

**Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
17 August, 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 17 August 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/CZR
Merrie Schilter-Lowe	Travis AFB 60 AMW/PA
Monika O'Sullivan	AFCEC/CZOW
Adriana Constantinescu	California Regional Water Quality Control Board (RWQCB)
Ben Fries	DTSC
Nadia Hollan Burke	USEPA
Indira Balkissoon	Techlaw, Inc
Tony Chakurian	CH2M
Leslie Royer	CH2M
Jeff Gamlin	CH2M
(via telephone)	
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 (July 2016)
Attachment 4	CGWTP Monthly Data Sheet (July 2016)
Attachment 5	LF007C Monthly Data Sheet (July 2016)
Attachment 6	ST018 Monthly Data Sheet (July 2016)
Attachment 7	Presentation: SD031 Soil Remedial Investigation Triad Update

Attachment 8	Presentation: DP039 Bioreactor Optimization of TOC Distribution
Attachment 9	Presentation: Documents and Activities Completed, In Progress and Planned

1. **ADMINISTRATIVE**

Mr. Duke introduced a new AFCEC Travis ERP team member, Ms. Monika O’Sullivan formally with USEPA. Ms. O’Sullivan will be splitting her time between the PFOS/PFOA program and the Compliance program.

A. Previous Meeting Minutes

The 20 July 2016 RPM meeting minutes were approved and finalized as written with the following exception. At Ms. Burke’s request, the following sentence was added on page five, first paragraph, last sentence: “Ms. Burke asked whether these types of optimization activities be reported in the ‘optimization section’ of the GRISR.”

B. Action Item Review.

Action items from July 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. 17 August 2016 update: Mr. Duke said it is looking like the site inspection will take place during the next dry season in 2017. Ms. Sullivan will be the new Air Force representative who will report on the status of this action item.

Action item 2 is closed: Mr. Duke presented a 2017 RPM/RAB calendar.

Action item 3 is closed: The Master Meeting and Document Schedule (MMDS) has been revised to separate POCO and CERCLA sites.

Action item 4 is closed: Mr. Wray arranged a presentation that will be given by Mr. Gamlin during this RPM meeting.

Action item 5 is ongoing: Mr. Duke to provide a copy of the BA/BO to the regulators by 21 September 2016.

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, 21 September, at 0930. Mr. Duke presented the 2017 RPM/RAB calendar, stating he is keeping with the RPM schedule of the third Wednesday of each month, except when conducted on the same day as RAB meetings which are held on Thursdays.

Travis AFB Master Document Schedule

- Community Involvement Plan (CIP): No change to the schedule.
- Site SD031 Remedial Investigation Work Plan: Document went final and will be moved to history.
- Action Memorandum Non-Time Critical Removal Action at Site TS060 (Old Skeet Range): Public Comment Period date was added: The Response to Comments Due date was changed to 1 September 2016, the rest of the dates were changed accordingly.
- Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Ms. Constantinescu said that Yemia Hashimoto/RWQCB is close to issuing a draft order and will issue a revised site cleanup order based on the findings from the 2015 investigation report.
- Site SD034 Technology Demonstration Work Plan: The Response to Comments Meeting date was changed to 17 August 2016, the rest of the dates were changed accordingly. EPA is working on Travis AFB RTCs.
- Site TS060 Removal Action Work Plan: No change to the schedule.
- Multi-Site Bioaugmentation Technology Demonstration Work Plan: No change to the schedule.
- Site SS016 Soil Data Gap Investigation Work Plan: Response to Comments Due and Final Due date was changed to 7 September 2016. Ms. Constantinescu said she emailed a comment requesting Travis AFB use updated cleanup levels. EPA has no further comments.
- Site LF044 Investigation Work Plan: No change to the schedule. Travis AFB is working on EPAs RTCs.
- Site FT004 POCO Soil Data Gap Investigation Work Plan: No change to the schedule. Ms. Constantinescu said she will provide comments in time, but responding to RTCs will have to wait until she returns from vacation on 20 September 2016.
- Sites POCO ST028 and ST032 Well Decommissioning Work Plan: New document, dates changed from TBD to actual dates. Mr. Duke mentioned that, as suggested by Water Board, Travis AFB will reference the well decommissioning procedures from the CG508 Well Decommissioning Work Plan, which has already been approved.

- Quarterly Newsletter (October 2016): Draft to Agencies dates was changed to 22 September 2016 to support the fourth quarter. The rest of the dates were changed accordingly.
- 2015 Annual GRISR: Agency Comments Due date was changed to 29 August at EPAs request for an extended review time. The rest of the dates were changed accordingly. Ms. Balkissoon asked if the agreed upon comments that Travis AFB said will be addressed in the GRISR could be captured in a RTCs table and added to future GRISR. Travis AFB will look into the practicality of doing this. Mr. Fries said that he will try and schedule a geologist to review this document.
- 2015 Annual CAMU Monitoring Report: Document is final and will be moved to history.
- Site FT005 Technology Demonstration Construction Completion Report: Draft to Agencies date was changed to 19 August 2016, the rest of the dates were changed accordingly.
- Site DP039 Remedial Action Construction Completion Report: Predraft to AF/Service Center was changed to 5 August 2016 to reflect the actual date, the rest of the dates were changed accordingly.
- Site ST028 POCO Completion Report: Document is final and will be moved to history.
- Corrective Action Plan for DERA-Funded Oil Water Separators: Moved to history.
- Site ST032 POCO Completion Report: Moved to history.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.5% uptime, and 4.7 million gallons of groundwater were extracted and treated during the month of July 2016. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 91.4 gallons per minute (gpm). Electrical power usage was 16,289 kWh, and approximately 12,054 pounds of CO₂ were created (based on DOE calculation). Approximately 1.1 pounds of volatile organic compounds (VOCs) were removed in July. The total mass of VOCs removed since startup of the system is 480.7 pounds.

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

Ms. Balkissoon questioned the average flow rate on table 2 and that the FT005, SS029 and SS030 individual flow rates don't seem to add up to the total average flow rate. Mr. Wray said that each of the flow meters are slightly different, and the total

average flow rate is from the SBBGWTP totalizer flowmeter. He said it is nearly impossible to get them to sync up and that Travis AFB will take a closer look at it if there is a significant difference. Ms. Balkissoon said they are okay with the numbers.

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

The Central Groundwater Treatment Plant (CGWTP) performed at 96.6% uptime with approximately 1,100,255 gallons of groundwater extracted and treated during the month of July 2016. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 24.7 gpm. Electrical power usage was 2,489 kWh for all equipment connected to the Central Plant, and approximately 2,730 pounds of CO₂ were generated. Approximately 2.53 pounds of VOCs were removed from groundwater by the treatment plant in July. The total mass of VOCs removed since the startup of the system is 11,437 pounds.

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

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

Subarea LF007C Treatment Plant (LF007CGWTP) performed at 85.2% uptime with approximately 174,950 gallons of groundwater extracted and treated during the month of July 2016. The average flow rate at the NGWTP was 4.09 gpm, and electrical power use was 0 kWh for all the equipment connected to the LF007C plant; and 0 pounds of CO₂ was generated; this system is 100 percent off of the power grid. Approximately 2.01×10^{-3} pounds of VOCs were removed from the groundwater in July. The total mass of VOCs removed since the startup of the system is 174.36 pounds.

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

Ms. Balkissoon said it looks like a lot of water for very little contaminant removal, and asked if there is a policy on the ratio of treated water versus the contaminant removed. Mr. Wray said the VOC influent is below MCL so technically we don't need to treat it. We treat the groundwater, because it is going to the duck pond. And a couple of the wells are off-base and the policy is that, if a plume is off-base, the Air Force has to capture the contaminant plume.

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

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 97.9% uptime with approximately 293,961 gallons of groundwater extracted and treated during the month of July 2016. All treated water was diverted to the sanitary sewer. The average flow rate for the ST018 GWTP was 6.0 gpm. Electrical power usage for the month was 169 kWh for all equipment connected to the ST018 GWTP, which equates to approximately 525 pounds of CO₂. Approximately 0.50 pounds of BTEX, MTBE and TPH were removed from groundwater in July by the treatment plant. Approximately 0.22 pound

of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 38.8 pounds, and the total MTBE mass removed since startup of the system is 9.4 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 July 2016.

Presentations:

Presentation: Site SD031 oil Remedial Investigation Triad Update (see Attachment 7)

Mr. Chakurian gave a presentation on the Site SD031 Soil Remedial Investigation Triad Update. For details, including maps and figures, see attachment 7.

Site SD031 Soil Investigation Status:

- Detected visible soil staining while installing the groundwater technology demonstration.
- Secured funding to conduct a soil remedial investigation and feasibility study.
- Completed first round of sampling, which was not able to delineate the boundaries of the soil plume. Stepped-out with sixteen (16) hand auger borings and found visible limits of staining in four (4) borings (i.e., staining was seen in 12 borings, and no staining was seen in four (4) borings).
- The pending biological opinion (BO) is currently keeping us from sampling the soil in the southern portion of SD031.
- The current plan is to drill the southern area by hand augering the borings, after the BO is issued. Drill seven (7) soil borings using direct push technology (DPT) to further delineate the lateral/vertical extent of the plume. Collect two (2) groundwater samples from existing wells in the source area to get a sense of what is happening with these new contaminants.

Mr. Fries asked how deep are you drilling the soil borings, and will you be collecting incremental samples? Mr. Chakurian said we will be drilling to groundwater which is around 9 to 14ft bgs, and that the plan is to collect samples at 2, 5 and 10 ft in each boring.

- The hand auger step-out borings were grouped into different rounds by color; pink being the closest step-outs to what has already been delineated, then yellow, orange, and green are the farthest step-outs. We started hand augering with the orange step-out locations

and if there was no visible staining, the plan was to step in to the yellow borings. If there was visible staining, we would step out to the green boring locations. If the orange borings showed visible staining, we would step out to the farthest green boring locations. In the green step-out if there was visible staining, we requested partial analysis: TPHg, TPHd/MO and Dioxins. If there was no visible staining we requested the full suite of analysis.

- The next slides are maps that show the borings that were drilled, the borings highlighted in orange are the borings with the visibly stained soil, and borings highlighted in green showed no visible staining, and the levels of COCs. The borings highlighted in purple are on hold at the laboratory pending approval of the biological opinion (BO).

Mr. Chakurian provided maps of the borings that have been drilled and the new proposed soil borings. See attachment 7 for details.

Ms. Constantinescu asked if there is analytical data from soil when the monitoring wells were installed. Mr. Chakurian answered no.

Presentation: DP039 Optimization Evaluation (see Attachment 8)

Mr. Gamlin gave a presentation on DP039 Optimization Evaluation. For details, including maps and figures, see attachment 8.

The Objective is to identify the best way to disperse dissolved organic carbon (DOC) from the subgrade biogeochemical reactor (SBGR) to the aquifer.

- Understand the best way to disperse dissolved organic carbon (DOC) from the SBGR to the aquifer.
- Vary the duration of the reactor pulsed on/off mode to evaluate potential differences in DOC dispersal from the reactor, as well as the recently installed EVO injection well. Currently, the reactor is on for approximately 2 weeks and off for approximately 2 weeks.
- Area near the DP039 reactor is pretty clean so it won't likely enhance treatment around the reactor. However this study has relevance for other SBGRs.

Approach:

- Turn the reactor off for 4 weeks to establish baseline conditions. Conduct baseline sampling in one well within the reactor (EW563x39), and in three wells downgradient of the reactor (EW782x30, MW791x39, and MW793x39). Analyze for TOC and VOCs.
- Evaluate three on/off durations: 1 week on, 1 week off, then 1 week on again, collect sample. Then four weeks off; 2 weeks on, 2 weeks off, 2 weeks on, collect sample. Four (4) weeks on, 4 weeks off, and 4 weeks on, collect sample. Then determine which cycling

duration results in the greatest TOC concentrations at the farthest distance from the reactor.

Future Considerations:

- A six month rebound study may be appropriate. Need to confirm if back diffusion will increase if the reactor is turned off.
- Continue to collect data to evaluate the best way to utilize the reactor since the area around the reactor is now below MCLs.

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

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 ST028 POCO Completion Report; 2015 Annual CAMU Monitoring Report; Site SD031 Remedial Investigation Work Plan.

Newly Completed Field Work: Data Gap Investigation for Soil Sites (SD043, SS046); SD031 Remedial Investigation Step-out Sampling (2nd round); DP039 EVO Injection.

In-Progress Documents (CERCLA): Site TS060 Action Memorandum; Site SS016 Soil Data Gaps Investigation Work Plan; Site SD034 Technology Demonstration Work Plan; Site TS060 Removal Action Work Plan; Site LF044 Investigation Work Plan; Multi-Site Bioaugmentation Technology Demonstration Work Plan; 2015 Annual GRISR.

In-Progress Documents (POCO): Site FT004 POCO Soil Data Gap Investigation Work Plan.

In-Progress Field Work: Oil Water Separators Step-out Drilling (1); Oil Water Separators Removal.

Planned Documents (CERCLA): Site FT005 Technology Demonstration Construction Completion Report (August); Community Involvement Plan (September); Site DP039 RD/RA Construction Completion Report (September).

Planned Documents (POCO): Sites ST032 and ST028 Well Decommissioning Work Plan (September).

