Final

Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
20 July, 0930 Hours

Mr. Lonnie Duke, of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Team (IST) conducted the Restoration Program Manager's (RPM) teleconference meeting on 20 July 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 (via telephone)	AFCEC/CZRW
Merrie Schilter-Lowe	Travis AFB 60 AMW/PA
Dezso Linbrunner	USACE-Omaha
Adriana Constantinescu (via telephone)	California Regional Water Quality Control Board (RWQCB)
Nadia Hollan Burke (via telephone)	USEPA
Indira Balkissoon (via telephone)	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 (June 2016)
Attachment 4	CGWTP Monthly Data Sheet (June 2016)
Attachment 5	LF007C Monthly Data Sheet (June 2016)
Attachment 6	ST018 Monthly Data Sheet (June 2016)
Attachment 7	Presentation: SD031 Field Investigation Update Presentation
Attachment 8	Presentation: Documents and Activities Completed, In Progress and Planned

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 20 June 2016 RPM meeting minutes were approved and finalized as written with the following exception. In the action item review update (1B), Ms. Burke suggested to include the author, title, and date of the CD that Mr. Duke handed out during the 20 June 2016 RPM meeting.

B. Action Item Review.

Action items from June 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. 20 July 2016 update: Mr. Duke said there was a teleconference with the contractor that has been selected to perform the site inspection and the Travis AFB biologist. An informal consultation is being considered as the work being performed will not damage endangered species habitat. The inspection could take place this year but will likely be accomplished during the next dry season.

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

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

Travis AFB Annual Meeting and Teleconference Schedule

The next RPM meeting will be a face-to-face meeting, which will be held on Wednesday, 17 August, at 0930. Mr. Linbrunner requested a 2017 RPM meeting schedule. Mr. Duke will take this request as an action item. Mr. Duke asked the agencies if they would like to take a tour after the 17 August 2016 meeting to see fieldwork being conducted. Ms. Constantinescu, Ms. Burke and Ms. Balkissoon all said yes.

Travis AFB Master Document Schedule

— Community Involvement Plan (CIP): Predraft to AF/Service Center date changed to 17 August 2016, the rest of the dates were changed accordingly.

— Site SD031 Remedial Investigation Work Plan: Final Due date changed to 21 July 2016, when the document is scheduled to go final.

— Action Memorandum Non-Time Critical Removal Action at Site TS060 (Old Skeet Range): Public Comment Period date was added: 7 July 2016 to 7 August 2016. Ms. Burke is working on RTCs and hopes to have them submitted next week.

— Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Ms. Constantinescu said that Yemia Hashimoto/RWQCB made progress with a draft order and will issue a revised site cleanup order based on the findings from the 2015 subsurface investigation report.

— Corrective Action Plan for DERA-Funded Oil Water Separators (POCO): Response to Comments due and the Final due date were changed to 12 July 2016 to reflect the actual date.

— Site SD034 Technology Demonstration Work Plan: No change to the schedule. Travis AFB received comments from EPA. Ms. Constantinescu said no comments from RWQCB.

— Site TS060 Removal Action Work Plan: Agencies Comments Due date was changed to 27 July 2016. Ms. Burke requested additional review time.

— 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 10 August 2016. Travis AFB is working on EPAs RTCs.

— Site FT004 POCO Soil Data Gap Investigation Work Plan: Draft to Agencies was changed to 19 July 2016 to reflect the actual date, the rest of the dates were changed accordingly.

— Site LF044 Investigation Work Plan: No change to the schedule. Travis AFB received comments from the RAB document review team.

— Sites ST028 and ST032 Well Decommissioning Work Plan (POCO): New document, all dates are to be determined (TBD).

— Quarterly Newsletter (July 2016): Draft to Agencies dates was changed to 13 July 2016 to reflect the actual date, the rest of the dates were changed accordingly. Ms. Burke suggested to add the public comment period (PCP) for site TS060. Mr. Anderson said he will try and find space to add a sentence regarding the PCP.

— 2015 Annual GRISR: Draft to Agencies date was changed to 7 July 2016, to reflect the actual date. Agency Comments Due date was changed to 10 August 2016.

— Site ST032 POCO Completion Report: Response to Comments due date and Final Due date changed on 20 July 2016, to reflect the actual date.

— Site ST028 POCO Completion Report: Response to Comments Due date and Final Due date changed to 26 July 2016.

— 2015 Annual CAMU Monitoring Report: Response to Comments and Final Due dates changed to 22 July 2016.

— Site FT005 Technology Demonstration Construction Completion Report: Predraft to AF/Service Center date was changed to 30 June 2016, to reflect the actual date, the rest of the dates were changed accordingly.

— Site DP039 Remedial Action Construction Completion Report: predraft to AF/Service Center was changed to 27 July 2016, the rest of the dates were changed accordingly.

— Site FT004 Groundwater Technology Demonstration Construction Completion Report: Moved to History.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.5% uptime, and 3.7 million gallons of groundwater were extracted and treated during the month of June 2016. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 97.3 gallons per minute (gpm). Electrical power usage was 17,265 kWh, and approximately 12,776 pounds of CO_2 were created (based on DOE calculation). Approximately 1.8 pounds of volatile organic compounds (VOCs) were removed in June. The total mass of VOCs removed since startup of the system is 479.6 pounds.

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

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

The Central Groundwater Treatment Plant (CGWTP) performed at 57.3% uptime with approximately 640,545 gallons of groundwater extracted and treated during the month of June 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 1,377 kWh for all equipment connected to the Central Plant, and approximately 1,907 pounds of CO_2 were generated. Approximately 1.35 pounds of VOCs were removed from groundwater by the treatment plant in June. The total mass of VOCs removed since the startup of the system is 11,435 pounds.

