
- CAMU 2008-2009 Monitoring Annual Report

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Completed Documents (Historical 2)

- Phytostabilization Study Report
- 2009/2010 Annual GSAP Report
- SS015 Remedy Optimization Field Implementation Plan
- Sites SS014 and ST032 Tier 1 POCO Evaluation Report
- SD036 Remedy Optimization Field Implementation Plan
- 2010 Annual CAMU Inspection Report
- Site ST018 POCO Baseline Implementation Report
- FT005 Data Gaps Investigation Report
- Comprehensive Site Evaluation Phase II Report
- 2010 Groundwater RPO Annual Report
- Focused Feasibility Study (FFS)
- Site ST027-Area B Human Health Risk Assessment
- Site ST027-Area B Ecological Risk Assessment
- Work Plan for Assessment of Aerobic Chlorinated Cometabolism Enzymes
- 2010/2011 Annual GSAP Report
- Baseline Implementation Report (Sites SS015, SS016, SD036, SD037, and DP039)
- 2011 CAMU Annual Report
- Technical and Economic Feasibility Analysis (TEFA)
- Work Plan for RPO of Sites SS016 and SS029
- Site LF007C Data Gaps Investigation Technical Memorandum
- Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes
- Old Skeet Range Engineering Evaluation/Cost Analysis
- 2011 Groundwater Treatment RPO Annual Report
- Groundwater Proposed Plan (PP)
- FT005 Remedial Action Completion Report
- 2012 GSAP Technical Memorandum 9

Completed Field Work (Historical1)

- ST027B Gore Sorber Survey--Phase 1
- ST027B Field Sampling -- Phase 2
- GSAP 2008 Semi-annual Event
- ST027B Installation of Wells -- Phase 3
- SS014 Site Characterization
- LF008 Rebound Study
- GSAP Annual Sampling Event - 2009
- SS030 Site Characterization--Phase 1
- ST027 Site Characterization -Phase 3
- ST014 Monitor Well Install - Subsite 3
- SD001/SD033 Sediment RA
- SS016 Site Characterization (OSA source area)
- ST018 Site Characterization
- SS030 Site Characterization (Off-base VOC Plume)
- DP039 Site Characterization (for Biobarrier Placement)
- SS014 & ST032 Q1 2010 MNA Sampling (2nd of 4 quarterly events)
- SD036 Additional Site Characterization (north & east)
- Therm/Ox System Removal
- SS016 Monitoring Well Installation
- SD037 EVO Injection Well Installation
- DP039 Monitoring Well & Injection Well Installation
- DP039 EVO Injection
- SD037 Monitoring Well Installation
- GSAP 2010 Annual Sampling Event
- SD037 EVO Injection
- SS015 Site Characterization
- South Plant GAC Change-out
- FT005 Data Gap Investigation
- SS016 Position Survey of EW03
- SS016 Bioreactor Installation
- SS016 Bioreactor Baseline Sampling
- DP039 Biobarrier Quarterly Performance Sampling

Completed Field Work (Historical 2)

- DP039 Bioreactor Quarterly Performance Sampling
- SD037 EVO Quarterly Performance Sampling
- SS015 EVO Baseline Sampling
- SD036 EVO Baseline Sampling
- SS016 Bioreactor Startup
- SD036 Injection Wells Installation
- SS015 Injection Wells Installation
- ST018 GETS Installation
- SD036 EVO Injection
- 2010 Semiannual GSAP
- SS015 EVO Injection
- Quarterly RPO Performance Monitoring (Feb 2011)
- ST018 GETS Startup
- Quarterly RPO Performance Monitoring (May 2011)
- 2011 Annual GSAP Sampling
- SS029 GET Shutdown Test (System Optimization analysis)
- Quarterly RPO Performance Monitoring (Aug 2011)
- Quarterly RPO Performance Monitoring (Nov 2011)
- 2011 Semiannual GSAP Sampling
- LF007C Site Characterization (Wetlands)
- FT005 Soil Remedial Action
- Performance Monitoring SS015 (4th Quarterly event)
- Sampling for Assessment of Aerobic Chlorinated Cometabolism Enzymes (Feb 21-22)
- 2012 Annual GSAP Sampling
- CAMU Lysimeter Removal
- LF007C GET System Optimization
- SS029/SS016 System Optimization Analysis
- GSAP Semiannual Sampling Event
- Replace electrical wiring for well field at Site SS030

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