Field Work Planned (CERCLA): SD034 Technology Demonstration Bioreactor Installation (August); SD033 Soil Sampling (August); Multi-site Bioaugmentation Well Installation (August); Multi-site Bioaugmentation EVO Injection (September); SS016 Soil Data Gaps Investigation (September); LF044 Berm Sampling (September); SD034 Technology Demonstration Well Installation (September); SD031 Remedial Investigation Soil Sampling (3rd round) (September); TS060 Removal Action (TBD).

Field Work Planned (POCO): SS014 Bioreactor Installation (August); CG508 Well Decommissioning (October); FT004 POCO Soil Data Gaps Investigation (September); ST032 & ST028 Well Decommissioning (September).

Ms. Constantinescu said that if Travis AFB wanted to submit separate no further action (NFA) reports on the OWS (12) sites as they demonstrated clean, she will then forward to her management and inform the AF if there are any RWQCB recommendations on these reports. Travis AFB can then model future OWS NFA based on feedback from the initial submittal, instead of one package to help expedite future NFA approval. Mr. Duke said that sounds acceptable and will look into the feasibility of submitting OWS reports as they are cleaned and decommissioned.

4. New Action Item Review

Mr. Duke to look into the possibility of adding a table in future GRISR reports of agreed upon comments that Travis AFB said will be addressed in the GRISR.

5. PROGRAM/ISSUES/UPDATE

None.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Monika O'Sullivan	Ms. O'Sullivan to provide updates on PFOS and PFOA as she becomes aware of them.	Ongoing	Open
2.	Lonnie Duke	Mr. Duke to provide a copy of the BA/BO to the regulators.	21 September 2016	Open
3.	Lonnie Duke	Mr. Duke to look into the possibility of adding a table in future GRISR reports of agreed upon comments that Travis AFB said will be addressed in the GRISR.	Ongoing	Open

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

The RPM meeting is scheduled for 9:30 AM PST on 17 August 2016. **The call-in number is 1-866-203-7023. Enter the Participation code 5978-75-9736 then enter #.**

AGENDA

1. ADMINISTRATIVE

- A. INTRODUCTIONS
MONIKA O'SULLIVAN
- 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 TRIAD INVESTIGATION UPDATE
- B. PROGRAM UPDATE:
DOCUMENTS & ACTIVITIES COMPLETED, IN PROGRESS AND PLANNED
- C. DP039 BIOREACTOR OPTIMIZATION OF TOC DISTRIBUTION

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.

AFTER THE RTC DISCUSSION, A VAN WILL BE AVAILABLE TO TAKE A TOUR OF TS060, SD031 AND OTHER SITES AS NEEDED.

(2016)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting¹ (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.

(2017)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting¹ (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.)
—	01-18-17	—
02-15-17	—	—
—	03-15-17	—
04-20-17 (Thursday 2:00 PM)	—	04-20-17
—	05-17-17	—
06-21-17	—	—
—	07-19-17	—
08-16-17	—	—
—	09-20-17	—
10-19-17 (Thursday 2:00 PM)	—	10-19-17 ²
—	11-15-17	—
—	—	—

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	08-17-16	01-13-16	03-30-16
AF/Service Center Comments Due	08-31-16	01-28-16	04-13-16
Draft to Agencies	09-14-16	02-10-16	05-16-16
Draft to RAB	09-14-16	02-10-16	05-16-16
Agency Comments Due	10-14-16	03-14-16	06-27-16
Response to Comments Meeting	10-20-16	05-18-16	07-20-16
Agency Concurrence with Remedy	NA	NA	NA
Public Comment Period	NA	NA	7-7-16 to 8-7-16
Public Meeting	NA	NA	NA
Response to Comments Due	11-03-16	06-15-16	09-01-16
Draft Final Due	11-03-16	06-15-16	09-01-16
Final Due	12-05-16	07-15-16 (07-21-16)	10-03-16

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	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	Multi-Site Bioaugmentation Technology Demonstration Work Plan Travis AFB, Glenn Anderson CH2M HILL, Levi Pratt
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	03-22-16	04-14-16	05-06-16
AF/Service Center Comments Due	04-05-16	04-28-16	05-20-16
Draft to Agencies	05-19-16	06-20-16	06-23-16
Draft to RAB	05-19-16	06-20-16	06-23-16
Agency Comments Due	06-20-16	07-27-16	07-25-16
Response to Comments Meeting	08-17-16	08-17-16	08-17-16
Response to Comments Due	08-30-16	08-31-16	09-09-16
Draft Final Due	NA	NA	NA
Final Due	08-30-16	08-31-16	09-09-16
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS		
Life Cycle	Site SS016 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	03-24-16	04-26-16
AF/Service Center Comments Due	04-07-16	05-10-16
Draft to Agencies	05-11-16	06-27-16
Draft to RAB	05-11-16	06-27-16
Agency Comments Due	06-13-16	07-28-16
Response to Comments Meeting	06-15-16	08-17-16
Response to Comments Due	07-01-16 (09-07-16)	08-31-16
Draft Final Due	NA	NA
Final Due	07-01-16 (09-07-16)	08-31-16
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY POCO DOCUMENTS		
Life Cycle	Site FT004 POCO Soil Data Gap Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald	Sites POCO ST028 and ST032 Well Decommissioning 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	08-19-16
AF/Service Center Comments Due	06-17-16	09-02-16
Draft to Agencies	07-19-16	09-16-16
Draft to RAB	07-19-16	09-16-16
Agency Comments Due	08-19-16	10-17-16
Response to Comments Meeting	09-21-16	10-20-16
Response to Comments Due	10-06-16	11-02-16
Draft Final Due	NA	NA
Final Due	10-06-16	11-02-16
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Quarterly Newsletters (October 2016) Travis, Glenn Anderson	2015 Annual GRISR Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	2015 Annual CAMU Monitoring Report Travis AFB, Lonnie Duke CH2M HILL, Levi Pratt
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	NA	05-03-16	02-26-16
AF/Service Center Comments Due	NA	06-03-16	03-11-16
Draft to Agencies	09-22-16	07-07-16	04-01-16
Draft to RAB	NA	07-07-16	04-01-16
Agency Comments Due	10-06-16	08-29-16	05-02-16
Response to Comments Meeting	TBD	09-21-16	05-18-16
Response to Comments Due	10-10-16	10-05-16	07-08-16 (07-22-16)
Draft Final Due	NA	NA	NA
Final Due	10-10-16	10-05-16	07-08-16 (07-22-16)
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	06-30-16	08-05-16
AF/Service Center Comments Due	07-15-16	08-19-16
Draft to Agencies	08-19-16	09-02-16
Draft to RAB	08-19-16	09-02-16
Agency Comments Due	09-19-16	10-03-16
Response to Comments Meeting	09-21-16	10-20-16
Response to Comments Due	10-07-16	11-04-16
Draft Final Due	NA	NA
Final Due	10-07-16	11-04-16
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL POCO DOCUMENTS	
Life Cycle	Site ST028 POCO Completion Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA
Predraft to AF/Service Center	02-24-16
AF/Service Center Comments Due	03-09-16
Draft to Agencies	04-13-16
Draft to RAB	04-13-16
Agency Comments Due	05-13-16
Response to Comments Meeting	05-18-16
Response to Comments Due	06-07-16 (07-26-16)
Draft Final Due	NA
Final Due	06-07-16 (07-26-16)
Public Comment Period	NA
Public Meeting	NA

Travis AFB Master Meeting and Document Schedule

HISTORY		
Life Cycle	Corrective Action Plan for DERA-Funded Oil Water Separators Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick	Site ST032 POCO Completion Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	NA	NA
Predraft to AF/Service Center	02-10-16	01-25-16
AF/Service Center Comments Due	02-25-16	02-08-16
Draft to Agencies	04-06-16	04-05-16
Draft to RAB	04-06-16	04-05-16
Agency Comments Due	05-06-16	05-05-16
Response to Comments Meeting	05-18-16	05-18-16
Response to Comments Due	06-01-16 (07-12-16)	06-02-16 (07-20-16)
Draft Final Due	NA	NA
Final Due	06-01-16 (07-12-16)	06-02-16 (07-20-16)
Public Comment Period	NA	NA
Public Meeting	NA	NA

South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 191

Reporting Period: 27 June 2016 – 2 August 2016

Date Submitted: 15 August 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 July 2016 reporting period.

Table 1 – Operations Summary – July 2016				
Initial Data Collection:		6/27/2016 12:20	Final Data Collection:	8/2/2016 13:10
Operating Time:		Percent Uptime:	Electrical Power Usage:	
SBBGWTP:	861 hours	SBBGWTP:	99.5%	SBBGWTP: 16,289 kWh (12,054 lbs CO ₂ generated ^a)
Gallons Treated: 4.7 million gallons			Gallons Treated Since July 1998: 946 million gallons	
Volume Discharged to Union Creek: 4.7 million gallons			Gallons Treat From Other Sources: 0 gallons	
VOC Mass Removed: 1.1 lbs^b			VOC Mass Removed Since July 1998: 480.7 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$4,413 ^c				
Monthly Cost per Pound of Mass Removed: \$6,901 ^c				
lbs = pounds				
^a SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.				
^b Calculated using July 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 – July 2016							
FT005 ^b				SS029		SS030	
EW01x05	Offline	EW736x05	Offline	EW01x29	1.4	EW01x30	6.7
EW02x05	Offline	EW737x05	Offline	EW02x29	0.1	EW02x30	0.2
EW03x05	Offline	EW742x05	Offline	EW03x29	0.1	EW03x30	Offline
EW731x05	Offline	EW743x05	Offline	EW04x29	7.6	EW04x30	29.7
EW732x05	Offline	EW744x05	Offline	EW05x29	6.3	EW05x30	0.7
EW733x05	Offline	EW745x05	Offline	EW06x29	4.3	EW2174x30	10.6
EW734x05	0.7	EW746x05	Offline	EW07x29	13.3	EW711x30	2.1
EW735x05	1.1	EW2291x05	1.1				
FT005 Total: 2.9				SS029 Total: 33.1		SS030 Total: 50.0	
SBBGWTP Average Monthly Flow ^c : 91.4 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 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.							
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	6 July 2016	07:26	6 July 2016	09:51	Sump pump failed.
SBBGWTP	28 July 2016	12:11	28 July 2016	13:38	Shut down to install conduit for the new power meter.
^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 7 July 2016 sampling event are presented in Table 4. The total VOC concentration (28.01 µg/L) in the influent sample has decreased from the June 2016 sample results (57.11 µg/L). TCE (26.1 µg/L), cis-1,2-DCE (1.75 µg/L), and 1,2-DCA (0.16 J µg/L) were detected at the influent sampling location. Cis-1,2-DCE, 1,2-DCA, and chloroform were detected at the midpoint location. TCE (0.17 J µg/L) and cis-1,2-DCE (0.22 J 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. A carbon change out for the primary carbon vessel is currently being coordinated.

On 6 July, the SBBGWTP was shut down for approximately 3 hours because the sump pump failed and tripped the containment pad's high flow alarm. A leak on the sump pump inlet fitting was repaired, and the treatment plant was restarted without issue. On July 28, the treatment plant shutdown for approximately 2 hours to install conduit for the new power meter.

Two (2) extraction wells were off line during a portion of the reporting period:

- On 13 July, the EW03x30 pump was removed and will be replaced in August 2016.
- On 26 July, EW734x05 was off line for several hours to replace the flow meter.

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; however, an overall increase in the flow rate has also been observed.

Optimization Activities

No optimization activities occurred at the SBBGWTP in July 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 12,054 pounds of GHG during July 2016.