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

Ms. Constantinescu asked about table 5: Summary of DP039 Bioreactor Pulsed Mode Operations. She was not clear on the pulsed mode schedule of two weeks on two weeks off, and why it was decided to operate the bioreactor in the pulsed mode. Mr. Duke said DP039 transitioned to a pulsed mode based on performance monitoring data to help conserve the small amounts of total organic carbon (TOC) being generated by the bioreactor. This was the first bioreactor constructed on Travis AFB and fresh, immature mulch was used during construction. It has since been determined that older mulch is

much more effective in releasing TOC. Ms. Constantinescu said she agrees with the pulsed mode, and wondered if it was ever considered to change the pulsed mode to one week on and one week off to see if you receive more benefit, while monitoring TOC. Mr. Wray said he would look into altering the pulsed mode schedule to optimize the bioreactor. Ms. Burke commented will these types of optimization activities be reported in the 'optimization section' of the GRISR. Mr. Duke confirmed.

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

The treatment plant was brought back online on 27 May 2016 when the seasonal vernal pools at Site LF007C were observed to be dry.

Subarea LF007C Treatment Plant (LF007CGWTP) performed at 72% uptime with approximately 222,326 gallons of groundwater extracted and treated during the month of June 2016. The average flow rate at the NGWTP was 4.29 gpm, and electrical power use was 0 kWh for all the equipment connected to the LF007C plant; and 0 pounds of CO_2 was generated; this system is 100 percent off of the power grid. Approximately $3.46x10^{-3}$ pounds of VOCs were removed from the groundwater in June. The total mass of VOCs removed since the startup of the system is 174.36 pounds.

Optimization Activities for LF007CGWTP: In June 2016, extraction well EW615x07 was retrofitted with a new solar pump and new solar panel. The well was brought on line on 27 June 2016 with an approximate flow rate of 1.5 gpm when the sun is shining, as no batteries are attached to EW615x07.

Ms. Burke questioned why "volume discharge to storm drain: 0 gallons" is written on table 1. Doesn't all the treated groundwater get discharged to the duck pond? Mr. Duke said that was an option when the monthly report was referencing the old North Groundwater Treatment Plant (NGWTP) and no longer applies, and that it will be removed from future reports.

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

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 211,640 gallons of groundwater extracted and treated during the month of June 2016. All treated water was diverted to the sanitary sewer. The average flow rate for the ST018 GWTP was 5.2 gpm. Electrical power usage for the month was 124 kWh for all equipment connected to the ST018 GWTP, which equates to approximately 492 pounds of CO_2. Approximately 0.39 pounds of BTEX, MTBE and TPH were removed from groundwater in June by the treatment plant. Approximately 0.10 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 38.3 pounds, and the total MTBE mass removed since startup of the system is 9.2 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 June 2016.

Presentations:

Presentation: Site SD031 Soil Remedial Investigation Update – 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.

Field Work/Initial Results:

- Drilling and soil sampling were performed from 16 May through 27 May. Drilled 29 soil borings which included 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 (bgs). Note: the NAPL was found in soil several feet above the groundwater table.

- Analytical results indicated that each of the soil borings had concentrations of at least one compound that were greater than their respective screening levels.

- Contamination was generally found from 2 to 5 feet bgs, with the highest concentrations generally at 5 feet bgs. In a couple of the borings soil contamination was found as deep as the smear zone at approximately 14 feet bgs.

- Slide 4 shows a map of site SD031 that shows the area of the soil contamination as indicated from the investigation. All sides of the plume still need to be bounded.

Step-out Sample Plan:

- The purpose of the next round of sampling will be to delineate the lateral extent of the soil contamination in the vadose zone.

- Drill up to 40 step-outs borings, down to 5 feet bgs, using a hand auger. Mr. Wray added that the footprint of the soil contamination is a lot larger than anticipated. We have about 10 more direct push borings left in the budget. By drilling the 5 ft. borings using a hand auger, it will allow a visual indication of where the soil staining is, and hopefully approximately define the boundary of contamination to help us determine where the best locations are to drill the remaining 10 direct push borings.

- The step-out soil borings are 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. Hand augering is proposed to start with the orange borings and if clean (i.e., no staining), step in to the yellow borings. If staining is observed in the orange borings, then step out to the green borings.

- Samples will be collected at 5 feet bgs from all borings. The samples will be shipped to the laboratory and placed on hold for two weeks pending notification. Based on visual conditions of the soil, staining or no staining, will determine which samples we will request the laboratory to run. We will request the laboratory to run samples on the borings that have the no visible staining in proximity to borings with stained soil.

- The location of the borings indicated on the map are in areas that do not need additional biological approval or were included in the current supplement to the biological assessment. If the contamination extends further to the south in the grassy area we will have to wait for US Fish and Wildlife Service (USFWS) to approve the biological opinion (BO).

- After we have completed roughly delineating the lateral extent of the soil contamination using visual and PID readings, the plan is to drill up to ten (10) borings with a direct push drill rig to give us vertical control of the soil contamination in the area where we conducted the hand auger step-out borings.

