

**Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
15 June, 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) meeting on 15 June 2016 at 0930 hours in Building 248 at Travis AFB, California. Attendees included:

Lonnie Duke	AFCEC/CZOW
Glenn Anderson	AFCEC/CZOW
Angel Santiago Jr.	AFCEC/CZOW
William Hall	AFCEC/CZRW
Dezso Linbrunner	USACE_Omaha
Adriana Constantinescu (via telephone)	California Regional Water Quality Control Board (RWQCB)
Ben Fries	California Department of Toxic Substances Control (DTSC)
Nadia Hollan Burke	USEPA
Indira Balkissoon	Techlaw, Inc
Tony Chakurian	CH2M
Mike Wray	CH2M

Handouts distributed at the meeting, discussions and presentations included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting and Document Schedule
- Attachment 3 SBBGWTP Monthly Data Sheet (May 2016)
- Attachment 4 CGWTP Monthly Data Sheet (May 2016)
- Attachment 5 ST018 Monthly Data Sheet (May 2016)
- Attachment 6 Presentation: SD031 Remedial Investigation Data Presentation – Triad Discussion
- Attachment 7 Presentation: Documents and Activities Completed, In Progress and Planned

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 18 May 2016 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from May 2016 were reviewed.

Action item 1 is ongoing: Mr. Duke to provide updates on perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as he becomes aware of them. 15 June 2016 update: Mr. Duke and Mr. Anderson attended the Battelle conference, where the subject of perfluorinated compounds (PFCs) was the focus of many discussions and presentations. Mr. Duke said that EPA came out with a preliminary health advisory for PFOS/PFOA at 70 parts per trillion (ppt) for 2 compounds out of a possible 200 compounds. There are still big questions about the remainder of PFC compounds, and even about the proper laboratory analytical methods. Mr. Duke handed a CD to the regulators of The Final Preliminary Assessment Report for the Perfluorinated Compounds at Travis Air Force Base Fairfield, California (May, 2015 CH2M HILL). A contract for PFCs characterization at Travis AFB has been awarded, but was since delayed because biological assessment and monitoring needs to be added to the scope of the project. Travis AFB has a new high-expansion foam which is not a fluorinated compound. The newer hangers use the new expansion foam. The older hangers and fire trucks still use the fire suppressing media that contains PFCs, while the Air Force is exploring alternatives.

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

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

Travis AFB Annual Meeting and Teleconference Schedule

The next RPM meeting will be a teleconference meeting, which will be held on Wednesday, 20 July 2016, at 0930.

Travis AFB Master Document Schedule

Mr. Anderson announced that the majority of the date changes are largely due to staffing issues, personnel changes, and vacations.

- Community Involvement Plan (CIP): No change was made to the schedule. Mr. Anderson said that the dates may need to be pushed back due to a staffing change. Ms. Jill Dunphy from CH2M will be authoring the CIP.

- Site SD031 Remedial Investigation Work Plan: Response to comments due date and Draft Final Due date changed to 15 June 2016 to reflect the actual dates, the rest of the dates were changed accordingly.
- Action Memorandum Non-Time Critical Removal Action at Site TS060 (Old Skeet Range): Agency Comments Due date was changed to 27 June 2016. Mr. Anderson said that since the draft to the agencies was delayed, it was decided to give the agencies additional time to review the document.
- Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Mr. Anderson said the other responsible party and their contractor are addressing a short term contractual delay that should be resolved in a few weeks. Two documents are currently in review: the Annual Groundwater Report and the Report of Findings. The Water Board submitted comments on both documents and is reviewing responses to their comments on the Annual Groundwater Report. A work plan for groundwater sampling and analysis during the upcoming summer construction season at Potrero Hills is in preparation.
- Corrective Action Plan for DERA-Funded Oil Water Separators (POCO): Response to Comments due and the Final due date were changed to 13 July 2016. Ms. Constantinescu approved a couple of the Oil Water Separator (OWS) sites early so that work could be conducted in early June while the drill rig was on site.
- Site SD034 Technology Demonstration Work Plan: No change to the schedule.
- Site TS060 Removal Action Work Plan: Draft to Agencies date was changed to 20 June 2016, the rest of the dates were changed accordingly.
- Multi-Site Bioaugmentation Technology Demonstration Work Plan: Draft to Agencies was changed to 23 June 2016, the rest of the dates were changed accordingly. Mr. Duke said that Travis AFB will be requesting a fairly quick review from the agencies on the field portion of the document to take advantage of a planned Runway 21R closure in mid-July.
- Site SS016 Soil Data Gap Investigation Work Plan: No change to the schedule. DTSC, EPA and RWQCB submitted their comments. Travis AFB is working on responses.
- Site FT004 POCO Soil Data Gap Investigation Work Plan: Predraft to AF/Service Center date was changed to 3 June 2016 to reflect the actual date. AF/Service Center Comments Due was changed to 17 June 2016. No additional changes were made to the schedule.
- Site LF044 Investigation Work Plan: Draft to Agencies date was changed to 27 June 2016, the rest of the dates were changed accordingly.
- Quarterly Newsletter (July 2016): No change to the schedule.
- 2015 Annual GRISR: No change made to the schedule.
- Site ST032 POCO Completion Report: Response to Comments due date and Final Due date changed on 26 July 2016.

- Site FT004 Groundwater Technology Demonstration Construction Completion Report: Response to Comments Due and Final Due date was changed to 10 June 2016 to reflect the actual date.
- Site ST028 POCO Completion Report: Response to Comments Due date and Final Due date changed to 28 July 2016.
- 2015 Annual CAMU Monitoring Report: Response to Comments and Final Due dates changed to 8 July 2016. Travis AFB emailed responses to comments to the DTSC and is waiting for approval. Ms. Burke asked to be copied on the RTCs.
- Site FT005 Technology Demonstration Construction Completion Report: Predraft to AF/Service Center date was changed to 28 June 2016, the rest of the dates were changed accordingly.
- Site DP039 Remedial Action Construction Completion Report: No change to schedule.
- Data Gap Investigation Work Plan Technical Memorandum for Soil Sites SD033, SD043, and SS046: Moved to History.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 3.5 million gallons of groundwater were extracted and treated during the month of May 2016. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 89.4 gallons per minute (gpm). Electrical power usage was 18,360 kWh, and approximately 25,153 pounds of CO₂ were created (based on DOE calculation). Approximately 1.4 pounds of volatile organic compounds (VOCs) were removed in May. The total mass of VOCs removed since startup of the system is 477.8 pounds.

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

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

The Central Groundwater Treatment Plant (CGWTP) performed at 59.4% uptime with approximately 660,000 gallons of groundwater extracted and treated during the month of May 2016. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 29.2 gpm. Electrical power usage was 1,416 kWh for all equipment connected to the Central Plant, and approximately 1,940 pounds of CO₂ were generated. Approximately 1.43 pounds of VOCs were removed from groundwater

by the treatment plant in May. The total mass of VOCs removed since the startup of the system is 11,433 pounds.

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

LF007C Groundwater Treatment Plant

The LF007C Groundwater Treatment Plant was taken offline as of 24 December 2015, in accordance with the USFWS requirement; due to the presence of standing water in the vernal pools.

Mr. Duke said that the treatment plant was restarted on 27 May 2016, following verification that there was no standing water at the site. The data from the last few days of May will be reported in the June LF007C Groundwater Treatment Plant Monthly Data Sheet.

ST018 Groundwater (MTBE) Treatment Plant, May 2016 (see Attachment 5)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 99.8% uptime with approximately 236,340 gallons of groundwater extracted and treated during the month of May 2016. All treated water was diverted to the sanitary sewer. The average flow rate for the ST018 GWTP was 6.6 gpm. Electrical power usage for the month was 135 kWh for all equipment connected to the ST018 GWTP, which equates to approximately 185 pounds of CO₂. Approximately 0.39 pounds of BTEX, MTBE and TPH were removed from groundwater in May by the treatment plant. Approximately 0.12 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 37.9 pounds, and the total MTBE mass removed since startup of the system is 9.1 pounds.

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

Optimization Activities for ST018GWTP: No optimization activities to report for the month of May 2016.

Presentations:

Presentation: Site SD031 Soil Remedial Investigation Update – Triad Discussion (see Attachment 6)

Mr. Chakurian gave a TRIAD presentation on the SD031 Soil Remedial Investigation data. For details, including maps and figures, see attachment 6.

Mr. Duke gave a brief history of this site. The soil at SD031 was deemed a No Further Action (NFA) site for soil. When the injection wells, gravel chimneys and bioreactor were being installed for the groundwater in 2014, stained soil and odor were observed. Because this site was a NFA for soil, and the current contract only addresses groundwater, the Air Force requested additional funding to investigate the observed soil conditions. The history of this site included the cleaning and fueling of planes during the Vietnam era.

Field Work/Initial Results:

- Drilling and soil sampling were performed from 16 May through the 27 May. Installed 29 soil borings which includes the primary and the first set of step-outs. Stained soil was observed in all 29 borings.
- Product and some gravel was observed in boring SB247x31 at about 5 feet below ground surface. Appeared to be non-aqueous phase liquid (NAPL). Note: the NAPL was found in soil several feet above the groundwater table.
- Because there was stained soil in each of the borings, PID headspace readings were used to initially evaluate for potential hotspots. Seven soil borings had maximum PID readings greater than 1,000 part per million (ppm).
- Slide 3 is a map of site SD031 with the location of the PID readings, yellow highlights are PID detections greater than 1,000 ppm.
- Some of the preliminary analytical results have been received but only for certain compounds. With the exception of the VOC data, we do not have a complete data set for any of the analytical suites. The analytical results reported in this presentation have not been validated.
- Preliminary comparison of the analytical results indicate that VOC and TPH concentrations above the screening levels, particularly where the high PID readings were noted.
- Dioxin was observed at a concentration above the screening levels in the soil sample where the NAPL was observed. We are still waiting for the product results.