TABLE 4

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

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	7 July 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	ND	0.29 J	ND
Chloromethane	NA	0.15	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	0.16 J	0.71	ND
1,1-Dichloroethene	5.0	0.15	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	1.75	1.5	0.22 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	26.1	ND	0.17 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)	NA	0.6	0	5.0	NM	NM
Total Petroleum	50	30	0	ND	NM	ND
Hydrocarbons – Gasoline						
Total Petroleum	50	24	0	ND	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

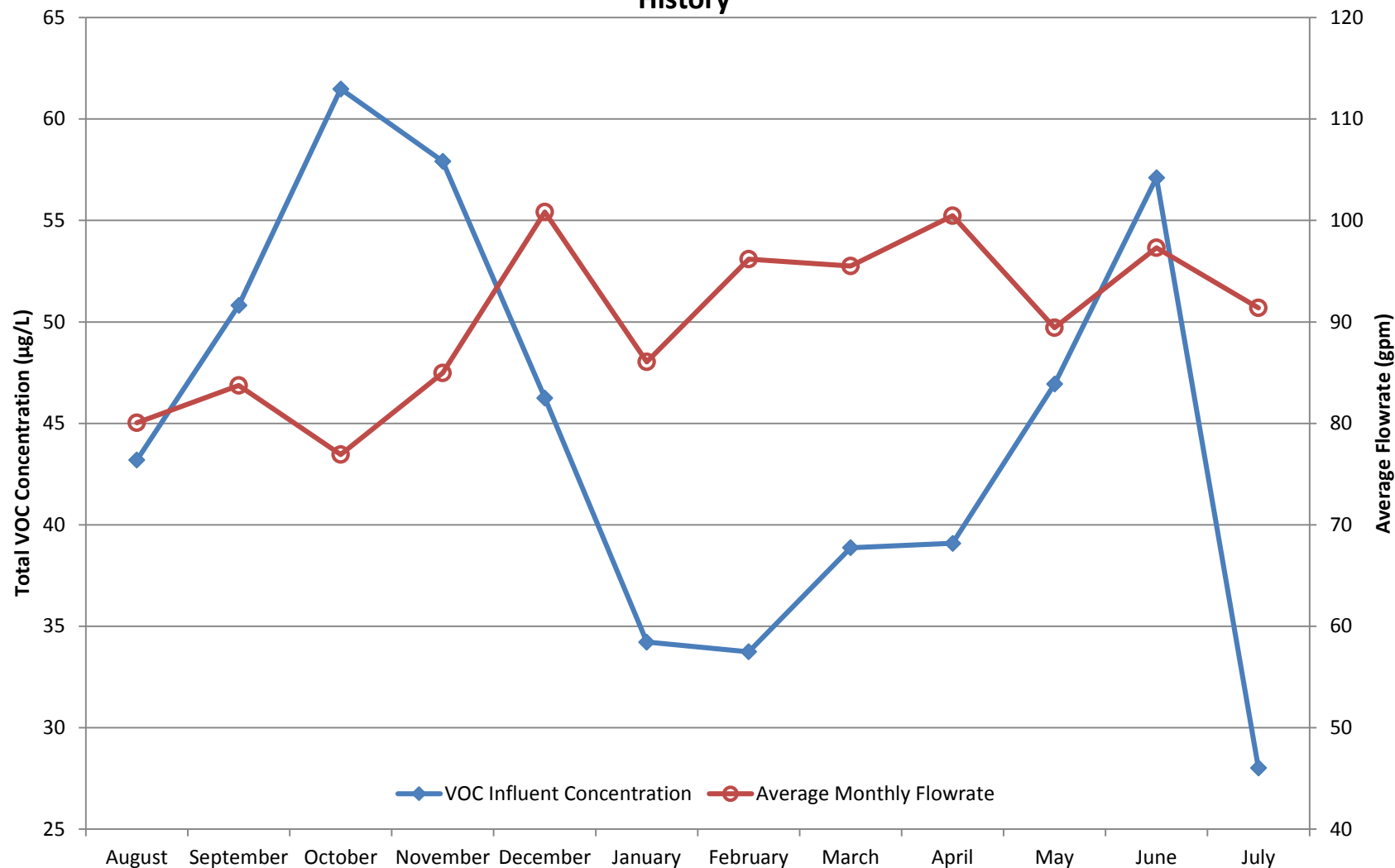
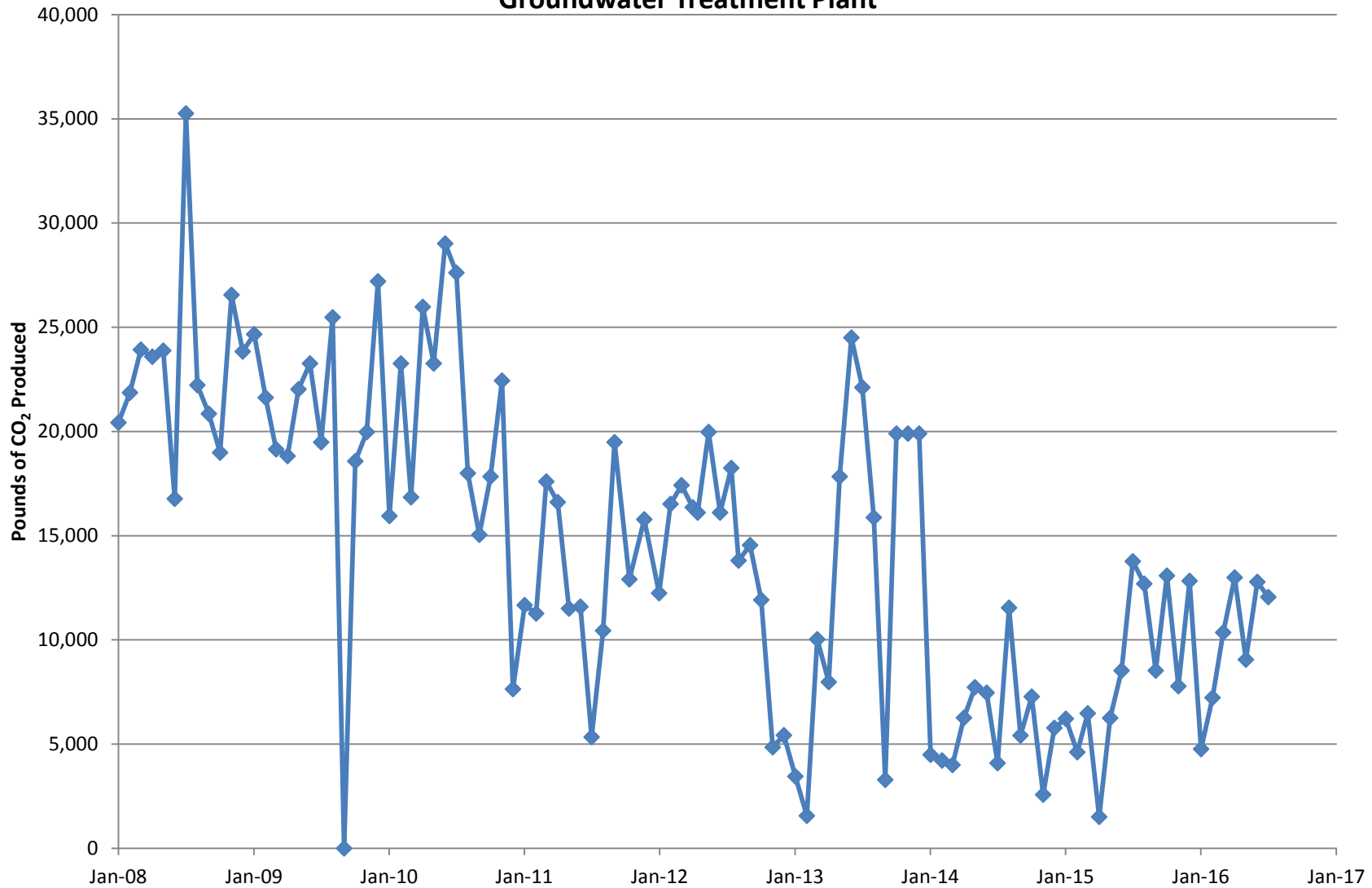


Figure 2

**Equivalent Pounds of Carbon Dioxide Produced by the South Base Boundary
Groundwater Treatment Plant**



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 204

Reporting Period: 1 July 2016 – 2 August 2016

Date Submitted: 15 August 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 July 2016 reporting period.

Table 1 – Operations Summary – July 2016			
Initial Data Collection:	7/1/2016 9:20	Final Data Collection:	8/2/2016 10:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP: 742 hours		CGWTP: 96.6%	CGWTP: 2,489 kWh (2,730 lbs CO ₂ generated ^a)
Gallons Treated: 1,100,255 gallons		Gallons Treated Since January 1996: 527.5 million gallons	
VOC Mass Removed from groundwater:		VOC Mass Removed Since January 1996:	
2.53 lbs^b		2,751 lbs from groundwater	
		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,553 ^c			
Monthly Cost per Pound of Mass Removed: \$2,626 ^c			
^a SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG. Value also includes approximately 888 pounds of GHG from GAC change out.			
^b Calculated using July 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 – July 2016	
Location	Average Flow Rate Groundwater (gpm)
EW001x16	15.8
EW002x16	Offline
EW003x16	0.1
EW605x16	6.8
EW610x16	3.3
CGWTP	24.7
^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	26 July 2016	14:05	27 July 2016	16:40	Treatment plant taken off line to repair a drip-leak on part of the process piping.
^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 7 July 2016. Sample results are presented in Table 4. The total VOC concentration (275.82 µg/L) in the July 2016 influent sample has increased from the June 2016 sample (253.90 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 225 µg/L. Cis-1,2-DCE and vinyl chloride were detected at trace concentrations in the sample collected between the carbon vessels, and vinyl chloride was detected in the sample collected after second carbon vessel. Chloromethane was detected in the system effluent sample at a trace concentration; however, 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 July 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. The overall flow rate through the treatment plant has remained steady over the past 12 months; however, recent flow rates have been decreasing, likely due to a failing pump at extraction well EW002x16.

The CGWTP was shut down on 26 July to replace a drip leak on one (1) section of the influent process piping. On 27 July, a section of 4-inch PVC pipe was replaced, and when the treatment plant was restarted, no leaks were observed. EW002x16 was off line the entire reporting period. The pump from this well was removed, and replacement parts are on order. This pump will be replaced and put back on line in August 2016.

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 19 July and brought back on line on 2 August. The bioreactor is scheduled to continue the 2-week operating schedule. However, the pulsing operation at Site DP039 is currently being considered for testing to optimize the distribution of total organic carbon (TOC) through the subgrade biogeochemical reactor (SBGR).

Optimization Activities

No optimization activities occurred at the CGWTP in July 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 2,730 pounds of GHG during July 2016. This is an increase from the June 2016 amount of 1,907 pounds.

TABLE 4
Summary of Groundwater Analytical Data for July 2016 – Central Groundwater Treatment Plant

					7 July 2016 (µg/L)		
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	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	ND	ND	ND	0.15 J
cis-1,2-Dichloroethene	5.0	0.15	0	47.3	0.59	ND	ND
1,2-Dichlorobenzene	5.0	0.15	0	0.19 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	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	0.59	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	0.44 J	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	225	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.15	0	2.09	ND	ND	ND
Vinyl Chloride	0.5	0.15	0	0.21 J	0.21 J	0.27 J	ND
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	ND	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	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	17 June 2016
	1 July 2016	19 July 2016
	2 August 2016	
MW = Monitoring Well		

Figure 1

CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

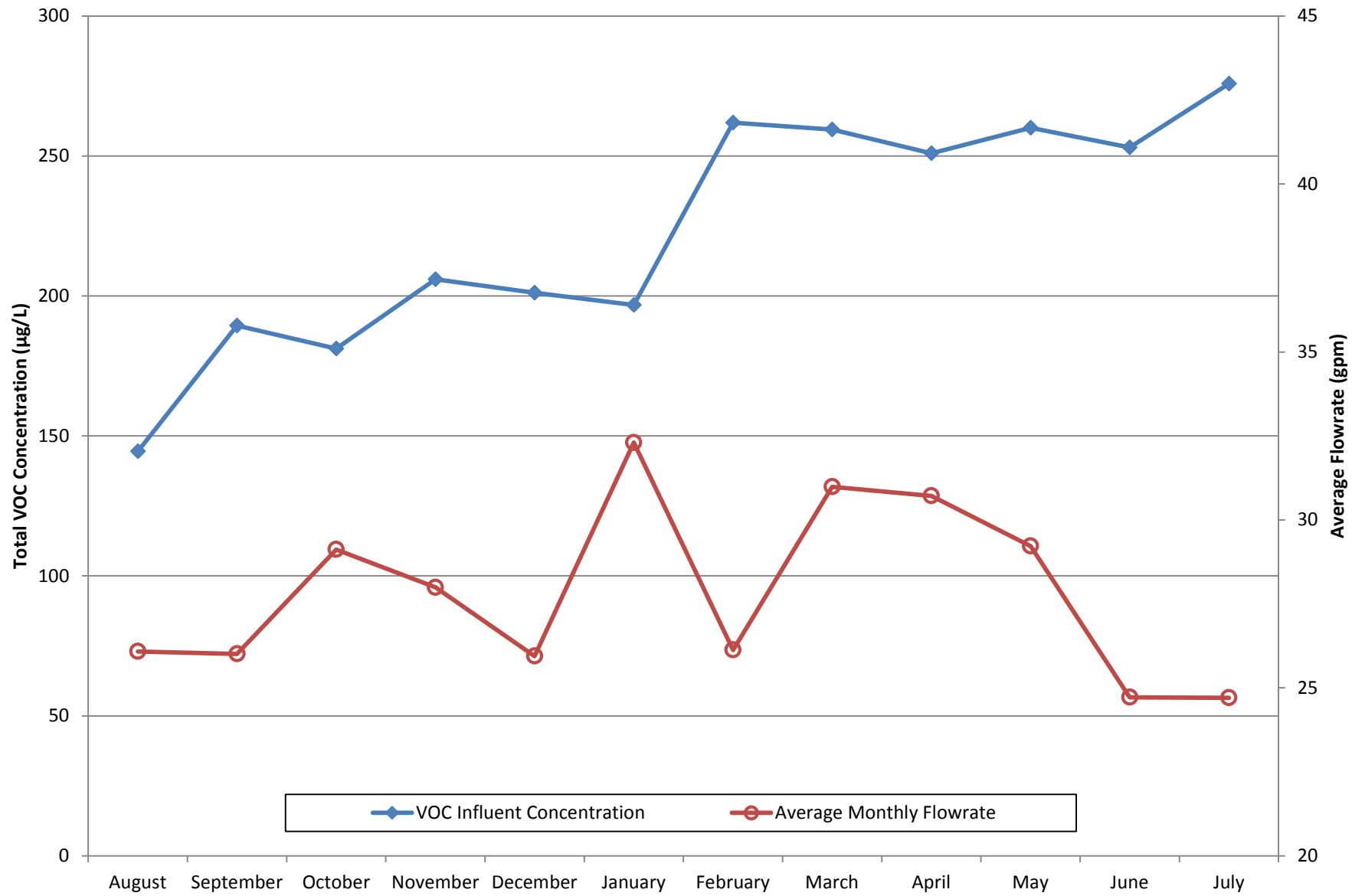
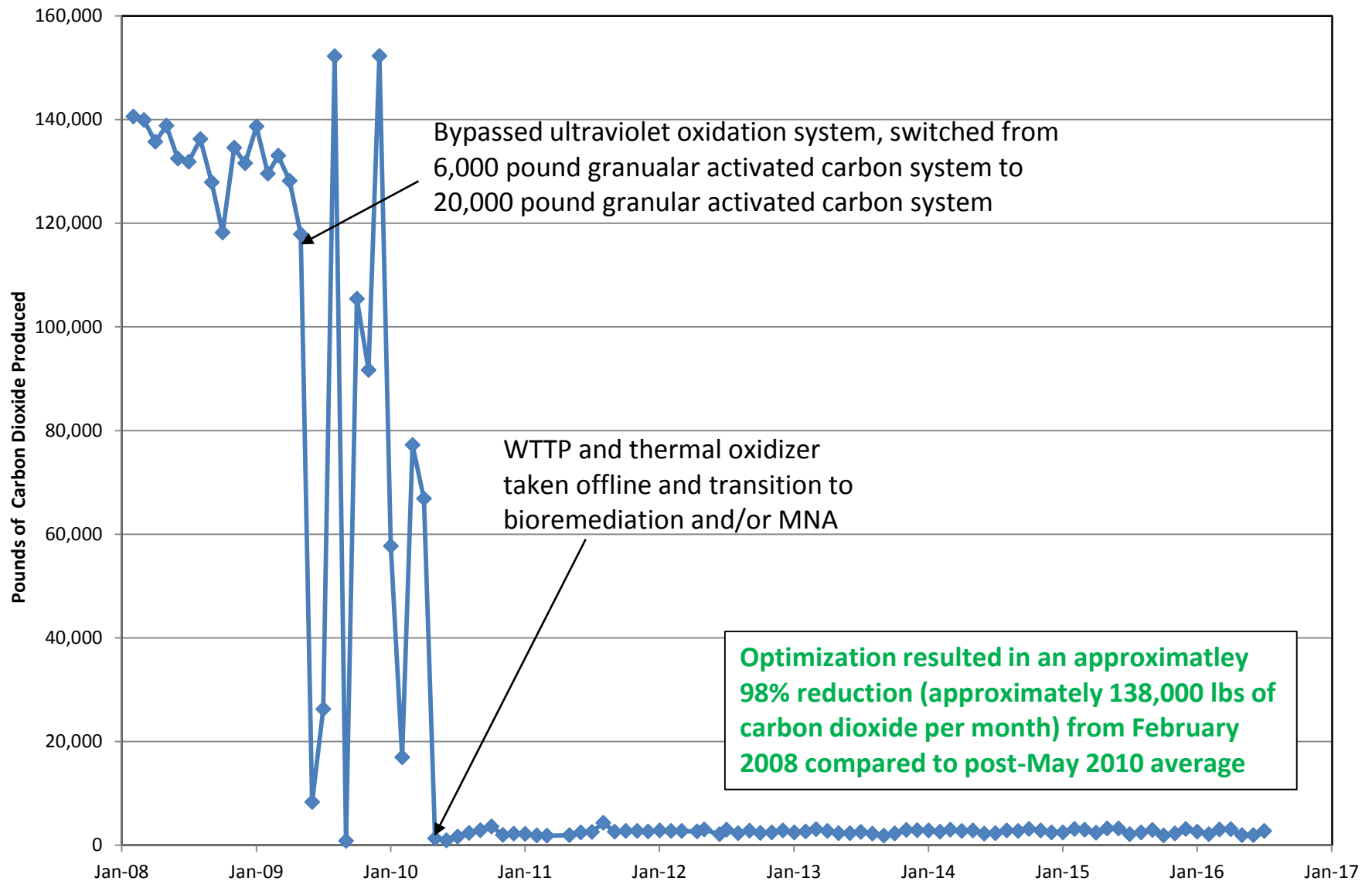