Mr. Wray gave a brief explanation on how the USFWS coordination process works. A Biological Assessment (BA) is written to include conservation measures and the proposed work. The BA is submitted to USFWS, and they have 145 days to review the BA prior to issuing a Biological Opinion (BO). Ms. Balkissoon said that her Ecological Risk Assessor has expressed concern with the eco risk, and asked if we are allowed to collect a water sample from vernal pools to ensure contamination is not spreading to the vernal pool. Mr. Chakurian said that it is strictly prohibited by USFWS to collect a water sample from a vernal pool (that is considered a "take"). Ms. Burke asked when it is planned on conducting the hand auger borings because she may have some comments. Mr. Chakurian said that they planned on starting 1 August 2016 and to please have the comments in by then.

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

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

Newly Completed Documents: Corrective Action Plan for DERA Funded Oil Water Separators; Site ST032 POCO Completion Report.

Newly Completed Field Work: None.

In-Progress Documents (CERCLA): 2015 Annual CAMU Monitoring Report; Site SD031 Remedial Investigation Work Plan; 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 ST028 POCO Completion Report; Site FT004 POCO Soil Data Gap Investigation Work Plan.

In-Progress Field Work: DP039 EVO Injection (chase water); SD031 Soil Remedial Investigation; Oil Water Separators Step-out Drilling (4); Oil Water Separators Removal.

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

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

Field Work Planned (CERCLA): Data Gap Investigation for Soil Sites (SD033, SD043, and SS046) (July); SS016 Soil Data Gaps Investigation (July); LF044 Berm Sampling (August); Multi-site Bioaugmentation Well Installation (August); Multi-site Bioaugmentation EVO Injection (August); SD034 Technology Demonstration Bioreactor Installation (August); SD034 Technology Demonstration Well Installation (August); SD031 Remedial Investigation (RI) Step-out Sampling, 2nd round (August); TS060 Removal Action (August).

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

4. New Action Item Review

2) Mr. Duke to create a 2017 RPM calendar.

3) Mr. Duke to separate POCO and CERCLA sites on the Master Meeting and Document Schedule (MMDS).

4) Mr. Wray to look into changing pulsed mode from 2 week off and 2 weeks on, to 1 week off and 1 week on.

5) Mr. Duke to provide agencies with the biological assessment (BA) supplement and the approved biological opinion (BO).

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
2.	Lonnie Duke	Create 2017 RPM calendar.	17 August 2016	Open
3.	Lonnie Duke	Separate POCO and CERCLA sites on the Master Meeting and Document Schedule (MMDS).	17 August 2016	Open
4.	Mike Wray	DP039 Bioreactor look into changing pulsed mode from 2 week off and 2 week on, to 1 week off and 1 week on.	17 August 2016	Open
5.	Lonnie Duke	Provide agencies with the biological assessment (BA) supplement and the approved biological opinion (BO)	17 August 2016	Open

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

The RPM teleconference is scheduled for 9:30 AM PST on 20 July 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 FIELD INVESTIGATION UPDATE PRESENTATION
   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	8-17-16	01-13-16	03-30-16
AF/Service Center Comments Due	8-31-16	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	08-05-16
Draft Final Due	11-03-16	06-15-16	08-05-16
Final Due	12-05-16	07-15-16 (07-21-16)	09-08-16

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
	Potrero Hills Annex Travis, Glenn Anderson		
Life Cycle	**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	07-27-16
Response to Comments Meeting	**05-18-16**	**07-20-16**	**08-17-16**
Response to Comments Due	06-01-16 (07-12-16)	08-09-16	08-31-16
Draft Final Due	NA	NA	NA
Final Due	06-01-16 (07-12-16)	08-09-16	08-31-16
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS		
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 (08-10-16)
Draft Final Due	NA	NA
Final Due	09-09-16	07-01-16 (08-10-16)
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**	**Sites ST028 and ST032 Well Decommissioning Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Doug Berwick** **CAPE, Meg Greenwald**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	06-03-16	04-26-16	TBD
AF/Service Center Comments Due	06-17-16	05-10-16	TBD
Draft to Agencies	07-19-16	06-27-16	TBD
Draft to RAB	07-19-16	06-27-16	TBD
Agency Comments Due	08-19-16	07-28-16	TBD
Response to Comments Meeting	09-21-16	**08-17-16**	**TBD**
Response to Comments Due	10-06-16	08-31-16	TBD
Draft Final Due	NA	NA	NA
Final Due	10-06-16	08-31-16	TBD
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**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	07-13-16	07-07-16	04-05-16
Draft to RAB	NA	07-07-16	04-05-16
Agency Comments Due	07-27-16	08-10-16	05-05-16
Response to Comments Meeting	**TBD**	**08-17-16**	**05-18-16**
Response to Comments Due	07-29-16	08-31-16	06-02-16 (07-20-16)
Draft Final Due	NA	NA	NA
Final Due	07-29-16	08-31-16	06-02-16 (07-20-16)
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS				
Life Cycle	**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**	**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**	**NA**	**NA**
Predraft to AF/Service Center	02-24-16	02-26-16	06-30-16	07-27-16
AF/Service Center Comments Due	03-09-16	03-11-16	07-15-16	08-10-16
Draft to Agencies	04-13-16	04-01-16	08-02-16	08-24-16
Draft to RAB	04-13-16	04-01-16	08-02-16	08-24-16
Agency Comments Due	05-13-16	05-02-16	09-01-16	09-26-16
Response to Comments Meeting	**05-18-16**	**05-18-16**	**09-21-16**	**10-20-16**
Response to Comments Due	06-07-16 (07-26-16)	07-08-16 (07-22-16)	10-07-16	11-04-16
Draft Final Due	NA	NA	NA	NA
Final Due	06-07-16 (07-26-16)	07-08-16 (07-22-16)	10-07-16	11-04-16
Public Comment Period	NA	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

HISTORY	
Life Cycle	**Site FT004 Groundwater Technology Demonstration Construction Completion Report** **Travis AFB, Glenn Anderson** **CH2M HILL, Levi Pratt**
Scoping Meeting	**NA**
Predraft to AF/Service Center	02-16-16
AF/Service Center Comments Due	03-01-16
Draft to Agencies	03-15-16
Draft to RAB	03-15-16
Agency Comments Due	04-14-16
Response to Comments Meeting	**04-21-16**
Response to Comments Due	06-10-16
Draft Final Due	NA
Final Due	06-10-16
Public Comment Period	NA
Public Meeting	**NA**

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 190 **Reporting Period: 31 May 2016 - 27 June 2016** **Date Submitted: 15 July 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 June 2016 reporting period.