Mr. Linbrunner asked if the product found is believed to be JP-4 or JP-8. Mr. Chakurian said we requested carbon fingerprinting analysis to answer that question.

- A map of site SD031 was presented with the available analytical data above the screening levels. The soil boring where the product was found had solvents above screening levels. (see attachment 6 for details).

Ms. Burke asked if vinyl chloride (VC) was detected. Mr. Chakurian said no VC was detected in the data received to date.

- Several areas have also been identified on the soil contamination figure where potential step-out borings may be placed to delineate the contamination. A map is attached for the proposed step-out boring locations. The step-out borings on the east side of the site will require a biological opinion from US Fish and Wildlife Service (USFWS).

Ms. Constantinescu asked if we are using the 2016 screening levels. Mr. Chakurian indicated that February 2016 ESLs and November 2015 RSLs are being used for this investigation.

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

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

Newly Completed Documents: Site FT004 Technology Demonstration Construction Completion Report; Site SD031 Soil Remedial Investigation Work Plan.

Newly Completed Field Work: DP039 EVO Injections; 2016 Q2 GRIP Sampling.

In-Progress Documents (CERCLA): 2015 Annual CAMU Monitoring Report; Site TS060 Action Memorandum; Site SS016 Soil Data Gaps Investigation Work Plan; Site SD034 Technology Demonstration Work Plan.

In-Progress Documents (POCO): Corrective Action Plan for DERA-Funded Oil Water Separators; Site ST032 POCO Completion Report; Site ST028 POCO Completion Report.

In-Progress Field Work: SD031 Soil Remedial Investigation; Oil Water Separators Step-out Drilling (4).

Planned Documents (CERCLA): Site TS060 Removal Action Work Plan (June); Site LF044 Investigation Work Plan (June); Multi-Site Bioaugmentation Technology Demonstration Work Plan (June); 2015 Annual GRISR (June); Community Involvement Plan (July); Site FT005 Technology Demonstration Construction Completion Report (July); Site DP039 RD/RA Construction Completion Report (July).

Planned Documents (POCO): Site FT004 POCO Soil Data Gap Investigation Work Plan (July).

Field Work Planned (CERCLA): Data Gap Investigation for Soil Sites (SD033, SD043, and SS046) (July); Multi-site Bioaugmentation Technology Demonstration (July); SS016 Soil Data Gaps Investigation (July); LF044 Berm Sampling (July); SD034 Technology Demonstration Bioreactor Installation (July); SD034 Technology Demonstration Well Installation (August); SD031 Remedial Investigation (RI) Step-out Sampling (August); TS060 Removal Action (TBD).

Field Work Planned (POCO): Oil Water Separators (12) Removal (July); FT004 POCO Soil Data Gaps Investigation (July); Site SS014 Bioreactor Installation (July); CG508 Well Decommissioning (August).

4. New Action Item Review

None.

5. PROGRAM/ISSUES/UPDATE

None.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Lonnie Duke	Mr. Duke to provide updates on PFOS and PFOA as he becomes aware of them.	Ongoing	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING

The RPM meeting is scheduled for 9:30 PST on 15 June 2016. **The call-in number is 1-866-203-7023. Enter the Participation code 5978-75-9736 then enter #.**

AGENDA

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

- A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE

3. PRESENTATIONS

- A. SD031 DATA PRESENTATION – TRIAD DISCUSSION
- B. PROGRAM UPDATE:
DOCUMENTS & ACTIVITIES COMPLETED, IN PROGRESS AND PLANNED

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

- A. MEETING SCHEDULE

NOTES: AFTER THE RPM MEETING, BASED ON THE DISCUSSION DURING THE REVIEW OF THE MASTER MEETING AND DOCUMENT SCHEDULE, WE ALLOW TIME TO HOLD A SEPARATE SPLINTER MEETING TO DISCUSS RESPONSES TO AGENCY COMMENTS ON THOSE DOCUMENTS THAT ARE IN PROGRESS, OR OTHER ISSUES IF NEEDED. ALL PARTICIPANTS ARE WELCOME TO PARTICIPATE.

(2016)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting ¹ (Begins at time noted)	RPM Teleconference (Begins at time noted)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
—	01-20-16	—
02-17-16	—	—
—	03-16-16	—
04-21-16 (Thursday 2:00 PM)	—	04-21-16
—	05-18-16	—
06-15-16	—	—
—	07-20-16	—
08-17-16	—	—
—	09-21-16	—
10-20-16 (Thursday 2:00 PM)	—	10-20-16 ²
—	11-16-16	—
—	—	—

¹ Note: Meetings and teleconferences will be held at 09:30 AM on the third Wednesday of each month unless otherwise noted.

² Note: Tentative RAB tour date in lieu of RAB meeting.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Community Involvement Plan Travis AFB, Glenn Anderson CH2M HILL, Jill Dunphy	Site SD031 Remedial Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Tony Chakurian	Action Memorandum for Non-Time Critical Removal Action at Site TS060 (Old Skeet Range) Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	NA	01-13-16	03-30-16
AF/Service Center Comments Due	NA	01-28-16	04-13-16
Draft to Agencies	07-07-16	02-10-16	05-16-16
Draft to RAB	07-07-16	02-10-16	05-16-16
Agency Comments Due	08-08-16	03-14-16	06-27-16
Response to Comments Meeting	08-17-16	05-18-16	07-20-16
Agency Concurrence with Remedy	NA	NA	NA
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA
Response to Comments Due	09-02-16	06-15-16	08-05-16
Draft Final Due	09-02-16	06-15-16	08-05-16
Final Due	10-03-16	07-15-16	09-08-16

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	Corrective Action Plan for DERA-Funded Oil Water Separators Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick	Site SD034 Technology Demonstration Work Plan Travis AFB, Glenn Anderson CH2M HILL, Levi Pratt	Site TS060 Removal Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	02-10-16	03-22-16	04-14-16
AF/Service Center Comments Due	02-25-16	04-05-16	04-28-16
Draft to Agencies	04-06-16	05-19-16	06-20-16
Draft to RAB	04-06-16	05-19-16	06-20-16
Agency Comments Due	05-06-16	06-20-16	07-20-16
Response to Comments Meeting	05-18-16	07-20-16	08-17-16
Response to Comments Due	06-01-16 (07-13-16)	08-09-16	08-31-16
Draft Final Due	NA	NA	NA
Final Due	06-01-16 (07-13-16)	08-09-16	08-31-16
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

Life Cycle	Multi-Site Bioaugmentation Technology Demonstration Work Plan Travis AFB, Glenn Anderson CH2M HILL, Levi Pratt	Site SS016 Soil Data Gap Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA	NA
Predraft to AF/Service Center	05-06-16	03-24-16
AF/Service Center Comments Due	05-20-16	04-07-16
Draft to Agencies	06-23-16	05-11-16
Draft to RAB	06-23-16	05-11-16
Agency Comments Due	07-25-16	06-13-16
Response to Comments Meeting	08-17-16	06-15-16
Response to Comments Due	09-09-16	07-01-16
Draft Final Due	NA	NA
Final Due	09-09-16	07-01-16
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS		
Life Cycle	Site FT004 POCO Soil Data Gap Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald	Site LF044 Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA	NA
Predraft to AF/Service Center	06-03-16	04-26-16
AF/Service Center Comments Due	06-17-16	05-10-16
Draft to Agencies	07-06-16	06-27-16
Draft to RAB	07-06-16	06-27-16
Agency Comments Due	08-05-16	07-28-16
Response to Comments Meeting	08-17-16	08-17-16
Response to Comments Due	09-07-16	08-31-16
Draft Final Due	NA	NA
Final Due	09-07-16	08-31-16
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Quarterly Newsletters (July 2016) Travis, Glenn Anderson	2015 Annual GRISR Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Site ST032 POCO Completion Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	NA	05-03-16	01-25-16
AF/Service Center Comments Due	NA	06-03-16	02-08-16
Draft to Agencies	07-05-16	06-23-16	04-05-16
Draft to RAB	NA	06-23-16	04-05-16
Agency Comments Due	07-18-16	07-25-16	05-05-16
Response to Comments Meeting	TBD	08-17-16	05-18-16
Response to Comments Due	07-20-16	08-31-16	06-02-16 (07-26-16)
Draft Final Due	NA	NA	NA
Final Due	07-27-16	08-31-16	06-02-16 (07-26-16)
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Site FT004 Groundwater Technology Demonstration Construction Completion Report Travis AFB, Glenn Anderson CH2M HILL, Levi Pratt	Site ST028 POCO Completion Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick CAPE, Meg Greenwald	2015 Annual CAMU Monitoring Report Travis AFB, Lonnie Duke CH2M HILL, Levi Pratt
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	02-16-16	02-24-16	02-26-16
AF/Service Center Comments Due	03-01-16	03-09-16	03-11-16
Draft to Agencies	03-15-16	04-13-16	04-01-16
Draft to RAB	03-15-16	04-13-16	04-01-16
Agency Comments Due	04-14-16	05-13-16	05-02-16
Response to Comments Meeting	04-21-16	05-18-16	05-18-16
Response to Comments Due	06-10-16	06-07-16 (07-28-16)	07-08-16
Draft Final Due	NA	NA	NA
Final Due	06-10-16	06-07-16 (07-28-16)	07-08-16
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	Site FT005 Technology Demonstration Construction Completion Report Travis AFB, Glenn Anderson CH2M HILL, Levi Pratt	Site DP039 Remedial Action Construction Completion Report Travis AFB, Glenn Anderson CH2M HILL, Levi Pratt
Scoping Meeting	NA	NA
Predraft to AF/Service Center	06-28-16	06-30-16
AF/Service Center Comments Due	06-28-16	07-15-16
Draft to Agencies	07-15-16	07-29-16
Draft to RAB	07-15-16	07-29-16
Agency Comments Due	08-15-16	08-29-16
Response to Comments Meeting	08-17-16	09-21-16
Response to Comments Due	08-31-16	10-05-16
Draft Final Due	NA	NA
Final Due	08-31-16	10-05-16
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

HISTORY	
Life Cycle	Data Gap Investigation Work Plan Technical Memorandum for Soil Sites SD033, SD043, and SS046 Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA
Predraft to AF/Service Center	01-15-16
AF/Service Center Comments Due	02-01-16
Draft to Agencies	02-17-16
Draft to RAB	02-17-16
Agency Comments Due	03-18-16
Response to Comments Meeting	04-21-16
Response to Comments Due	05-06-16
Draft Final Due	NA
Final Due	05-06-16
Public Comment Period	NA
Public Meeting	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 189

Reporting Period: 4 May 2016 – 31 May 2016

Date Submitted: 13 June 2016

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 May 2016 reporting period.