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the Central Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 065

Reporting Period: 28 June 2016 – 2 August 2016

Date Submitted: 15 August 2016

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

System Metrics

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

Table 1 – Operations Summary – July 2016			
Initial Data Collection:	6/28/2016 14:30	Final Data Collection:	8/2/2016 11:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 819 hours		ST018GWTP: 97.9%	ST018GWTP: 169 kWh (525 lbs CO ₂ generated ^a)
Gallons Treated: 293,961 gallons		Gallons Treated Since March 2011: 10.51 million gallons	
Volume Discharged to Sanitary Sewer: 293,961 gallons		Final Totalizer Reading: 10,513,689 gallons	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: 4,017,515 gallons			
MTBE, BTEX, VOC, TPH Mass Removed: 0.50 lbs^b		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: 38.8 lbs	
MTBE (Only) Removed: 0.22 lbs^b		MTBE (Only) Mass Removed Since March 2011: 9.4 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$9,702 ^{bc}			
Monthly Cost per Pound of Mass Removed: \$12,849 ^{bc}			
^a SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG. Value also includes approximately 400 pounds of GHG from GAC change out. ^b Calculated using July 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 – July 2016		
Location	Average Flow Rate Groundwater (gpm)^a	Hours of Operation
EW2014x18	1.5	818
EW2016x18	1.1	818
EW2019x18	1.1	818
EW2333x18	1.6	818
Site ST018 GWTP	6.0	818
^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	26 July 2016	--	27 July 2016	10:50	High pressure alarm.
-- = Time not recorded ^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 7 July 2016. Results are presented in Table 4. The complete July 2016 laboratory data report is available upon request. The influent concentration for MTBE during the July 2016 sampling event was 91.5 µg/L, which is an increase from the June 2016 sample result of 60.9 µg/L. TPH-g (69.0 J µg/L), TPH-d (47.0 J µg/L), benzene (0.25 J µg/L), and 1,2-DCA (1.12 µg/L) were also detected in the influent sample. No contaminant concentrations were detected after the first and second carbon vessel sampling locations. However, MTBE was detected in the system effluent sampling location at a concentration of 3.12 µg/L, which is significantly less than the instantaneous maximum of 6,400 µg/L. 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 average 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. The average flow rate through the ST018GWTP has been seasonally variable with an overall increasing trend. The total influent concentrations have varied considerably throughout the past twelve months, which is due primarily to the TPH-g concentration; however, overall concentrations have increased slightly. The MTBE concentration in the system influent has generally been holding steady.

On July 26, the ST018GWTP was shut down because of a high pressure alarm. The treatment plant was inspected and no issues were noted. The alarm was reset and the treatment plant was restarted on July 27 without issue.

Optimization Activities

No optimization activities occurred at the ST018GWTP in July 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.

Figure 2 presents the historical GHG production from the ST018GWTP. The ST018GWTP produced 585 pounds of GHG during July 2016 and treated 293,961 gallons of water, which was an increase from June 2016 (492 pounds, treating 211,639 gallons). The GHG levels have been increasing over the past approximately 1 ½ years, which is due to the addition of a new extraction well into the groundwater extraction and treatment system.

TABLE 4

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

7 July 2016 (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							
Methyl tert-Butyl Ether	6,400	0.15	0	91.5	NM	ND	3.12
Benzene	25,000 ^a	0.15	0	0.25 J	NM	ND	ND
Ethylbenzene	25,000 ^a	0.15	0	ND	NM	ND	ND
Toluene	25,000 ^a	0.15	0	ND	NM	ND	ND
Total Xylenes	25,000 ^a	0.15 – 0.30	0	ND	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50,000 ^b	30	0	69.0 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50,000 ^b	27	0	47.0 J	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100,000	27	0	ND	ND	NM	ND
Other							
1,2-Dichloroethane	0.5	0.15	0	1.12	NM	ND	ND

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

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

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

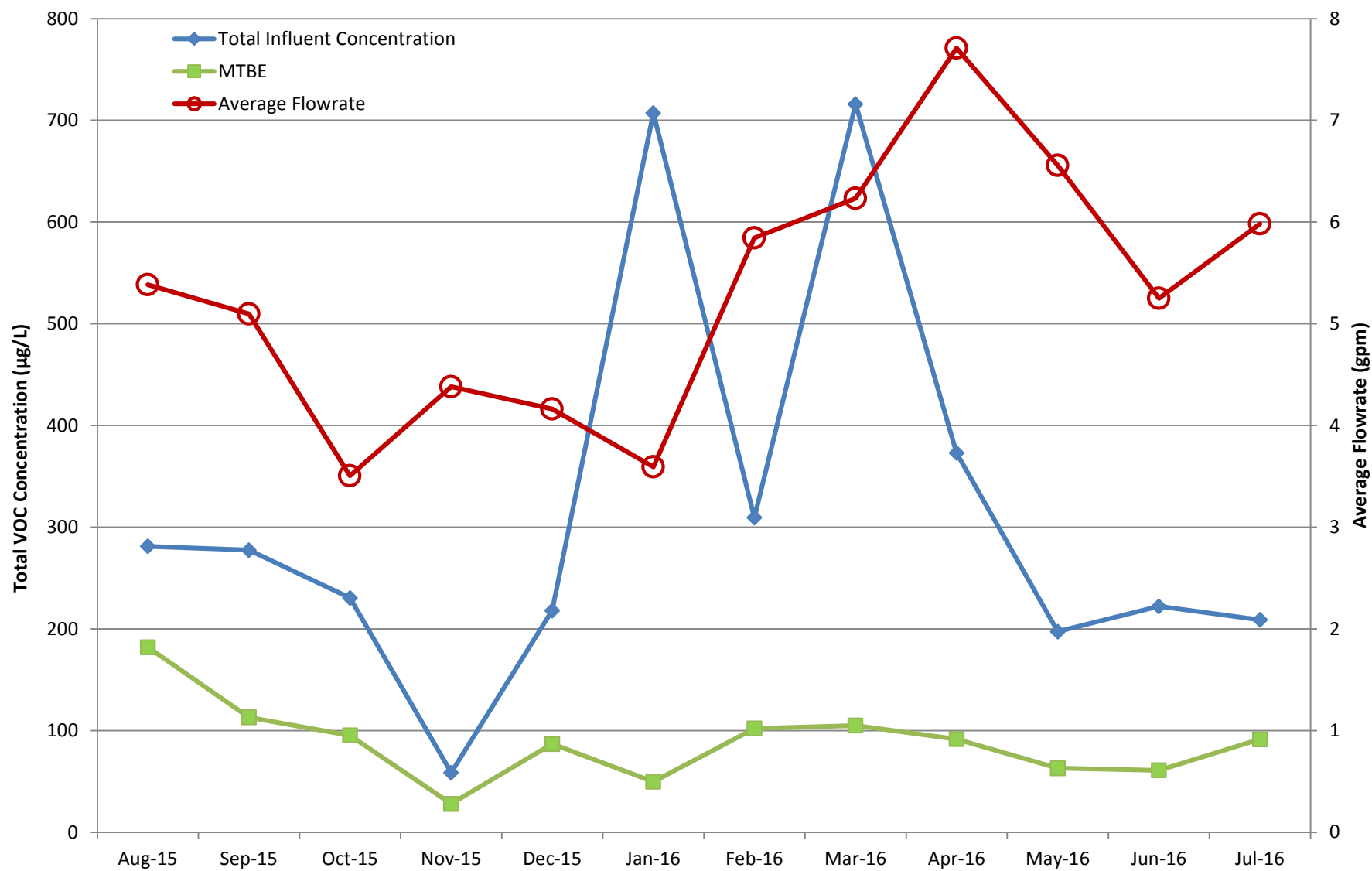
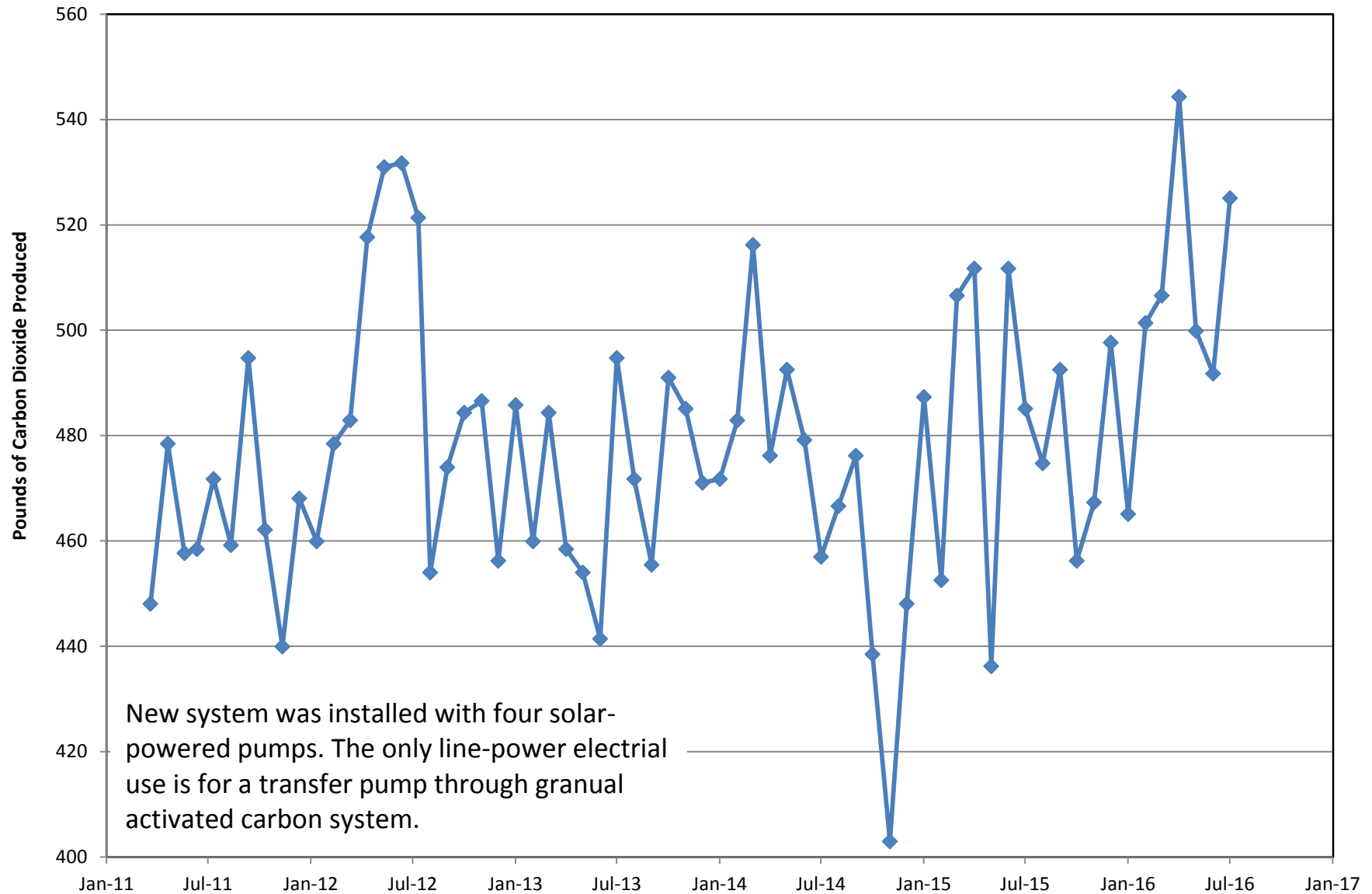