Table 1 – Operations Summary – June 2016

Initial Data Collection:	5/31/2016 14:40	**Final Data Collection:**	6/27/2016 12:20
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 642 hours	**SBBGWTP:** 99.5%	**SBBGWTP:**	17,265 kWh (12,776 lbs CO_2 generated[a])
Gallons Treated: **3.7 million gallons**		Gallons Treated Since July 1998: **941 million gallons**	
Volume Discharged to Union Creek: **3.7 million gallons**		Gallons Treat From Other Sources: **0 gallons**	
VOC Mass Removed: **1.8 lbs**[b]		VOC Mass Removed Since July 1998: **479.6 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: $4,062[c]			
Monthly Cost per Pound of Mass Removed: $3,746[c]			

lbs = pounds

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.

[b] Calculated using June 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] – June 2016

FT005[b]				SS029		SS030	
EW01x05	Offline	EW736x05	Offline	EW01x29	1.6	EW01x30	9.4
EW02x05	Offline	EW737x05	Offline	EW02x29	0.1	EW02x30	0.2
EW03x05	Offline	EW742x05	Offline	EW03x29	0.1	EW03x30	Offline
EW731x05	Offline	EW743x05	Offline	EW04x29	8.0	EW04x30	32.4
EW732x05	Offline	EW744x05	Offline	EW05x29	7.0	EW05x30	0.8
EW733x05	Offline	EW745x05	Offline	EW06x29	4.8	EW2174x30	10.6
EW734x05	0.8	EW746x05	Offline	EW07x29	13.4	EW711x30	2.6
EW735x05	1.1	EW2291x05	0.7				
FT005 Total: 2.6				**SS029 Total: 35.0**		**SS030 Total: 56.0**	
SBBGWTP Average Monthly Flow[c]: 97.3 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	17 June 2016	11:00	17 June 2016	14:30	Installed 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 June 2016 sampling event are presented in Table 4. The total VOC concentration (57.11 µg/L) in the influent sample has increased from the May 2016 sample results (46.94 µg/L). TCE (54.0µg/L) and cis-1,2-DCE (3.11 µg/L) were detected at the influent sampling location. Cis-1,2-DCE, 1,2-DCA, and chloroform were detected at the midpoint location at low concentrations. TCE (0.18 J µg/L) and cis-1,2-DCE (0.21 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 17 June, the SBBGWTP was shut down for approximately 3.5 hours to install a new power meter. In addition, a backup of the SBBGWTP virtual machine was performed.

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

- On 6 June, the power to the FT005 wells was disconnected in the control room. It is unknown how long the wells were off line; however, the power was restored and EW734x05, EW735x05, and EW2291x05 were restarted.
- On 10 June, the flow meter for EW01x29 was cleaned out, and the well was restarted.
- On 23 June, the pump in EW03x30 failed. All SS030 wells were shut down for approximately 1 hour in order to inspect the electrical wiring. The EW03x30 pump was removed and will be replaced in July 2016.

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, VOC concentrations have been steadily increasing since February 2016. An overall increase in the flow rate has been observed in the past twelve months.

Optimization Activities

No optimization activities occurred at the SBBGWTP in June 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 conversion factor from the Department of Energy of 1 kilowatt hour (kWh) generating 1.37 pounds of GHG has been updated by SiteWise™ to 1 kWh generating 0.74 pounds of GHG. The historical GHG production has been retroactively updated with the new conversion factor. In addition, after the new power meter was installed, the existing power meter was checked. A multiplier of 60 was used because it was the multiplier used by the former power meter; however, the correct multiplier was 40. Therefore, the electrical usage and GHG production between January 2016 and May 2016 were adjusted accordingly. The SBBGWTP produced approximately 12,776 pounds of GHG during June 2016.

TABLE 4
Summary of Groundwater Analytical Data For June 2016 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	7 June 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	0.28 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	ND	0.67	ND
1,1-Dichloroethene	5.0	0.15	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	3.11	0.71	0.21 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	54.0	ND	0.18 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 Dissolved Solids (mg/L)	NA	4.2	0	NM	NM	1,140
Total Petroleum Hydrocarbons – Gasoline	50	30	0	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	24	0	ND	NM	ND