Table 1 – Operations Summary – May 2016			
Initial Data Collection:	5/4/2016 9:50	Final Data Collection:	5/31/2016 14:40
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 653 hours	SBBGWTP: 100%	SBBGWTP: 18,360 kWh (25,153 lbs CO₂ generated^a)	
Gallons Treated: 3.5 million gallons		Gallons Treated Since July 1998: 937 million gallons	
Volume Discharged to Union Creek: 3.5 million gallons		Gallons Treat From Other Sources: 0 gallons	
VOC Mass Removed: 1.4 lbs^b		VOC Mass Removed Since July 1998: 477.8 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$4,091 ^c			
Monthly Cost per Pound of Mass Removed: \$4,547 ^c			
lbs = pounds			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using May 2016 EPA Method SW8260C 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 – May 2016							
FT005^b				SS029		SS030	
EW01x05	0.1	EW736x05	Offline	EW01x29	1.6	EW01x30	9.8
EW02x05	0.6	EW737x05	Offline	EW02x29	2.4	EW02x30	0.6
EW03x05	Offline	EW742x05	Offline	EW03x29	0.1	EW03x30	2.5
EW731x05	Offline	EW743x05	Offline	EW04x29	7.6	EW04x30	31.6 ^c
EW732x05	Offline	EW744x05	Offline	EW05x29	12.1	EW05x30	1.1 ^c
EW733x05	Offline	EW745x05	Offline	EW06x29	4.4	EW2174x30	11.3
EW734x05	8.4	EW746x05	Offline	EW07x29	13.0	EW711x30	1.7
EW735x05	7.1	EW2291x05	10.7				
FT005 Total:		26.9		SS029 Total:		41.2	
				SS030 Total:		58.6	
SBBGWTP Average Monthly Flow^d: 89.4 gpm							
^a Flow rates presented are instantaneous measurements taken at the end of the reporting period. ^b Most extraction wells at FT005 were taken offline in accordance with the <i>2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.</i> ^c Wells were offline for the majority of the reporting period ^d 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.							
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.	--		--	None.
-- = Time not recorded ^a Shutdown and restart times estimated based on field notes SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Analytical data from the 3 May 2016 sampling event are presented in Table 4. The total VOC concentration (46.94 µg/L) in the influent sample has increased from the April 2016 sample results (39.09 µg/L). TCE (41.2 µg/L), cis-1,2-DCE (2.64 µg/L), chloromethane (2.72 µg/L), 1,2-DCA (0.23 µg/L), and chloroform (0.15 µg/L) were detected at the influent sampling location. Cis-1,2-DCE, chloromethane, 1,2-DCA, and chloroform were detected at the midpoint location at low concentrations. TCE (0.21 µg/L), cis-1,2-DCE (0.24 µg/L), and chloromethane (1.23 µg/L) were detected at the effluent sampling location. The contaminants detected in the effluent sample were less than their respective effluent limitations of 5 µg/L.

Several extraction wells were off line during a portion of the reporting period:

- At the end of April, EW04x29 was shut down because of a blown fuse. The fuse was replaced on 6 May and the well was restarted without issue.
- In early May, EW01x05 was off line because of a pump fault. On 27 May while troubleshooting the well, the power-line conditioner was bypassed, and the well began to function properly. While the fault issue with this well was resolved, the pump will remain off line (along with EW02x05) as part of the Site FT005 technology demonstration.
- On 5 May, EW04x30 was shut down because no flow was observed on the SCADA system. After the pump was removed, the motor was found to be faulty. A new pump and motor was installed in EW04x30 on 25 May, and the well was restarted without issue.
- On 12 May, the EW05x30 pump was on line, but no flow rate was observed. On 25 May, the pump was replaced and a new check valve was installed. The well was restarted without issue.
- On 12 May, the transducer for EW01x30 was rewired. The well remained operational during the entire reporting period.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. An overall decrease in the VOC influent concentration has been observed in the past twelve months. Conversely, an overall increase in the flow rate has been observed in the past twelve months. However, the average flow rate at the SBBGWTP decreased in May 2016 to 89.4 gpm from the April 2016 flow rate of 100.5 gpm primarily because EW04x30 was off line for majority of the reporting period.

Optimization Activities

No optimization activities occurred at the SBBGWTP in May 2016.

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 25,153 pounds of GHG during May 2016.

TABLE 4

Summary of Groundwater Analytical Data For May 2016 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	3 May 2016 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND
Chloroform	5.0	0.15	0	0.15 J	0.20 J	ND
Chloromethane	NA	0.15	0	2.72	0.82	1.23
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	0.23 J	0.56	ND
1,1-Dichloroethene	5.0	0.15	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	2.64	0.18 J	0.24 J
trans-1,2-Dichloroethene	5.0	0.15	0	ND	ND	ND
Methylene Chloride	5.0	0.15	0	ND	ND	ND
Tetrachloroethene	5.0	0.15	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.15	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.15	0	ND	ND	ND
Trichloroethene	5.0	0.15	0	41.2	ND	0.21 J
Vinyl Chloride	0.5	0.15	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.15	0	ND	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND	ND
Toluene	5.0	0.15	0	ND	ND	ND
Xylenes	5.0	0.15 – 0.30	0	ND	ND	ND
Other						
Total Suspended Solids (mg/L)	NE	0.6	0	3.2 J	NM	NM
Total Petroleum	50	30	0	NM	NM	ND
Hydrocarbons – Gasoline						
Total Petroleum	50	29	0	NM	NM	ND
Hydrocarbons – Diesel						