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the Site ST018 Groundwater Treatment Plant



Subarea LF007C Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 153

Reporting Period: 28 June 2016 – 2 August 2016

Date Submitted: 15 August 2016

This monthly data sheet presents information regarding the Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) and associated remedial process optimization (RPO) activities.

System Metrics

Table 1 presents operational data from the July 2016 reporting period:

Table 1 – Operations Summary – July 2016				
Initial Data Collection:		6/28/2016 15:45	Final Data Collection:	8/2/2016 12:30
Operating Time:		Percent Uptime:		Electrical Power Usage ^a :
LF007C GWTP:	713 hours	LF007C GWTP	85.2%	LF007C GWTP: 0 kWh
Gallons Treated: 174,950 gallons		Gallons Treated Since March 2000: 85.3 million gallons		
Volume Discharged to Duck Pond: 174,950 gallons				
VOC Mass Removed: 2.01 x 10 ⁻³ pounds ^b		VOC Mass Removed Since March 2000: 174.36 pounds (Groundwater)		
Rolling 12-Month Cost per Pound of Mass Removed: Not Measured ^c				
Monthly Cost per Pound of Mass Removed: Not Measured ^c				
^a The LF007C GWTP operates on solar power only.				
^b VOCs from July 2016 influent sample detected by EPA Method SW8260C.				
^c Value not calculated since measurement does not accurately represent the cost effectiveness of the system.				

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

Table 2 – LF007C GWTP Average and Total Flow Rates – July 2016		
Location	Average Flow Rate (gpm) ^a	Total Gallons Processed (gallons)
EW614x07	3.3	140,960
EW615x07	0.8	32,190
LF007C GWTP	4.09	174,950
^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 ^a		Cause
	Date	Time	Date	Time	
LF007C GWTP	28 July 2016	--	2 August 2016	12:28	High pressure fault.
-- = Time not recorded ^a Shutdown and restart times estimated based on field notes LF007C GWTP = Subarea LF007C Groundwater Treatment Plant					

Summary of O&M Activities

Analytical data from the 7 July 2016 sampling event are presented in Table 4. TCE (1.38 µg/L) was detected at the influent sample location. No contaminants were detected at the midpoint or effluent sampling locations. Analytical data continue to indicate effective treatment of the influent process stream.

The LF007C GWTP was shut down on 28 July because of a high pressure fault. The treatment plant was restarted on 2 August without issue.

Figure 1 presents a chart of influent concentrations (total VOCs) at the LF007C GWTP versus time for the past twelve months. The average flow rate through the LF007C GWTP in July 2016 (4.09 gpm) decreased slightly from the flow rate measured in June 2016 (4.29 gpm).

Optimization Activities

No optimization activities occurred at the LF007C GWTP in July 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 system.

Figure 2 presents the historical GHG production from the systems associated with the NGWTP and LF007C GWTP. The LF007C GWTP is now a solar-only operated treatment system and no longer generates GHG, with exception of a small amount of GHG generated from changing out the GAC.

TABLE 4

Summary of Groundwater Analytical Data For July 2016 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	7 July 2016 (µg/L)		
				Influent	After Carbon 1	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	0	ND	ND	ND
Bromoform	5.0	0.15	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND
Chloroform	5.0	0.15	0	ND	ND	ND
Dibromochloromethane	5.0	0.15	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.15	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	ND	ND	ND
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	1.38	ND	ND
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)	NA	0.6	0	ND	NM	NM
Total Petroleum Hydrocarbons – Gasoline	50	30	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	24	0	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	24	0	NM	NM	ND

* In accordance with Appendix G of the *Travis AFB North Groundwater Treatment Plant Operations and Maintenance Manual*, Sites FT004, SD031, and LF007 Area C (URS Group, Inc., 2005).

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

Figure 1

LF007CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

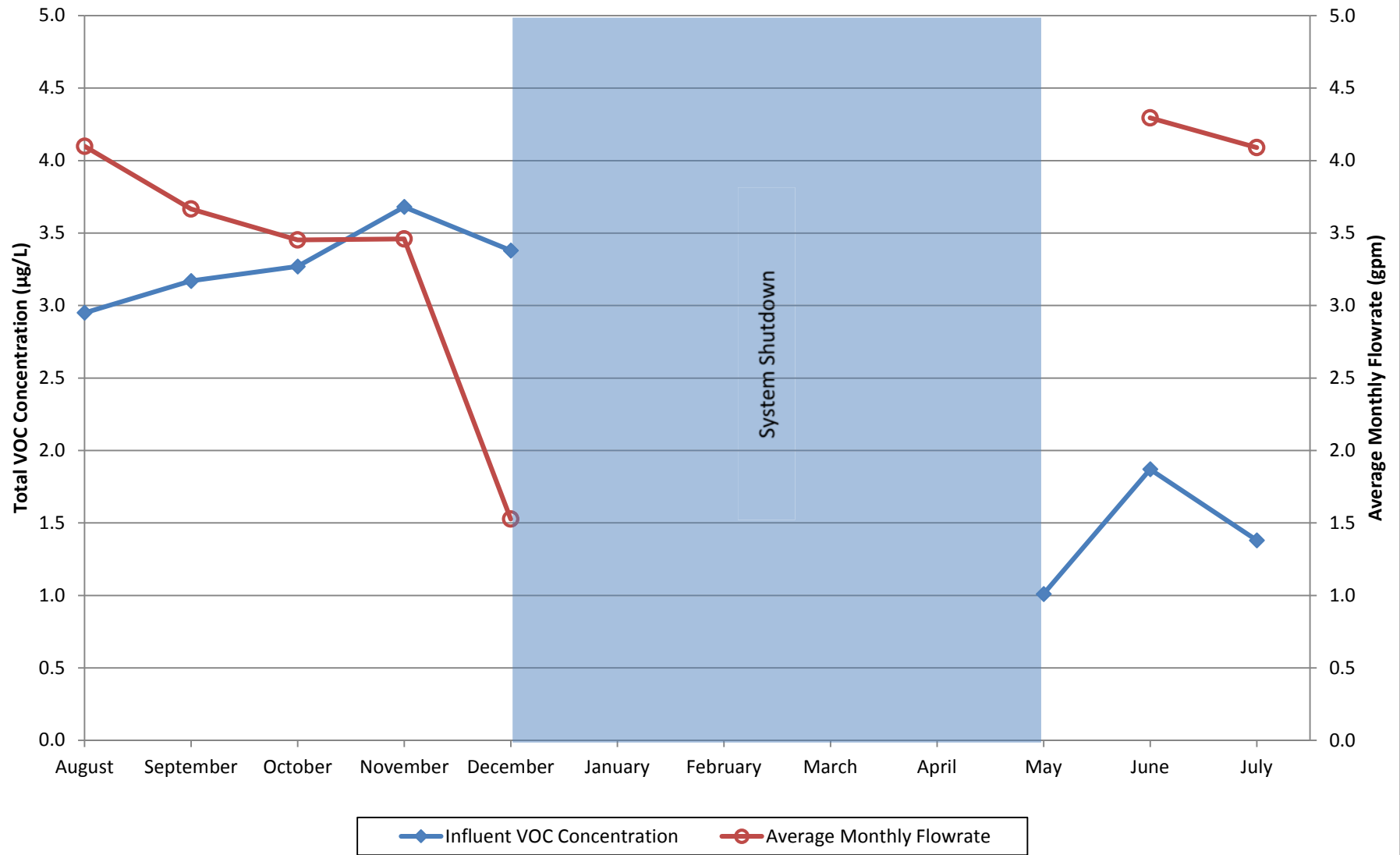
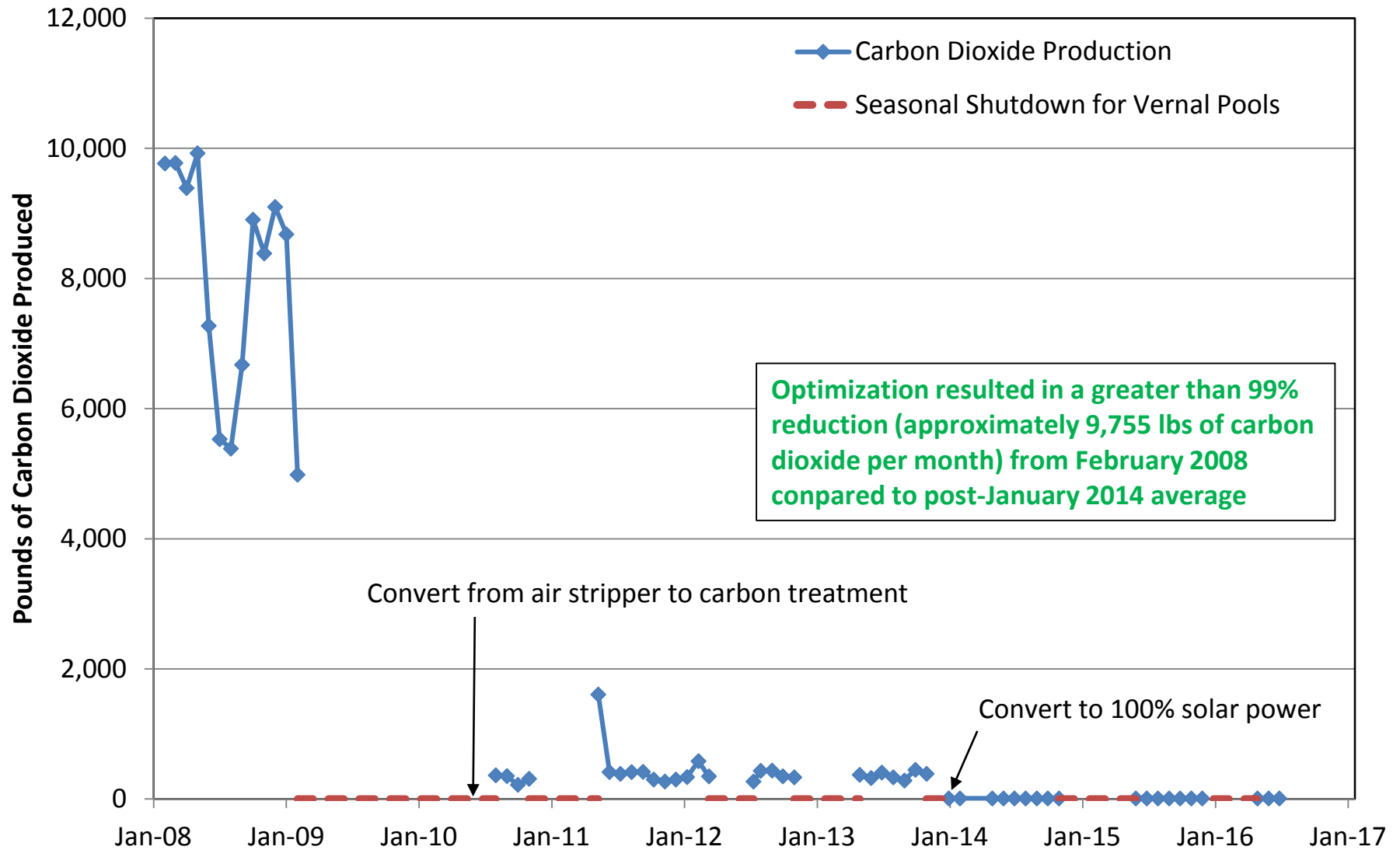


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the NGWTP/LF007C Groundwater Treatment Plant



Note: Dashed line represents seasonal shutdowns due to the presence of vernal pools at Site LF007C during which no carbon dioxide production occurred.