* 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

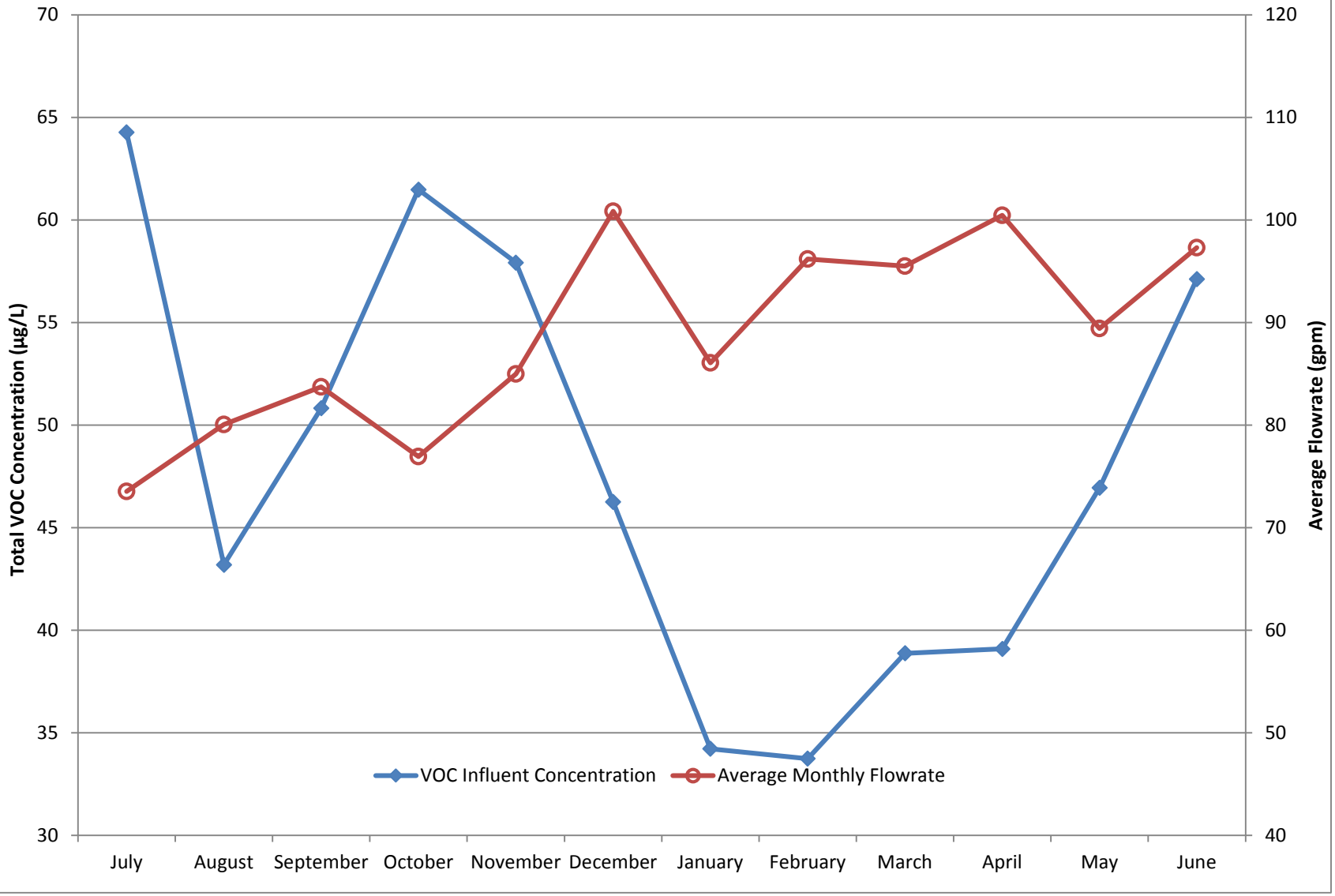
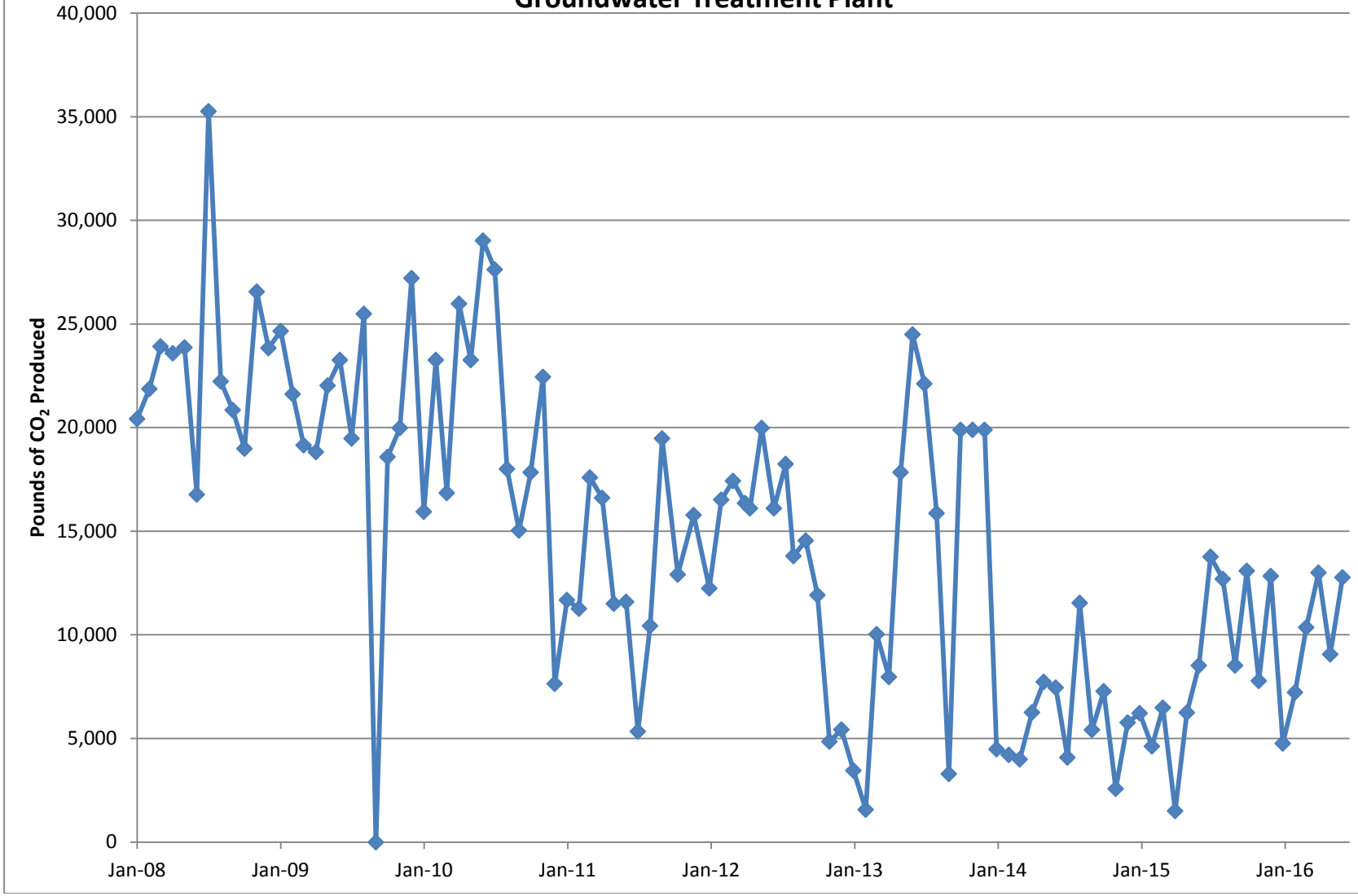