* 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

NA = not applicable

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

ND = not detected

NM = not measured

µg/L = micrograms per liter

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

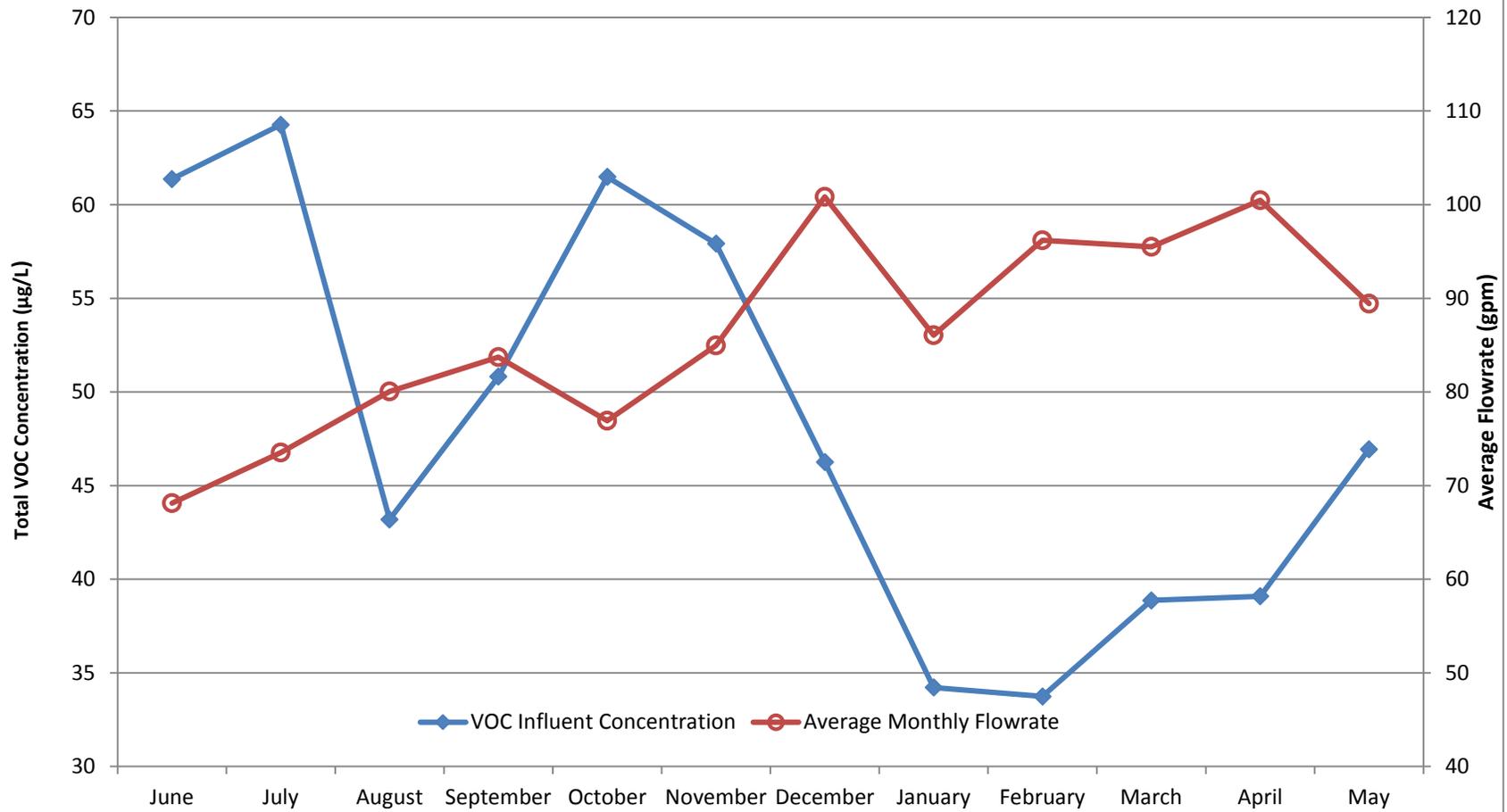
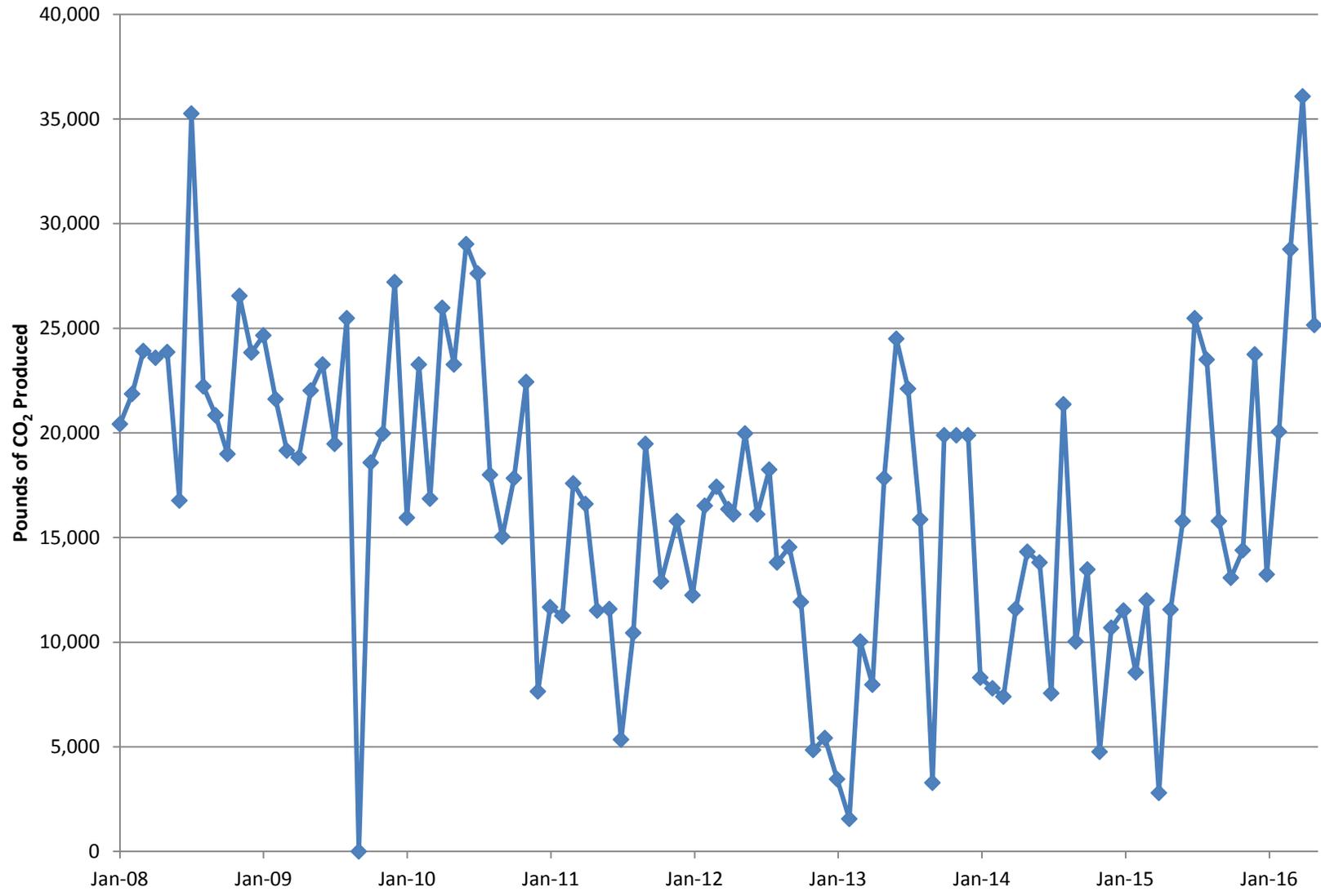


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 202

Reporting Period: 4 May 2016 – 31 May 2016

Date Submitted: 13 June 2016

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 May 2016 reporting period.

Table 1 – Operations Summary – May 2016			
Initial Data Collection:	5/4/2016 14:35	Final Data Collection:	5/31/2016 0:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP:	376 hours	CGWTP:	59.4%
		CGWTP:	1,416 kWh (1,940 lbs CO ₂ generated ^a)
Gallons Treated: 660,000 gallons		Gallons Treated Since January 1996: 525.8 million gallons	
VOC Mass Removed from groundwater:		VOC Mass Removed Since January 1996:	
1.43 lbs^b		2,747 lbs from groundwater	
		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,191 ^c			
Monthly Cost per Pound of Mass Removed: \$3,528 ^c			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using May 2016 EPA Method SW8260C 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 during the monthly reporting period.

Table 2 – CGWTP Average Flow Rates^a – May 2016	
Location	Average Flow Rate Groundwater (gpm)
EW001x16	14.3
EW002x16	6.8
EW003x16	0.6
EW605x16	5.8
EW610x16	3.2
CGWTP	29.2

^a Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
gpm = gallons per minute

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown^a		Restart		Cause
	Date	Time	Date	Time	
CGWTP	20 May 2016	06:58			Faulty direct current power supply. System remained off line through the end of the reporting period.

^a Shutdown and restart times estimated based on field notes
CGWTP = Central Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 3 May 2016. Sample results are presented in Table 4. The total VOC concentration (260.0 µg/L) in the May 2016 influent sample has increased slightly from the April 2016 sample (251.0 µg/L). TCE was detected in the influent sample at a concentration of 213 µg/L. Cis-1,2-DCE and vinyl chloride were detected at trace concentrations in the after carbon 1 effluent sample. Vinyl chloride and chloromethane were detected in the after carbon 2 effluent and final effluent samples. Chloromethane is not typically detected at the CGWTP, and it does not have an associated effluent limit or trigger value. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough, though the carbon treatment remained effective in May 2016.

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 influent concentration has been gradually increasing since August 2015. The overall flow rate through the treatment plant has increased slightly over the past 12 months.

The annual 2016 Groundwater Remediation Implementation Program (GRIP) sampling event began in April 2016. During this sampling event, purge water collected from the various groundwater wells being sampled are treated through the CGWTP. During the May 2016 reporting period, approximately 23 gallons of purge water was processed through the CGWTP. This amount of purge water is included in the 660,000 gallons of treated water reported in Table 1.

The CGWTP was shut down on 20 May because of a faulty direct current power supply. A new power supply was ordered and will be installed in early June. The CGWTP remained off line throughout the remainder of the reporting period.

The Site DP039 bioreactor continued 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 bioreactor was taken off line on 13 May and brought back on line on 27 May.

Optimization Activities

No optimization activities occurred at the CGWTP in May 2016.

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 1,940 pounds of GHG during May 2016. This is a decrease from the April 2016 amount of 4,061 pounds.

TABLE 4

Summary of Groundwater Analytical Data for May 2016 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	3 May 2016 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND	ND
Chloroform	5.0	0.15	0	ND	ND	ND	ND
Chloromethane	NA	0.15	0	1.51	ND	0.66	1.05
cis-1,2-Dichloroethene	5.0	0.15	0	41.3	0.31 J	ND	ND
1,2-Dichlorobenzene	5.0	0.15	0	0.32 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	0.26 J	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	0.15 J	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.15	0	0.56	ND	ND	ND
Methylene Chloride	5.0	0.15	0	ND	ND	ND	ND
Methyl tert-Butyl Ether	1.0	0.15	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.15	0	0.50	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.15	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.15	0	ND	ND	ND	ND
Trichloroethene	5.0	0.15 – 1.5	0	213	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.15	0	2.22	ND	ND	ND
Vinyl Chloride	0.5	0.15	0	0.22 J	0.21 J	0.30 J	0.15 J
Non-Halogenated Volatile Organics							
Benzene	1.0	0.15	0	ND	ND	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND	ND	ND
Toluene	5.0	0.15	0	ND	ND	ND	ND
Total Xylenes	5.0	0.15 – 0.30	0	ND	ND	ND	ND
Other							
Total Suspended Solids (mg/L)	NA	0.6	0	0.60 J	NM	NM	NM
Total Petroleum Hydrocarbons – Gasoline	50	30	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	29	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	50 (trigger)	25	0	NM	NM	NM	ND

* 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

NA = not applicable

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 Date	Pulse-off Date
MW750x39	5 June 2015	19 June 2015
	3 July 2015	17 July 2015
	31 July 2015	14 August 2015
	28 August 2015	11 September 2015
	1 October 2015	9 October 2015
	23 October 2015	6 November 2015
	20 November 2015	8 December 2015
	21 December 2015	31 December 2015
	15 January 2016	1 February 2016
	12 February 2016	26 February 2016
	11 March 2016	28 March 2016
	8 April 2016	22 April 2016
	4 May 2016	13 May 2016
	27 May 2016	