Site SD031 Soil Remedial Investigation Triad Update

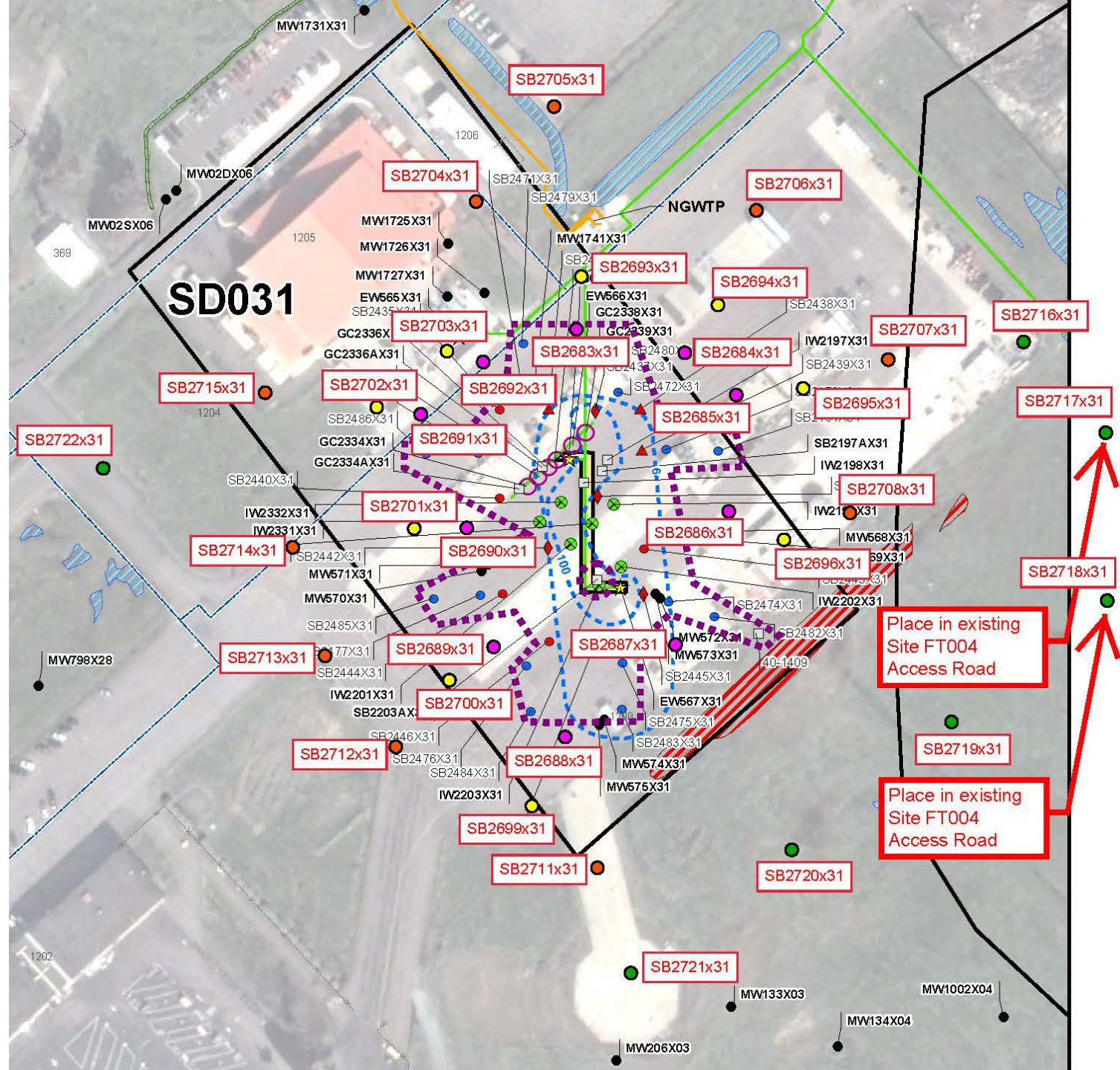
RPM Meeting
August 17, 2016

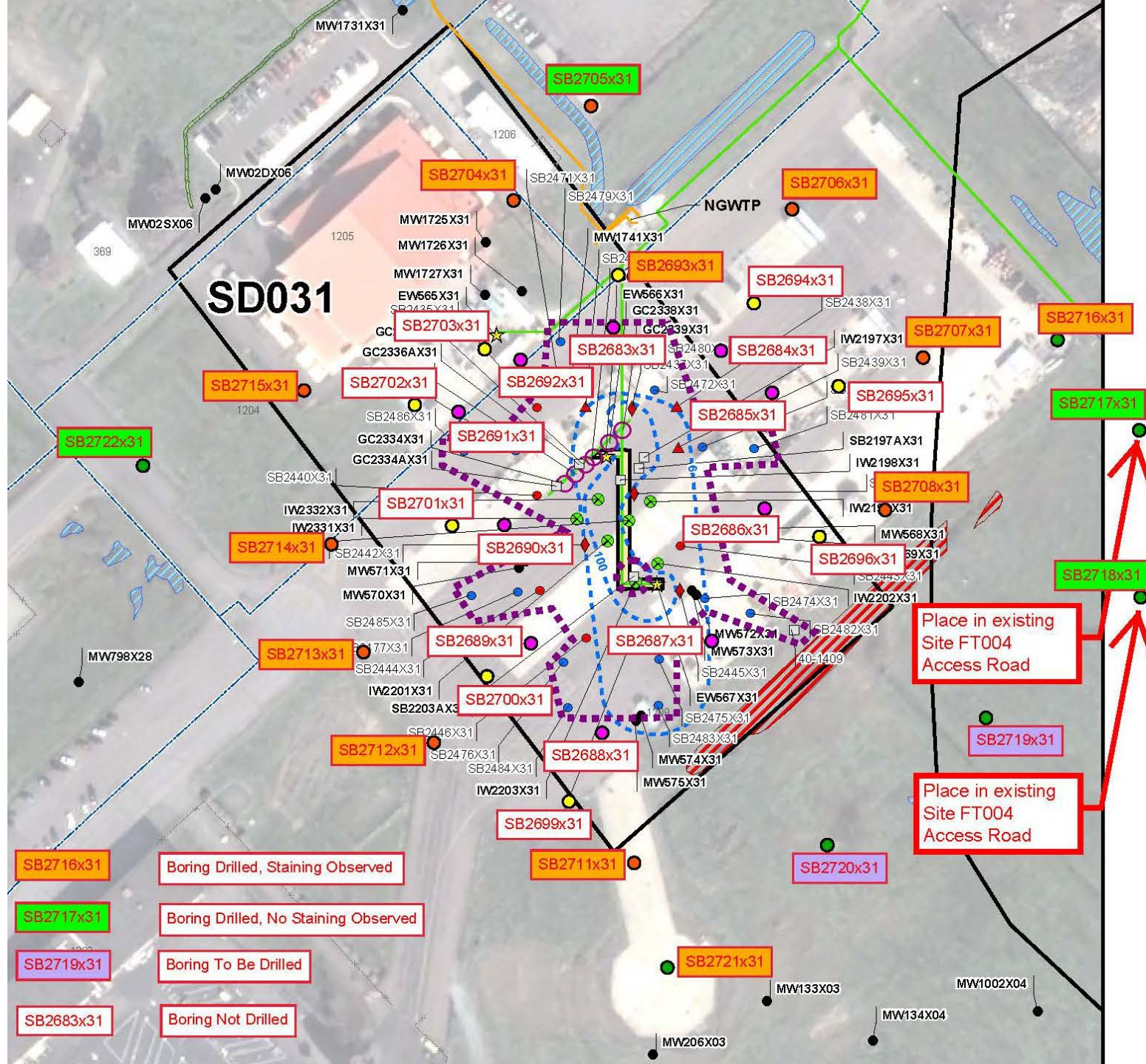
Site SD031 Soil Investigation Status

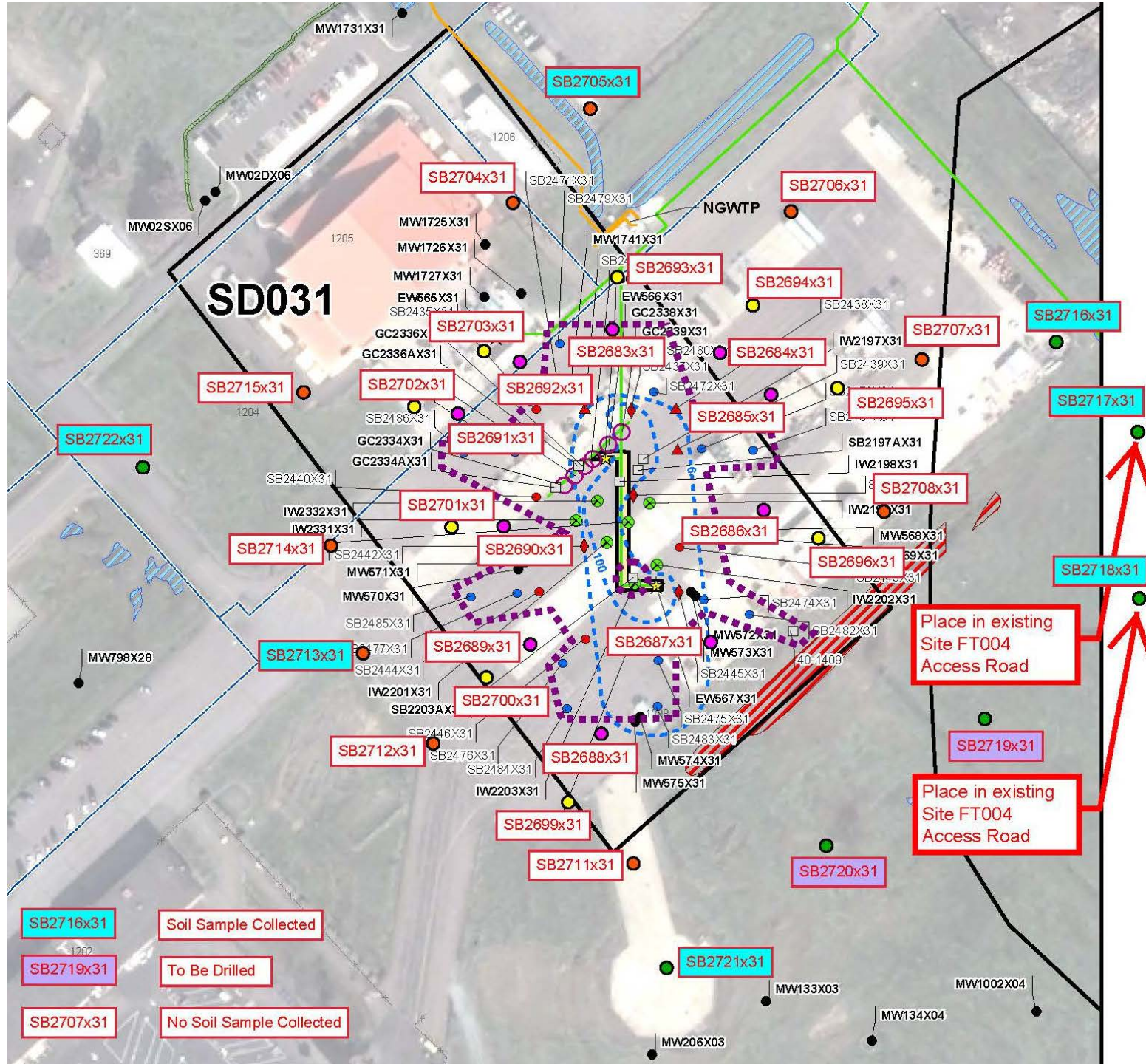
- Detected visible soil staining while installing the groundwater technology demonstration.
- Secured funding to conduct a soil remedial investigation and feasibility study.
- Completed first round of sampling, and were not able to delineate the boundaries of the soil plume.
- Stepped-out with 16 hand auger borings, and found the visible limits of staining in 4 borings.