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 203 **Reporting Period: 31 May 2016 – 1 July 2016** **Date Submitted: 15 July 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 June 2016 reporting period.

Table 1 – Operations Summary – June 2016

Initial Data Collection:	5/31/2016 0:00		**Final Data Collection:**	7/1/2016 9:20	
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	432 hours	**CGWTP:**	57.3%	**CGWTP:**	1,377 kWh (1,907 lbs CO_2 generated[a])

Gallons Treated: **640,545 gallons**

Gallons Treated Since January 1996: **526.4 million gallons**

VOC Mass Removed from groundwater:

1.35 lbs[b]

VOC Mass Removed Since January 1996:

2,749 lbs from groundwater

8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $2,480[c]

Monthly Cost per Pound of Mass Removed: $4,124[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 June 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] – June 2016

Location	Average Flow Rate Groundwater (gpm)
EW001x16	15.5
EW002x16	2.9
EW003x16	0.2
EW605x16	6.1
EW610x16	3.0
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	20 May 2016	06:58	13 June 2016	09:30	Faulty direct current power supply, and HMI failure

[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 13 June 2016. Sample results are presented in Table 4. The total VOC concentration (253.9.0 µg/L) in the June 2016 influent sample has decreased slightly from the May 2016 sample (260.0 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 218 µg/L. Cis-1,2-DCE and vinyl chloride were detected at trace concentrations in the after carbon 1 effluent sample, and vinyl chloride was detected in the after carbon 2 effluent sample. No VOCs were detected in the final effluent sample. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough, though the carbon treatment remained effective in June 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 CGWTP was shut down on 20 May because of a faulty direct current power supply. A new power supply was ordered and installed on 3 June. When the CGWTP was restarted, the SCADA computer did not boot properly. On 9 June, the computer motherboard was restored, a new hard drive and backup hard drive were installed, and a restore disk was created. On 13 June, the CGWTP was restarted without issue.

Additional shutdowns were experienced at EW02x16 and EW03x16 during this reporting period. EW02x16 pumped erratically throughout the month of June 2016, but was pumping at approximately 3 gpm when operational, which is below its historical expected flow rate of approximately 7 gpm. EW02x16 was off line at the end of the reporting period. On 29 June, EW03x16 was shut down for approximately 6 hours to remove,

disassemble, and clean its pump. A significant amount of fouling was observed on the pump. In addition, the well screen was re-developed by swabbing the well casing.

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 17 June and brought back on line on 1 July.

Optimization Activities

No optimization activities occurred at the CGWTP in June 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 conversion factor from the Department of Energy of 1 kilowatt hour (kWh) generating 1.37 pounds of GHG has been updated by SiteWise™ to 1 kWh generating 0.74 pounds of GHG. The historical GHG production has been retroactively updated with the new conversion factor. In addition, the amount of GHG generated from changing out the GAC has also been incorporated into the month production values. The CGWTP produced approximately 1,907 pounds of GHG during June 2016. This is a slight increase from the May 2016 amount of 1,936 pounds.

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

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	13 June 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	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	32.1	0.27 J	ND	ND
1,2-Dichlorobenzene	5.0	0.15	0	ND	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	0.55	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	0.41 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	218	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.15	0	1.72	ND	ND	ND
Vinyl Chloride	0.5	0.15	0	0.31 J	0.27 J	0.37 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 Dissolved Solids (mg/L)	NA	4.2		NM	NM	NM	836
Total Petroleum Hydrocarbons – Gasoline	50	30	0	93.9 J	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	29	0	ND	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	50 (trigger)	25	0	ND	NM	NM	ND

* In accordance with Appendix G of the T*ravis 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	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	17 June 2016
	1 July 2016	