MW = Monitoring Well

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

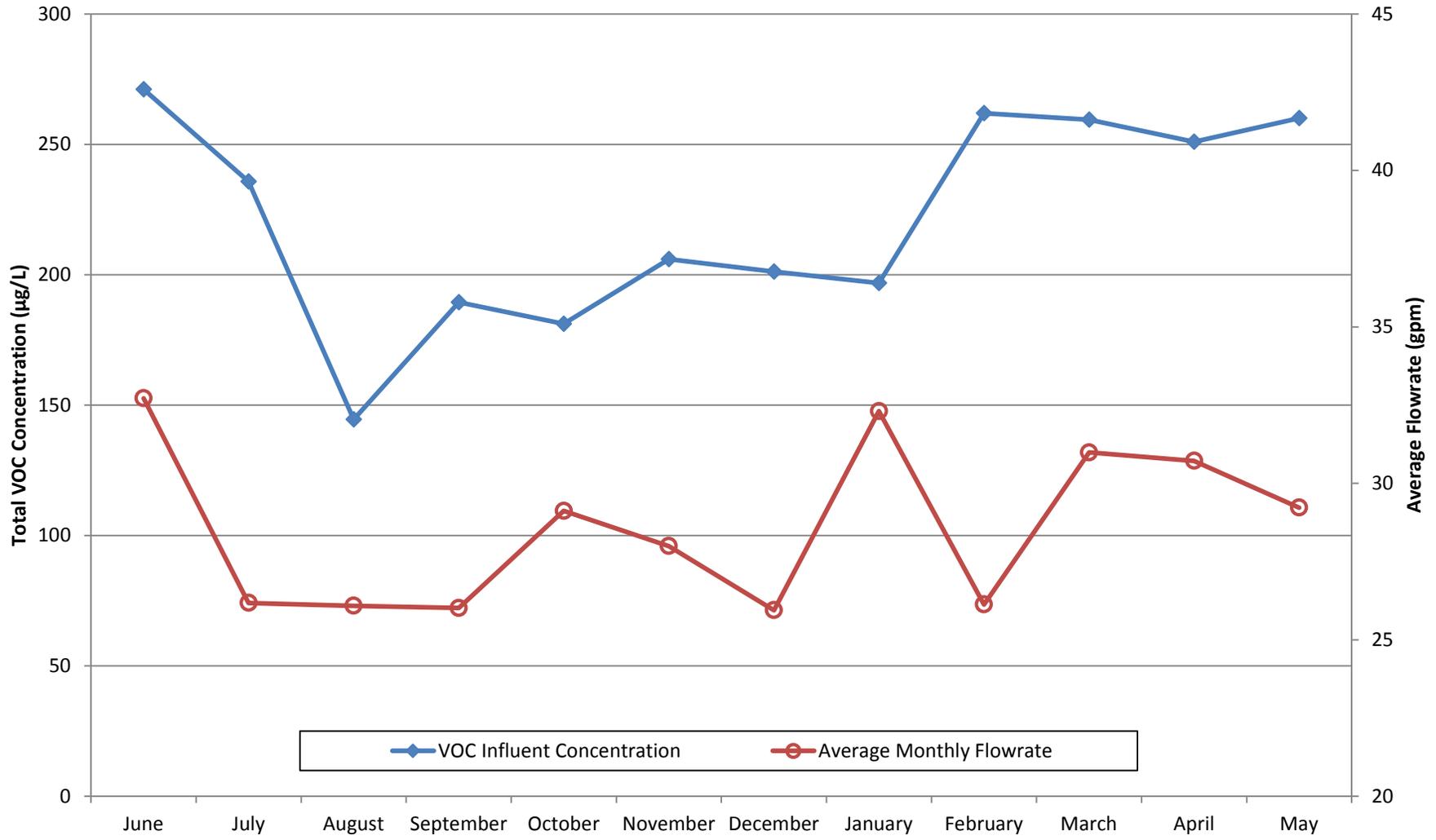
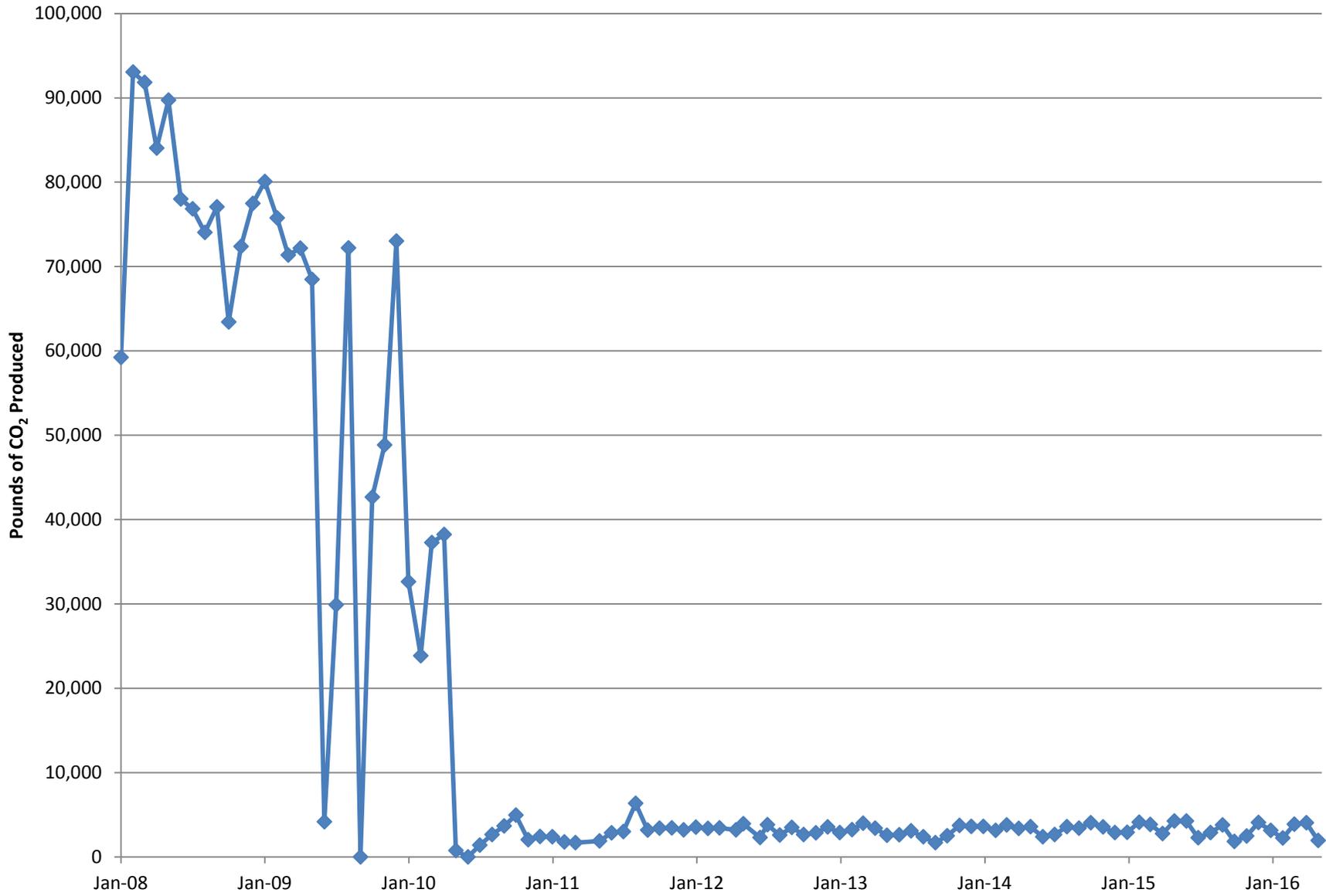


Figure 2

Equivalent Pounds of CO2 Produced by the Central Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 063

Reporting Period: 6 May 2016 – 31 May 2016

Date Submitted: 13 June 2016

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

System Metrics

Table 1 presents operation data from the May 2016 reporting period.

Table 1 – Operations Summary – May 2016			
Initial Data Collection:	5/6/2016 12:30	Final Data Collection:	5/31/2016 14:20
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 601 hours		ST018GWTP: 99.8%	ST018GWTP: 135 kWh (185 lbs CO ₂ generated ^a)
Gallons Treated: 236,340 gallons		Gallons Treated Since March 2011: 10.01 million gallons	
Volume Discharged to Sanitary Sewer: 236,340 gallons		Final Totalizer Reading: 10,008,089 gallons	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: 3,511,915 gallons			
MTBE, BTEX, VOC, TPH Mass Removed: 0.39 lbs^b		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: 37.9 lbs	
MTBE (Only) Removed: 0.12 lbs^b		MTBE (Only) Mass Removed Since March 2011: 9.1 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$8,877 ^{bc}			
Monthly Cost per Pound of Mass Removed: \$4,953.76 ^{bc}			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using May 2016 EPA Method SW8260C and SW8015B analytical results.			
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.			
kWh = kilowatt hour			
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 – May 2016		
Location	Average Flow Rate Groundwater (gpm)^a	Hours of Operation
EW2014x18	1.5	601
EW2016x18	1.5	601
EW2019x18	1.6	601
EW2333x18	2.0	601
Site ST018 GWTP	6.6	601

^a Flow rates calculated by dividing total gallons processed by amount of operating time of the pump/system.
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	25 May 2016	08:40	25 May 2016	10:00	Replace the nipple at the base of the middle GAC vessel.

^a Shutdown and restart times estimated based on field notes
ST018GWTP = Site ST018 Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the ST018GWTP on 3 May 2016. Results are presented in Table 4. The complete May 2016 laboratory data report is available upon request.

The influent concentration for MTBE during the May 2016 sampling event was 63.0 µg/L, which is a decrease from the April 2016 sample result of 91.6 µg/L. TPH-g (37.4 J µg/L), TPH-d (54.5 J µg/L), TPH-mo (39.7 J µg/L) and benzene (0.42 J µg/L) were also detected in the influent sample. TPH-d (27.0 J µg/L) and TPH-mo (27.6 J µg/L) were detected after the first carbon vessel. No contaminant concentrations were detected after the first carbon vessel or the system effluent sampling locations, with the exception of chloromethane (1.08 µg/L) in the system effluent. All detected concentrations of TPH are well below the Fairfield-Suisun Sewer District effluent limitation for TPH of 50,000 µg/L. Travis AFB will continue to monitor effluent contaminant concentrations and evaluate the condition of the carbon filter beds.

Figure 1 presents plots of the flow rate and influent total contaminant (TPH-g, TPH-d, MTBE, BTEX, and VOCs) and MTBE concentrations at the ST018GWTP over the past twelve (12) months. As shown on Figure 1, the total influent concentrations have varied considerably throughout the past twelve months, which is primarily because of the TPH-g concentration; however, overall concentrations have increased slightly. The MTBE concentration has remained relatively steady with concentrations near 100 µg/L. The average flow rate through the ST018GWTP has been seasonally variable with a recent increasing trend; however, the May 2016 flow rate of 6.6 gpm has decreased since the April 2016 flow rate of 7.7 gpm.