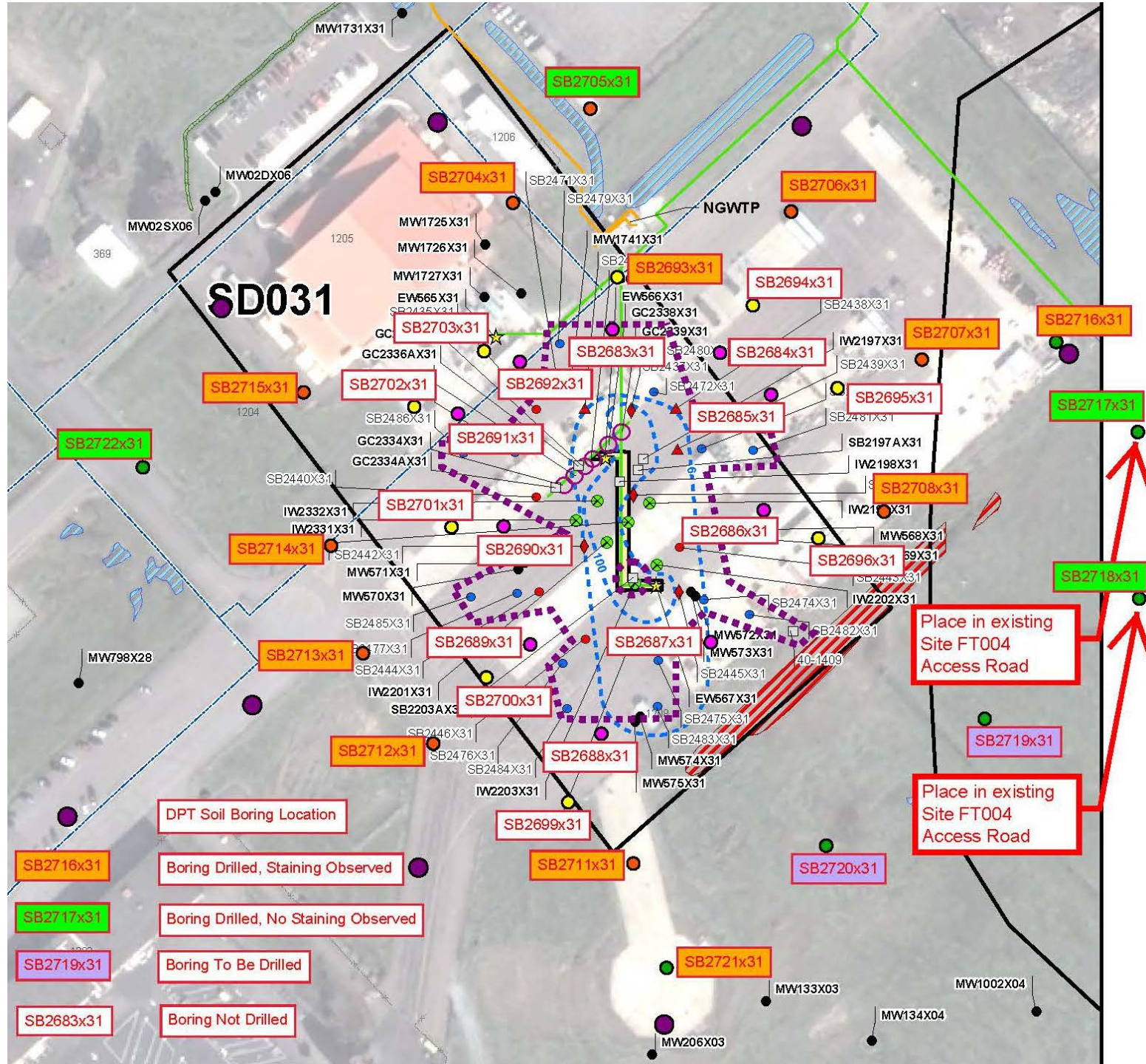
Site SD031 Soil Investigation Status

- We are limited in ability to sample soil in the southern area due to the pending biological opinion (BO).
 - The BO is expected at the end of this week.
- The plan is to drill the southern area hand auger borings after the BO is issued, drill 7 DPT soil borings along the known extent of the soil plume, and collect 2 groundwater samples from existing wells in the source area.







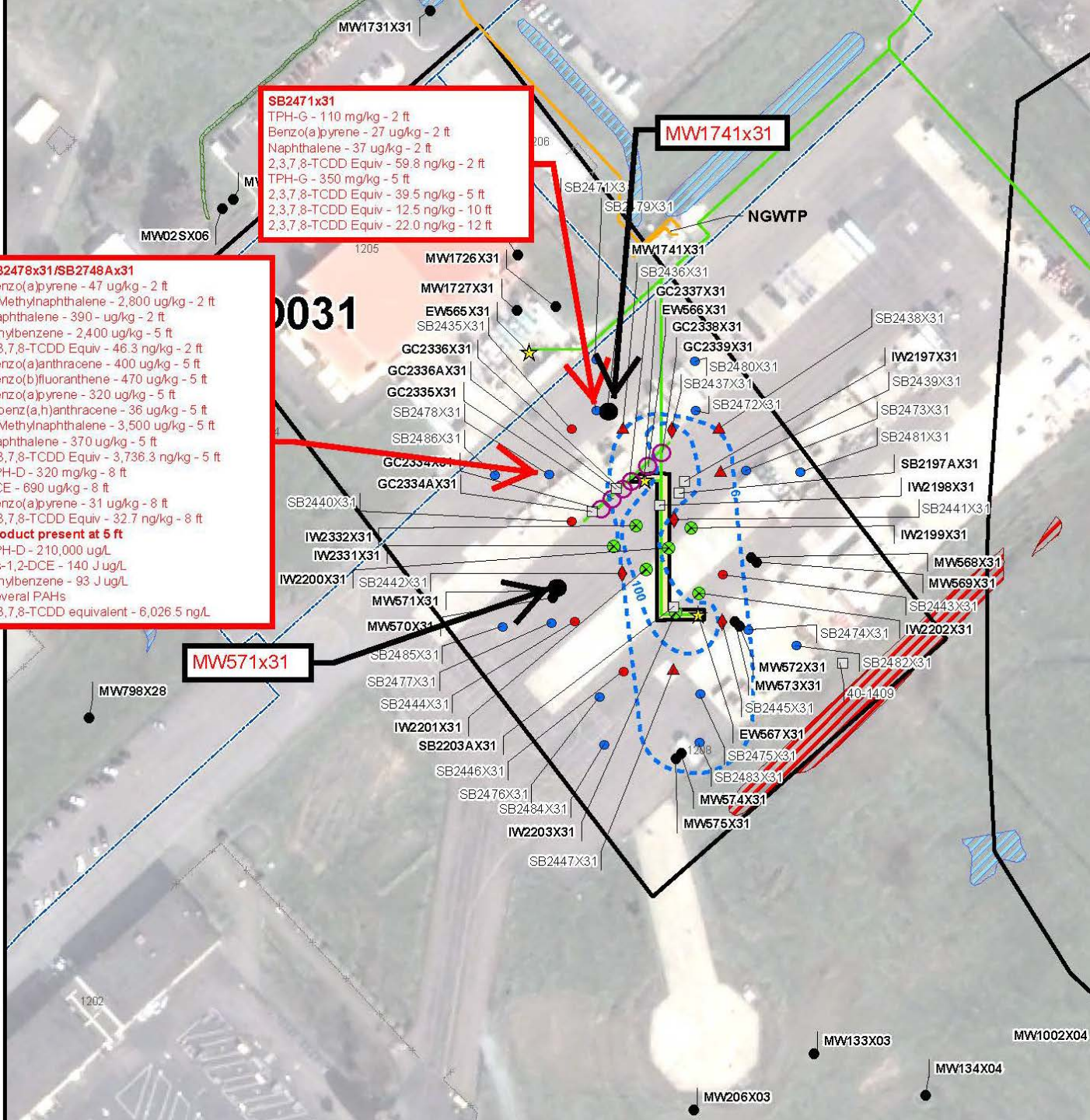


SB2478x31/SB2748Ax31
Benzo(a)pyrene - 47 ug/kg - 2 ft
2-Methylnaphthalene - 2,800 ug/kg - 2 ft
Naphthalene - 390 ug/kg - 2 ft
Ethylbenzene - 2,400 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 46.3 ng/kg - 2 ft
Benzo(a)anthracene - 400 ug/kg - 5 ft
Benzo(b)fluoranthene - 470 ug/kg - 5 ft
Benzo(a)pyrene - 320 ug/kg - 5 ft
Dibenz(a,h)anthracene - 36 ug/kg - 5 ft
2-Methylnaphthalene - 3,500 ug/kg - 5 ft
Naphthalene - 370 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 3,736.3 ng/kg - 5 ft
TPH-D - 320 mg/kg - 8 ft
TCE - 690 ug/kg - 8 ft
Benzo(a)pyrene - 31 ug/kg - 8 ft
2,3,7,8-TCDD Equiv - 32.7 ng/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
Several PAHs
2,3,7,8-TCDD equivalent - 6,026.5 ng/L

SB2471x31
TPH-G - 110 mg/kg - 2 ft
Benzo(a)pyrene - 27 ug/kg - 2 ft
Naphthalene - 37 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 59.8 ng/kg - 2 ft
TPH-G - 350 mg/kg - 5 ft
2,3,7,8-TCDD Equiv - 39.5 ng/kg - 5 ft
2,3,7,8-TCDD Equiv - 12.5 ng/kg - 10 ft
2,3,7,8-TCDD Equiv - 22.0 ng/kg - 12 ft

MW1741x31

MW571x31



Questions

GC2396x31
TPH-G - 1,600 mg/kg - 5 ft
Acetone - 3,680 ug/kg - 5 ft
Total Nylates - 23,000 ug/kg - 5 ft

SB2436x31
TPH-G - 540 mg/kg - 2 ft
TPH-D - 710 mg/kg - 2 ft
2-Methylnaphthalene - 1,300 ug/kg - 2 ft
Naphthalene - 300 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 42.7 ng/kg - 2 ft
TPH-G - 760 mg/kg - 5 ft
TPH-D - 250 mg/kg - 5 ft
Acetone - 1,200 ug/kg - 5 ft
2-Methylnaphthalene - 300 ug/kg - 5 ft
Naphthalene - 1,500 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 29.9 ng/kg - 5 ft
TPH-G - 520 mg/kg - 5 ft
TPH-D - 440 mg/kg - 5 ft
Naphthalene - 520 ug/kg - 5 ft

SB2476x31/SB2749x31
Benz(a)pyrene - 47 ug/kg - 2 ft
2-Methylnaphthalene - 2,500 ug/kg - 2 ft
Naphthalene - 500 ug/kg - 2 ft
Ethybenzene - 2,400 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 46.3 ng/kg - 2 ft
Benz(a)anthracene - 400 ug/kg - 5 ft
Benz(b)fluoranthene - 470 ug/kg - 5 ft
Benz(a)pyrene - 320 ug/kg - 5 ft
Dibenz(a,h)anthracene - 30 ug/kg - 5 ft
2-Methylnaphthalene - 3,500 ug/kg - 5 ft
Naphthalene - 370 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 3,063 ng/kg - 5 ft
TPH-D - 320 mg/kg - 8 ft
TCE - 690 ug/kg - 8 ft
Benz(a)pyrene - 21 ug/kg - 8 ft
2,3,7,8-TCDD Equiv - 32.7 ng/kg - 8 ft
Product present at 5 ft
TPH-D - 210 mg/kg
ac-1,2-DCE - 440 ug/kg
Ethybenzene - 95 ug/kg
Several PAHs
2,3,7,8-TCDD equivalent - 6,026 ng/kg

SB2466x31
2,3,7,8-TCDD Equiv - 63.3 ng/kg - 2 ft
Benz(a)pyrene - 80 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 625.4 ng/kg - 5 ft

GC2344x31
TPH-G - 1,800 mg/kg - 5 ft
TPH-D - 1,500 ug/kg - 5 ft
Total Nylates - 9,800 ug/kg - 5 ft
Benz(a)pyrene Equiv - 18.6 ug/kg - 5 ft

SB2466x31
TPH-G - 500 mg/kg - 5 ft
2,3,7,8-TCDD Equiv - 26.3 ng/kg - 5 ft

SB2466x31
TPH-G - 500 mg/kg - 5 ft
2,3,7,8-TCDD Equiv - 26.3 ng/kg - 5 ft

SB2477x31
2,3,7,8-TCDD Equiv - 43.9 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 29.1 ng/kg - 5 ft
2,3,7,8-TCDD Equiv - 7.6 ng/kg - 17 ft

SB2442x31
2,3,7,8-TCDD Equiv - 13.0 ng/kg - 2 ft
TPH-G - 1,700 mg/kg - 5 ft
2,3,7,8-TCDD Equiv - 3,251.5 ng/kg - 5 ft
TPH-G - 110 mg/kg - 16.5 ft

SB2444x31
2,3,7,8-TCDD Equiv - 39.1 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 62.9 ng/kg - 5 ft

SB2466x31
TPH-G - 310 mg/kg - 2 ft
TPH-D - 1,400 mg/kg - 2 ft
Benz(a)anthracene - 670 ug/kg - 2 ft
Benz(b)fluoranthene - 550 ug/kg - 2 ft
Benz(a)pyrene - 500 ug/kg - 2 ft
Dibenz(a,h)anthracene - 100 ug/kg - 2 ft
Indeno(1,2,3-cd)pyrene - 340 ug/kg - 2 ft
2-Methylnaphthalene - 2,700 ug/kg - 2 ft
Naphthalene - 520 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 66.2 ng/kg - 2 ft
Benz(a)pyrene - 30 ug/kg - 5 ft
2-Methylnaphthalene - 1,200 ug/kg - 5 ft
Naphthalene - 570 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 1,695.2 ng/kg - 5 ft
Benz(a)pyrene - 19 ug/kg - 10 ft

SB2476x31
TPH-G - 200 mg/kg - 2 ft
TPH-D - 600 mg/kg - 2 ft
Benz(a)pyrene - 110 ug/kg - 2 ft
Naphthalene - 150 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 101.2 ng/kg - 2 ft
Naphthalene - 110 ug/kg - 5 ft
Benz(a)pyrene - 22 ug/kg - 14.5 ft
2-Methylnaphthalene - 550 ug/kg - 14.5 ft
Naphthalene - 120 ug/kg - 14.5 ft

SB2484x31
2,3,7,8-TCDD Equiv - 29.2 ng/kg - 2 ft

SB2353x31
TPH-G - 1,200 mg/kg - 2 ft
TPH-D - 2,700 mg/kg - 2 ft
Naphthalene - 3,600 ug/kg - 2 ft
Benz(a)pyrene Equiv - 527 ug/kg - 2 ft
2,4-Dimethylphenol - 950 ug/kg - 2 ft
TPH-G - 700 mg/kg - 3 ft
TPH-D - 2,200 mg/kg - 3 ft
Naphthalene - 3,700 ug/kg - 3 ft
Benz(a)pyrene Equiv - 501 ug/kg - 3 ft
2,3,7,8-TCDD Equiv - 15.3 ng/kg - 5 ft