MW = Monitoring Well

Figure 1

CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

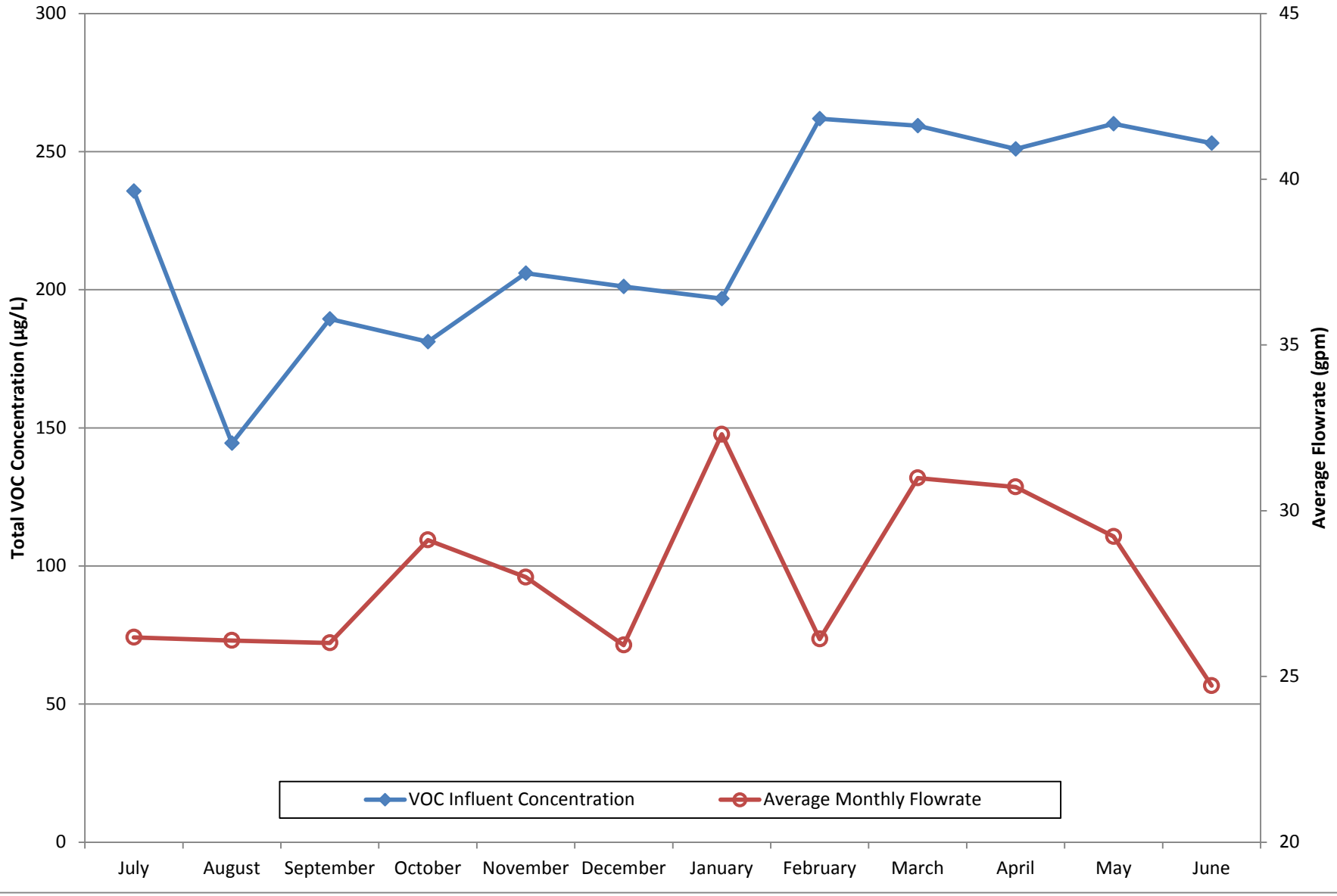
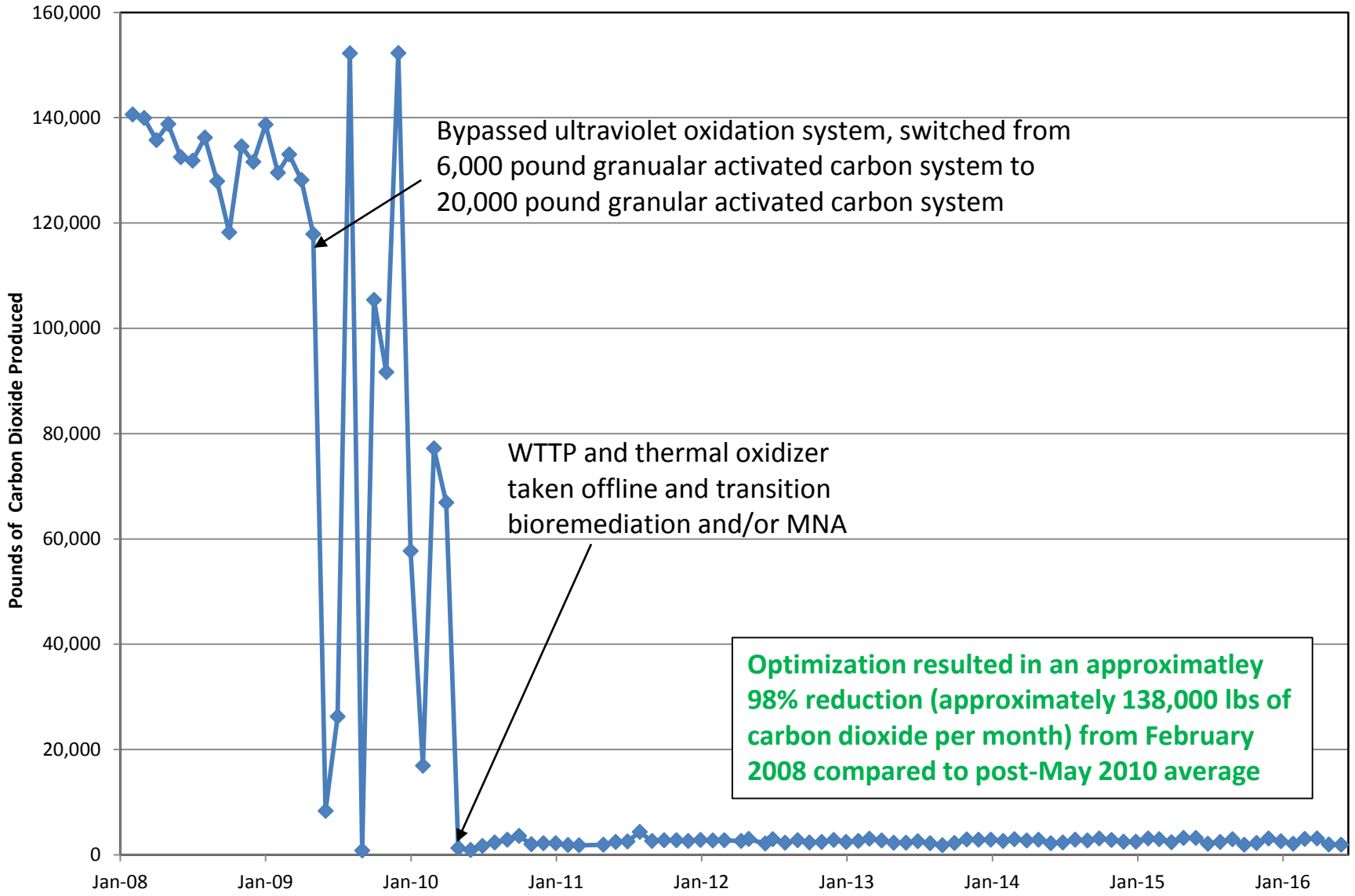