In March 2016, the nipple at the base of the middle GAC vessel broke, and the middle vessel was isolated. On 25 May, the fitting was replaced, and the GAC vessel was brought back on line. All three (3) GAC vessels were operational for the remainder of the reporting period.

Optimization Activities

No optimization activities occurred at the ST018GWTP in May 2016.

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 185 pounds of GHG during May 2016 and treated 236,340 gallons of water, which was an increase from April 2016 (267 pounds, treating 319,660 gallons). Figure 2 presents the historical GHG production from the ST018GWTP.

TABLE 4

Summary Of Groundwater Analytical Data for May 2016 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	3 May 2016 (µg/L)			System Effluent
				Influent	After Carbon 1	After Carbon 2**	
Fuel Related Constituents							
Methyl tert-Butyl Ether	6,400	0.15	0	63.0	NM	NA	ND
Benzene	25,000 ^a	0.15	0	0.42 J	NM	NA	ND
Ethylbenzene	25,000 ^a	0.15	0	0.15 J	NM	NA	ND
Toluene	25,000 ^a	0.15	0	ND	NM	NA	ND
Total Xylenes	25,000 ^a	0.15 – 0.30	0	ND	NM	NA	ND
Total Petroleum Hydrocarbons – Gasoline	50,000 ^b	30	0	37.4 J	ND	NA	ND
Total Petroleum Hydrocarbons – Diesel	50,000 ^b	27	0	54.5 J	ND	NA	ND
Total Petroleum Hydrocarbons – Motor Oil	100,000	27	0	39.7 J	ND	NA	ND
Other							
1,2-Dichloroethane	0.5	0.15	0	0.89	NM	NA	ND
Chloromethane	NA	0.15	0	1.16	NM	NA	1.08

* In accordance with the Fairfield-Suisun Sewer District Effluent Limitations

** The middle GAC vessel was isolated when the samples were collected, and the system operated with only two GAC vessels.

Laboratory data available on request.

a – The limit of 25,000 µg/L is a combined limit for BTEX.

b – The limit of 50,000 µg/L is a combined limit for TPH-g and TPH-d

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

NA = not applicable

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
ST018GWTP Total VOC and MTBE Influent Concentrations
and Average Flowrate Twelve Month History
Travis Air Force Base, California

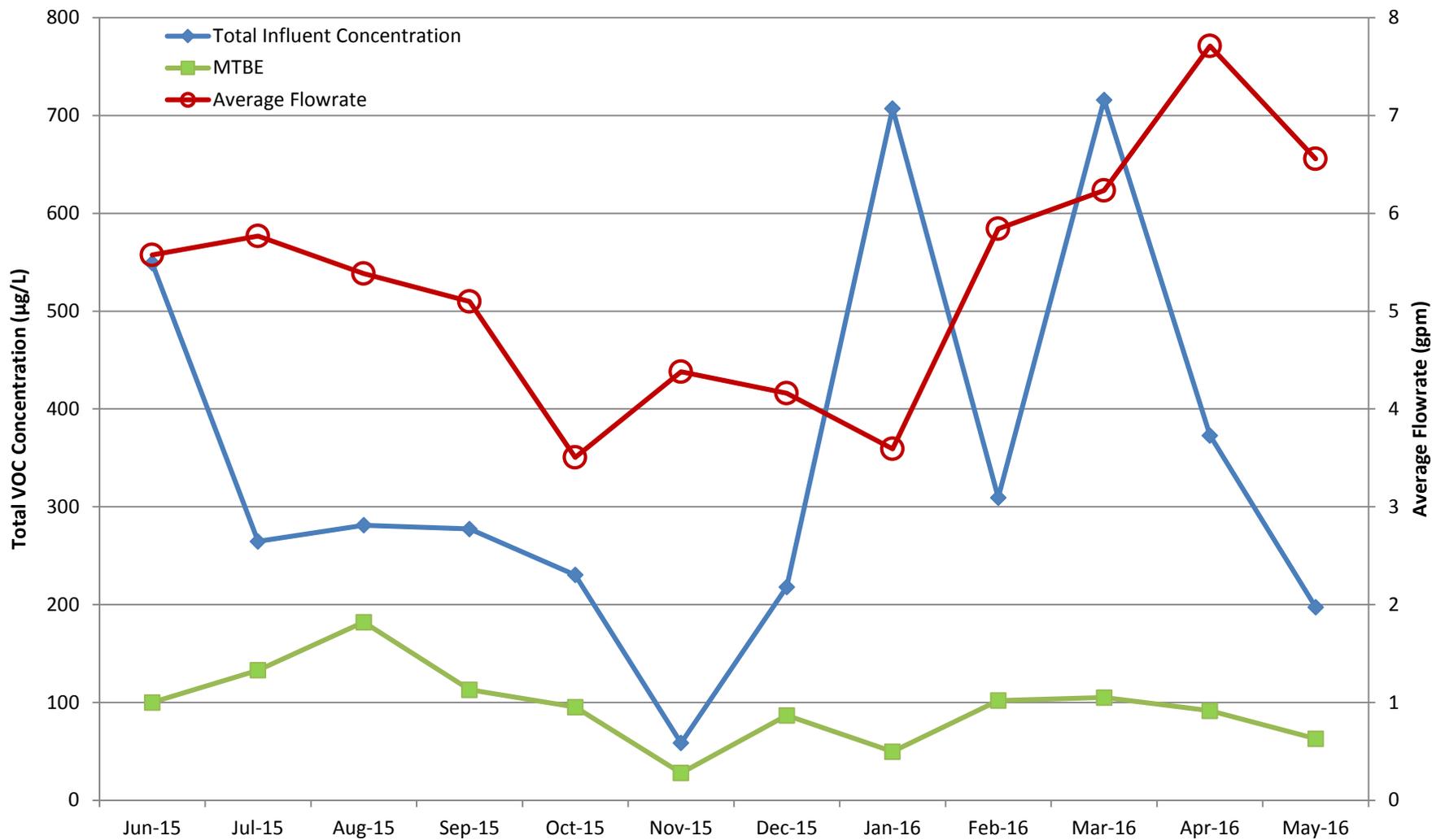
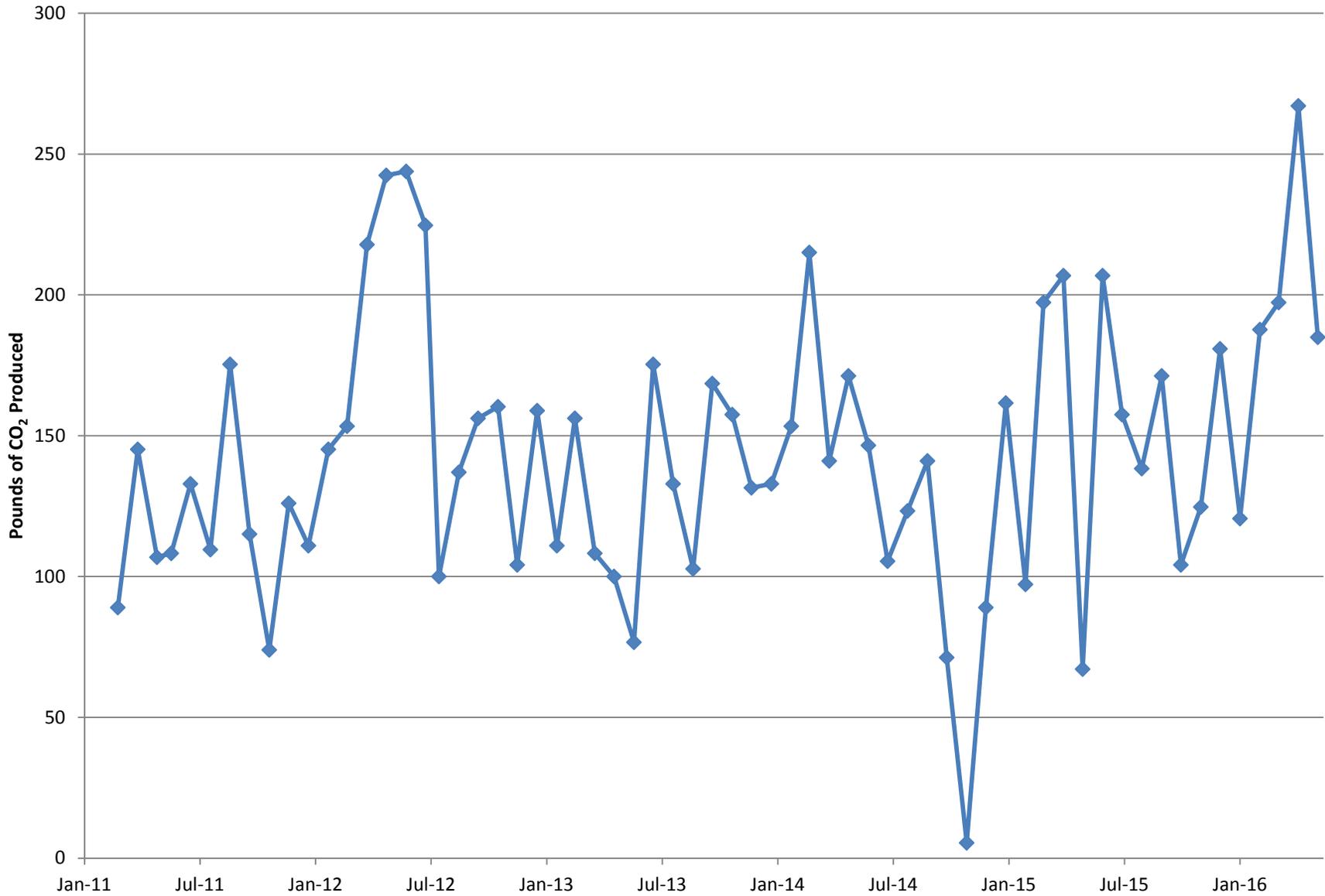