SB2471x31
TPH-G - 110 mg/kg - 2 ft
Benz(a)pyrene - 27 ug/kg - 2 ft
Naphthalene - 37 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 59.8 ng/kg - 2 ft
TPH-G - 350 mg/kg - 5 ft
2,3,7,8-TCDD Equiv - 39.5 ng/kg - 5 ft
2,3,7,8-TCDD Equiv - 12.6 ng/kg - 10 ft
2,3,7,8-TCDD Equiv - 22.6 ng/kg - 12 ft

SB2479x31
2,3,7,8-TCDD - 944.3 ng/kg - 2 ft
Benzene - 140 ug/kg - 5 ft

SB2436x31
Benz(a)anthracene - 570 ug/kg - 2 ft
Benz(b)fluoranthene - 690 ug/kg - 2 ft
Benz(a)pyrene - 670 ug/kg - 2 ft
Dibenz(a,h)anthracene - 100 ug/kg - 2 ft
Naphthalene - 41 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 67.5 ng/kg - 2 ft
Benz(a)pyrene - 52 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 496.3 ng/kg - 5 ft

SB2480x31
2,3,7,8-TCDD Equiv - 61.1 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 135.5 ng/kg - 5 ft

SB2473x31
2,3,7,8-TCDD Equiv - 17.8 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 363.1 ng/kg - 5 ft

SB2472x31
Naphthalene - 38 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 36.8 ng/kg - 5 ft

SB2167Ad31
Benz(a)pyrene Equiv - 118 ug/kg - 2 ft
TPH-D - 350 ug/kg - 5 ft
Acetone - 1,200 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 227.8 ng/kg - 5 ft

SB2436x31
2,3,7,8-TCDD Equiv - 42.7 ng/kg - 2 ft
TPH-G - 190 mg/kg - 5 ft
TPH-D - 2,900 mg/kg - 5 ft
Total Nylates - 4,300 ug/kg - 5 ft
Benz(a)pyrene - 95 ug/kg - 5 ft
1-Methylnaphthalene - 19,000 ug/kg - 5 ft
2-Methylnaphthalene - 26,000 ug/kg - 5 ft
Naphthalene - 4,700 ug/kg - 5 ft
2,3,7,8-TCDD Equiv - 6,166.5 ng/kg - 5 ft
2,3,7,8-TCDD Equiv - 504.7 ng/kg - 8 ft

SB2436x31
Benz(a)pyrene - 28 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 62.5 ng/kg - 2 ft
TPH-G - 480 mg/kg - 5 ft
2,3,7,8-TCDD Equiv - 112.5 ng/kg - 5 ft

SB2481x31
Benz(a)anthracene - 170 ug/kg - 2 ft
Benz(a)pyrene - 170 ug/kg - 2 ft
Dibenz(a,h)anthracene - 34 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 76.8 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 207.5 ng/kg - 5 ft
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
2,3,7,8-TCDD Equiv - 52.5 ng/kg - 13.5 ft

SB2473x31
2,3,7,8-TCDD Equiv - 38.4 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 102.8 ng/kg - 5 ft

SB2441x31
2,3,7,8-TCDD Equiv - 19.5 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 24.6 ng/kg - 5 ft

4C-1400
TPH-P - 284 mg/kg - 6 ft
TPH-E - 500 mg/kg - 6 ft

SB2402x31
TPH-G - 820 mg/kg - 2 ft
TPH-D - 2,500 mg/kg - 2 ft
Benz(a)pyrene - 10 ug/kg - 2 ft
2-Methylnaphthalene - 13,000 ug/kg - 2 ft
Naphthalene - 3,500 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 127.9 ng/kg - 2 ft
TPH-G - 250 mg/kg - 5 ft
Benzene - 180 ug/kg - 5 ft
Naphthalene - 130 ug/kg - 5 ft
TPH-G - 720 mg/kg - 8 ft
TPH-D - 490 mg/kg - 8 ft
Benzene - 1,400 ug/kg - 8 ft
2-Methylnaphthalene - 4,300 ug/kg - 8 ft
Naphthalene - 2,900 ug/kg - 8 ft
TPH-G - 490 mg/kg - 11.5 ft
TPH-D - 440 mg/kg - 11.5 ft
2-Methylnaphthalene - 4,500 ug/kg - 11.5 ft
Naphthalene - 3,100 ug/kg - 11.5 ft

SB2474x31
TPH-G - 140 mg/kg - 10 ft
2-Methylnaphthalene - 260 ug/kg - 10 ft
Naphthalene - 170 ug/kg - 10 ft
TPH-G - 150 mg/kg - 13 ft
2-Methylnaphthalene - 500 ug/kg - 13 ft
Naphthalene - 1,200 ug/kg - 13 ft

SB2443x31
TPH-G - 890 mg/kg - 2 ft
TPH-D - 690 mg/kg - 2 ft
Benz(a)anthracene - 180 ug/kg - 2 ft
Benz(b)fluoranthene - 170 ug/kg - 2 ft
Benz(a)pyrene - 150 ug/kg - 2 ft
Dibenz(a,h)anthracene - 21 ug/kg - 2 ft
2-Methylnaphthalene - 3,200 ug/kg - 2 ft
Naphthalene - 930 ug/kg - 2 ft
2,3,7,8-TCDD Equiv - 25.2 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 18.4 ng/kg - 5 ft
TPH-G - 170 mg/kg - 14 ft

SB2446x31
2,3,7,8-TCDD Equiv - 35.1 ng/kg - 2 ft
2,3,7,8-TCDD Equiv - 136.3 ng/kg - 5 ft
TPH-G - 110 mg/kg - 10 ft
Naphthalene - 40 ug/kg - 10 ft
TPH-G - 250 mg/kg - 15 ft
2-Methylnaphthalene - 660 ug/kg - 13 ft
Naphthalene - 110 ug/kg - 13 ft

SB2476x31
2,3,7,8-TCDD Equiv - 20.9 ng/kg - 2 ft

SB2483x31
2,3,7,8-TCDD Equiv - 11.9 ng/kg - 2 ft

D031



DP039 Optimization Evaluation

Travis AFB, California



August 17, 2016

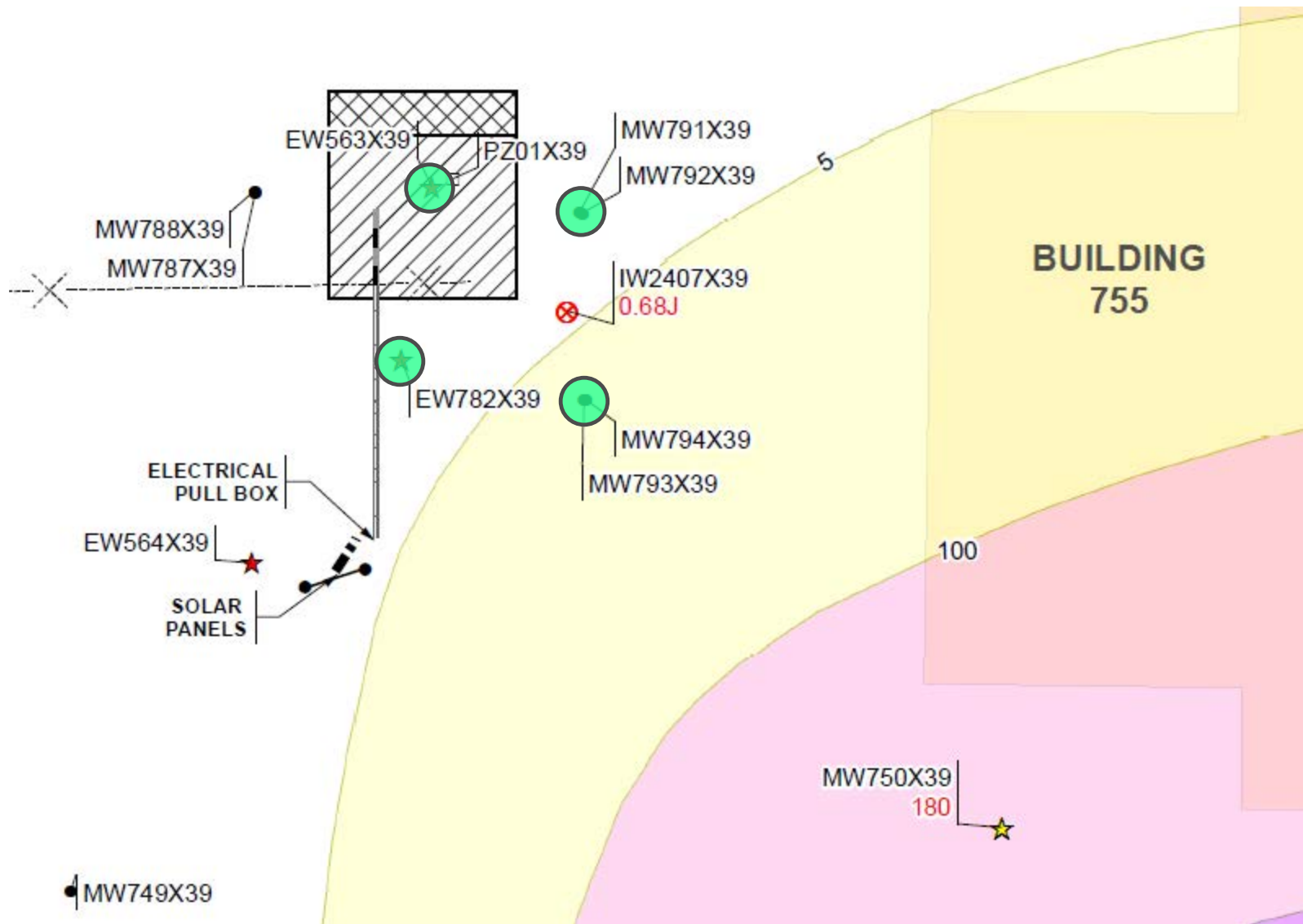
Objectives

- Better understand the best way to disperse dissolved organic carbon (DOC) from the reactor to the aquifer
 - Vary the duration the reactor is on/off to evaluate potential differences in DOC dispersal from the reactor, as well as the recently installed EVO injection well
 - Area near the DP039 reactor is pretty well clean, but this study has relevance for other reactors

Approach

- Turn reactor off for 4 weeks to establish baseline
 - Sample EW563x39, EW782x39, MW791x39, and MW793x39 for TOC and VOCs (baseline)
- Evaluate three on/off durations
 - 1 week on, 1 week off, and 1 week on (sample), then 4 weeks off
 - 2 weeks on, 2 weeks off, and 2 weeks on (sample), then 4 weeks off
 - 4 weeks on, 4 weeks off, and 4 weeks on (sample)
- Determine which cycling duration results in the greatest TOC concentrations at distance from the reactor

DP039 Site Map



Future Considerations

- Expect a future ~6 month rebound study may be appropriate
 - Confirm back diffusion will not increase concentrations if the reactor is turned off
- Continue to collect data to evaluate the best way to utilize the reactor, since the area around the reactor is now below MCLs

Travis AFB Restoration Program

Program Update

RPM Meeting
August 17, 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
- Corrective Action Plan for DERA-Funded Oil Water Separators
- Site ST032 POCO Completion Report
- ***Site ST028 POCO Completion Report***
- ***2015 Annual CAMU Monitoring Report***
- ***Site SD031 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
- 2016 Q2 GRIP Sampling
- ***Data Gap Inv. for Soil Sites (SD043, SS046)***
- ***SD031 Remedial Investigation Step-out Sampling (2nd round)***
- ***DP039 EVO Injection***

Documents In-Progress

CERCLA

- Site TS060 Action Memorandum
- Site SS016 Soil Data Gaps Investigation Work Plan
- Site SD034 Technology Demonstration Work Plan
- Site TS060 Removal Action Work Plan
- Site LF044 Investigation Work Plan
- Multi-Site Bioaugmentation Technology Demonstration Work Plan
- 2015 Annual GRISR

Documents In-Progress

POCO

- Site FT004 POCO Soil Data Gap Investigation Work Plan

Field Work In-Progress

- Oil Water Separators Step-out Drilling (1)
- Oil Water Separators Removal

Documents Planned

CERCLA

- Site FT005 Technology Demonstration Construction Completion Report Aug
- Community Involvement Plan Sep
- Site DP039 RD/RA Construction Completion Report Sep

Documents Planned

POCO

- Sites ST028 and ST032 Well Decommissioning Work Plan Sep

Field Work Planned

CERCLA

- SD034 Technology Demonstration Bioreactor Installation Aug
- ***SD033 Soil Sampling*** ***Aug***
- Multi-site Bioaugmentation Well Installation Aug
- Multi-site Bioaugmentation EVO Injection Sep
- SS016 Soil Data Gaps Investigation Sep
- LF044 Berm Sampling Sep
- SD034 Technology Demonstration Well Installation Sep
- ***SD031 Remedial Investigation Soil Sampling (3rd round)*** ***Sep***
- TS060 Removal Action TBD

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

Field Work Planned

POCO

- SS014 Bioreactor Installation Aug
- CG508 Well Decommissioning Oct
- FT004 POCO Soil Data Gaps Investigation Sep
- ST028 & ST032 Well Decommissioning Sep

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