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Site SD031 Soil Remedial Investigation Update

RPM Meeting

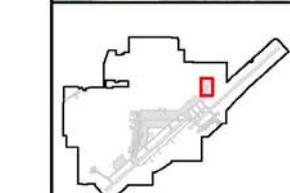
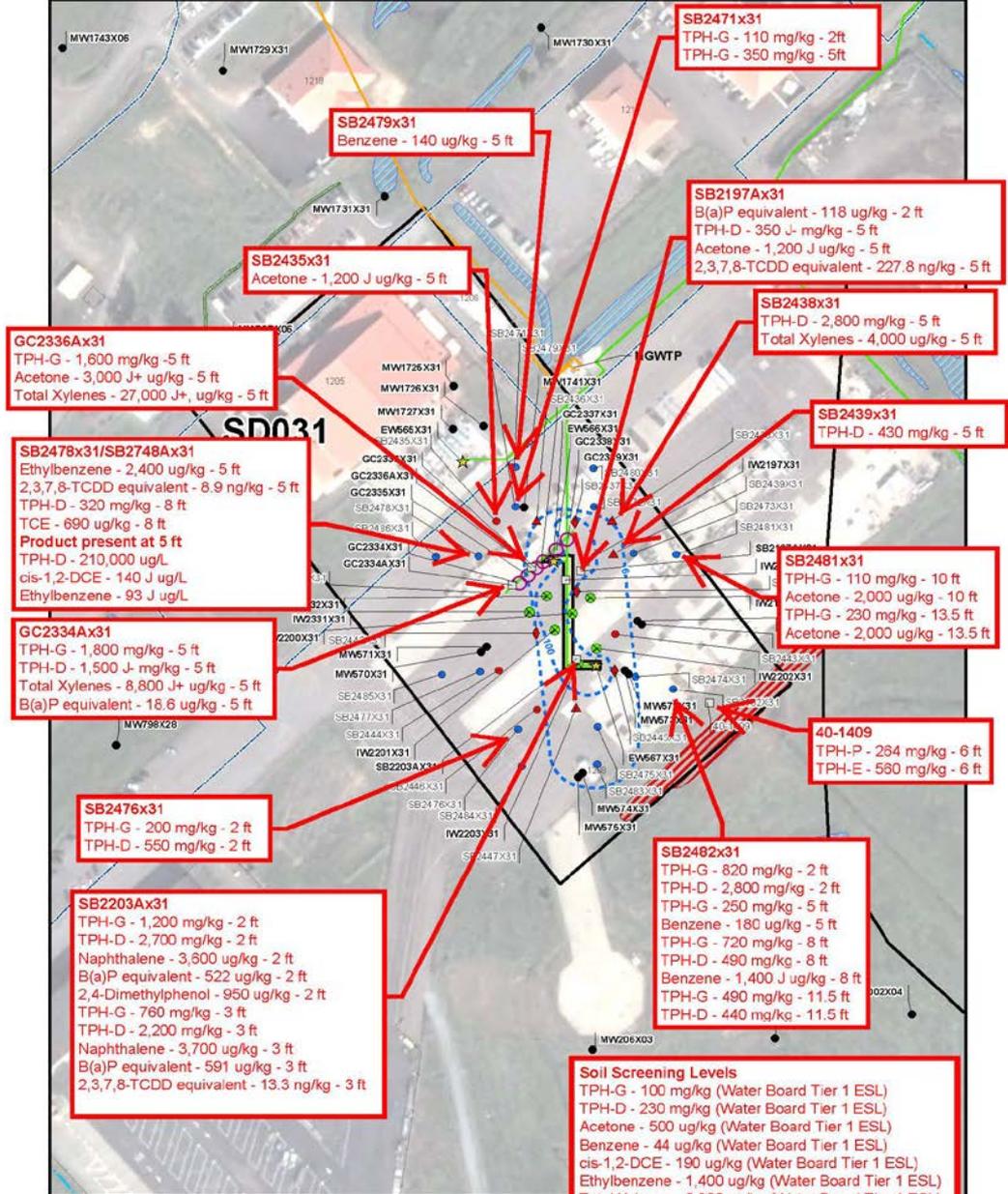
June 15, 2016

Field Work/Initial Results

- Drilling and soil sampling were performed from May 16th through 27th.
- During drilling it was determined that soil from each of the boring locations was stained.
- Product was observed in boring SB2478x31 at 5 feet bgs.
- Because there was stained soil in each of the borings, PID headspace readings were used to initially evaluate for potential hotspots.
 - Seven (7) soil boring had maximum PID readings greater than 1,000 parts per million (ppm).

Field Work/Initial Results

- Some of the preliminary analytical results have been received but only for certain compounds. However, with the exception of the VOC data, we do not have a complete data set for any of the analytical suites.
- We have some data for TPH, dioxins, and metals, but we do not have many results for SVOCs, PAHs, and herbicides.
- Preliminary comparison of the analytical results we have indicate that we have VOC and TPH concentrations above the screening levels, particularly where hot spots for PID readings were present.
- Dioxin was observed at a concentration above the screening levels in the soil sample where the product was observed.



- LEGEND**
- ◆ PRIMARY BORING LOCATION WITH SOIL VAPOR SAMPLING AND SATURATED ZONE SOIL SAMPLING
 - ▲ PRIMARY BORING LOCATION WITH SATURATED ZONE SOIL SAMPLING
 - PRIMARY BORING LOCATIONS
 - SPOUTOUT BORING LOCATIONS
 - GROUNDWATER MONITORING WELL
 - ★ EXTRACTION WELL
 - EVO INJECTION WELL (-15' ROI)
 - GRAVEL CHIMNEY
 - SOIL BORING LOCATION
 - MAIN V
 - FENCE
 - APPR
 - ISOC
 - COV
 - CONVE
 - THE GR
 - EPP ST
 - DRAFT WETLA
 - VERN
 - WETLA
 - DITCH

- Soil Screening Levels**
- TPH-G - 100 mg/kg (Water Board Tier 1 ESL)
 - TPH-D - 230 mg/kg (Water Board Tier 1 ESL)
 - Acetone - 500 ug/kg (Water Board Tier 1 ESL)
 - Benzene - 44 ug/kg (Water Board Tier 1 ESL)
 - cis-1,2-DCE - 190 ug/kg (Water Board Tier 1 ESL)
 - Ethylbenzene - 1,400 ug/kg (Water Board Tier 1 ESL)
 - Total Xylenes - 2,300 ug/kg (Water Board Tier 1 ESL)
 - B(a)P - 16 ug/kg (Water Board Tier 1 ESL & EPA RSL)
 - Naphthalene - 33 ug/kg (Water Board Tier 1 ESL)
 - 2,4-Dimethylphenol - 670 ug/kg (Water Board Tier 1 ESL)
 - 2,3,7,8-TCDD (Dioxin) - 4.8 ng/kg (EPA RSL)
- Groundwater Screening Levels**
- TPH-D - 100 ug/L (Water Board Tier 1 ESL)
 - cis-1,2-DCE - 6 ug/L (MCL & Water Board Tier 1 ESL)
 - Ethylbenzene - 13 ug/L (Water Board Tier 1 ESL)

GC2336Ax31
 TPH-G - 1,600 mg/kg - 5 ft
 Acetone - 3,000 J+ ug/kg - 5 ft
 Total Xylenes - 27,000 J+ ug/kg - 5 ft

SB2478x31/SB2748Ax31
 Ethylbenzene - 2,400 ug/kg - 5 ft
 2,3,7,8-TCDD equivalent - 8.9 ng/kg - 5 ft
 TPH-D - 320 mg/kg - 8 ft
 TCE - 690 ug/kg - 8 ft
 Product present at 5 ft
 TPH-D - 210,000 ug/L
 cis-1,2-DCE - 140 J ug/L
 Ethylbenzene - 93 J ug/L

GC2334Ax31
 TPH-G - 1,800 mg/kg - 5 ft
 TPH-D - 1,500 J- mg/kg - 5 ft
 Total Xylenes - 8,800 J+ ug/kg - 5 ft
 B(a)P equivalent - 18.6 ug/kg - 5 ft

SB2476x31
 TPH-G - 200 mg/kg - 2 ft
 TPH-D - 550 mg/kg - 2 ft

SB2203Ax31
 TPH-G - 1,200 mg/kg - 2 ft
 TPH-D - 2,700 mg/kg - 2 ft
 Naphthalene - 3,600 ug/kg - 2 ft
 B(a)P equivalent - 522 ug/kg - 2 ft
 2,4-Dimethylphenol - 950 ug/kg - 2 ft
 TPH-G - 760 mg/kg - 3 ft
 TPH-D - 2,200 mg/kg - 3 ft
 Naphthalene - 3,700 ug/kg - 3 ft
 B(a)P equivalent - 591 ug/kg - 3 ft
 2,3,7,8-TCDD equivalent - 13.3 ng/kg - 3 ft

SB2479x31
 Benzene - 140 ug/kg - 5 ft

SB2435x31
 Acetone - 1,200 J ug/kg - 5 ft

SB2471x31
 TPH-G - 110 mg/kg - 2ft
 TPH-G - 350 mg/kg - 5ft

SB2197Ax31
 B(a)P equivalent - 118 ug/kg - 2 ft
 TPH-D - 350 J- mg/kg - 5 ft
 Acetone - 1,200 J ug/kg - 5 ft
 2,3,7,8-TCDD equivalent - 227.8 ng/kg - 5 ft

SB2438x31
 TPH-D - 2,800 mg/kg - 5 ft
 Total Xylenes - 4,000 ug/kg - 5 ft

SB2439x31
 TPH-D - 430 mg/kg - 5 ft

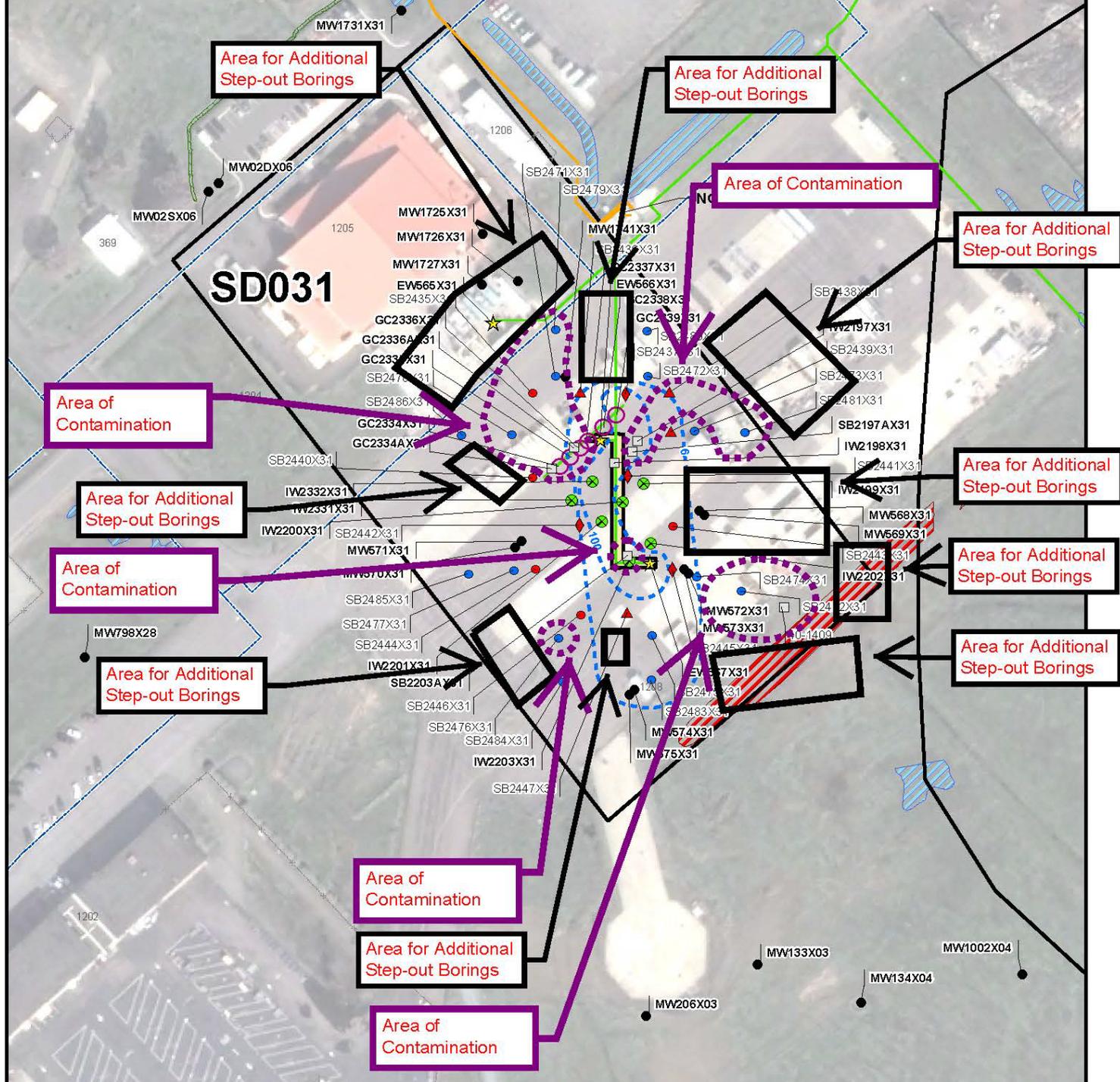
SB2481x31
 TPH-G - 110 mg/kg - 10 ft
 Acetone - 2,000 ug/kg - 10 ft
 TPH-G - 230 mg/kg - 13.5 ft
 Acetone - 2,000 ug/kg - 13.5 ft

40-1409
 TPH-P - 264 mg/kg - 6 ft
 TPH-E - 580 mg/kg - 6 ft

SB2462x31
 TPH-G - 820 mg/kg - 2 ft
 TPH-D - 2,800 mg/kg - 2 ft
 TPH-G - 250 mg/kg - 5 ft
 Benzene - 180 ug/kg - 5 ft
 TPH-G - 720 mg/kg - 8 ft
 TPH-D - 490 mg/kg - 8 ft
 Benzene - 1,400 J ug/kg - 8 ft
 TPH-G - 490 mg/kg - 11.5 ft
 TPH-D - 440 mg/kg - 11.5 ft

Field Work/Initial Results

- Based on the preliminary analytical results, preliminary areas of soil contamination have been outlined for Site SD031.
- Five (5) areas of soil contamination with concentrations greater than the screening levels have been observed at Site SD031.
- Several of the areas are located at the boundary of where the soil sampling was conducted and need additional soil samples to be collected to laterally bound the contamination.
- Several areas have also been identified on the area of soil contamination figure where potential step-out borings may be placed that will be used to bound the contamination.



Questions

Travis AFB Restoration Program

Program Update

RPM Meeting
June 15, 2016

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
- Travis AFB UFP-QAPP
- DP039 Lead Excavation Technical Memo

Completed Documents (cont'd)

- Proposed Plan for ROD Amendment to WABOU Soil ROD
- Proposed Plan for ROD Amendment to NEWIOU Soil, Sediment, & Surface Water ROD
- SD034 Data Gap Investigation Work Plan
- POCO Investigation Work Plan for Oil-Water Separators
- ST032 POCO Soil Excavation Work Plan
- SD036 GW RD/RA Work Plan
- SS016 GW RD/RA Work Plan
- SS015 GW RD/RA Work Plan
- FT005 Technology Demonstration Work Plan
- 2014 Annual CAMU Monitoring Report
- Old Skeet Range PAH Delineation Report
- ST028 POCO Work Plan
- SS014 POCO TD Work Plan
- CG508 Site Investigation/Site Closure Request Report
- 2014 Annual CAMU Monitoring Report
- DP039 GW RD/RA Work Plan
- SD031 TDCCR
- ST018 POCO CCR
- Site SS030 Groundwater RA CCR
- Sites SD036 and SD037 Groundwater RACCR
- Site SS016 Groundwater RACCR
- Site SS015 Groundwater RACCR
- 2014 Annual GRISR
- Site CG508 Well Decommissioning Work Plan

Completed Documents (cont'd)

- Data Gap Investigation TM for Soil Sites SD033, SD043, & SS046
- ***Site FT004 Technology Demonstration Construction Completion Report***
- ***Site SD031 Soil Remedial Investigation 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
- SD037 Well Installation
- SD031 Trench/Conveyance/Power Installation
- SD031 EVO Injection
- ST018 Well Installation
- SS015 Well Installation
- SS016 Well Installation
- Well Development (SD036, SD037)
- ST018 Trench/Conveyance/Power Installation
- SD036 EVO Injection
- Well Development (SS015, SS016)
- Baseline Sampling (SS015, SS016)
- SS014 Data Gap Investigation
- SS016 EVO Injection
- TA500 Data Gaps Investigation

Completed Field Work

- 2015 Annual GRIP Sampling
- SD037 EVO Injection
- SD034 Data Gaps Investigation
- SS015 EVO Injection
- FT005 Injection Well Installation
- OWS 47, 48, 49 Site Investigations
- SS030 Trench/Conveyance/Power Installation
- FT005 Trench Installation
- FT005 Well Development
- FT004 Well Installation, Well Development, Baseline Sampling
- FT005 Baseline Sampling
- DP039 Well Installation, Well Development, Baseline Sampling
- FT004 EVO Injection
- FT004 Trench/Conveyance/Power Installation
- DP039 Infiltration Trench Installation
- TA500 Groundwater Sampling
- FT005 EVO Injection
- ***DP039 EVO Injection***
- ***2016 Q2 GRIP Sampling***

Documents In-Progress

CERCLA

- 2015 Annual CAMU Monitoring Report
- Site TS060 Action Memorandum
- Site SS016 Soil Data Gaps Investigation Work Plan
- ***Site SD034 Technology Demonstration Work Plan***

Documents In-Progress

POCO

- Corrective Action Plan for DERA-Funded Oil Water Separators
- Site ST032 POCO Completion Report
- Site ST028 POCO Completion Report

Field Work In-Progress

- SD031 Soil Remedial Investigation
- ***Oil Water Separators Step-out Drilling (4)***

Documents Planned

CERCLA

- Site TS060 Removal Action Work Plan Jun
- Site LF044 Investigation Work Plan Jun
- Multi-Site Bioaugmentation Technology Demonstration Work Plan Jun
- 2015 Annual GRISR Jun
- Community Involvement Plan Jul
- Site FT005 Technology Demonstration Construction Completion Report Jul
- Site DP039 RD/RA Construction Completion Report Jul

Documents Planned

POCO

- Site FT004 POCO Soil Data Gap Investigation Work Plan Jul

Field Work Planned

CERCLA

- Data Gap Inv. for Soil Sites (SD033, SD043, SS046) Jul
- Multi-site Bioaugmentation Technology Demonstration Jul
- SS016 Soil Data Gaps Investigation Jul
- ***LF044 Berm Sampling*** ***Jul***
- SD034 Technology Demonstration Bioreactor Installation Jul
- SD034 Technology Demonstration Well Installation Aug
- ***SD031 Remedial Investigation (RI) Step-out Sampling*** ***Aug***
- TS060 Removal Action TBD

Note: Contact Lonnie Duke if you would like to observe planned field work events

Field Work Planned

POCO

- Oil Water Separators (12) Removal Jun
- FT004 POCO Soil Data Gaps Investigation Jul
- SS014 Bioreactor Installation Jul
- CG508 Well Decommissioning Aug

Note: Contact Lonnie Duke if you would like to observe planned field work events

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

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 Memorandum¹⁵

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