Figure 2

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



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 064 **Reporting Period: 31 May 2016 – 28 June 2016** **Date Submitted: 15 July 2016**

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

System Metrics

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

Table 1 – Operations Summary – June 2016

Initial Data Collection:	5/31/2016 14:20	**Final Data Collection:**	6/28/2016 14:30
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 672 hours		**ST018GWTP:** 100%	**ST018GWTP:** 124 kWh (492 lbs CO_2 generated[a])
Gallons Treated: **211,640 gallons**		Gallons Treated Since March 2011: **10.22 million gallons**	
Volume Discharged to Sanitary Sewer: **211,640 gallons**		Final Totalizer Reading: **10,219,728 gallons**	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **3,723,554 gallons**			
MTBE, BTEX, VOC, TPH Mass Removed: **0.39 lbs**[b]		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **38.3 lbs**	
MTBE (Only) Removed: **0.10 lbs**[b]		MTBE (Only) Mass Removed Since March 2011: **9.2 lbs**	
Rolling 12-Month Cost per Total Pounds of Mass Removed: $9,294[bc]			
Monthly Cost per Pound of Mass Removed: $14,180[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 June 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 – June 2016

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.2	670
EW2016x18	1.2	672
EW2019x18	1.2	672
EW2333x18	1.6	672
Site ST018 GWTP	5.2	672

[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	None.	--		--	None.

-- = 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 June 2016. Results are presented in Table 4. The complete June 2016 laboratory data report is available upon request.

The influent concentration for MTBE during the June 2016 sampling event was 60.9 µg/L, which is a slight decrease from the May 2016 sample result of 63.0 µg/L. TPH-g (54.8 J µg/L), TPH-d (59.3 J µg/L), TPH-mo (46.1 J µg/L), benzene (0.18 J µg/L), and 1,2-DCA (0.83 µg/L) were also detected in the influent sample. No contaminant concentrations were detected after the first and second carbon vessel sampling locations. MTBE was detected in the system effluent sampling location at a concentration of 2.83 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 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. The MTBE concentration has generally been decreasing with current concentrations near 60 µg/L. The average flow rate through the ST018GWTP has been seasonally variable with an overall increasing trend; however, the May and June 2016 flow rates have decreased since April 2016.

On 3 June, the air relief valves on the carbon vessels were malfunctioning. On 24 June, the air relief valves were replaced.

Optimization Activities

No optimization activities occurred at the ST018GWTP in June 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 conversion factor from the Department of Energy of 1 kilowatt hour (kWh) generating 1.37 pounds of GHG has been updated by SiteWise™ to 1 kWh generating 0.74 pounds of GHG. The historical GHG production has been retroactively updated with the new conversion factor. In addition, the amount of GHG generated from changing out the GAC has also been incorporated into the monthly production values. The ST018GWTP produced 492 pounds of GHG during June 2016 and treated 211,640 gallons of water, which was a decrease from May 2016 (500 pounds, treating 236,340 gallons).

TABLE 4
Summary Of Groundwater Analytical Data for June 2016 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	7 June 2016 (µg/L)			
				Influent	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
Methyl tert-Butyl Ether	6,400	0.15	0	60.9	NM	ND	2.83
Benzene	25,000[a]	0.15	0	0.18 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	54.8 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50,000[b]	27	0	59.3 J	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100,000	27	0	46.1 J	ND	NM	ND
Other							
1,2-Dichloroethane	0.5	0.15	0	0.83	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

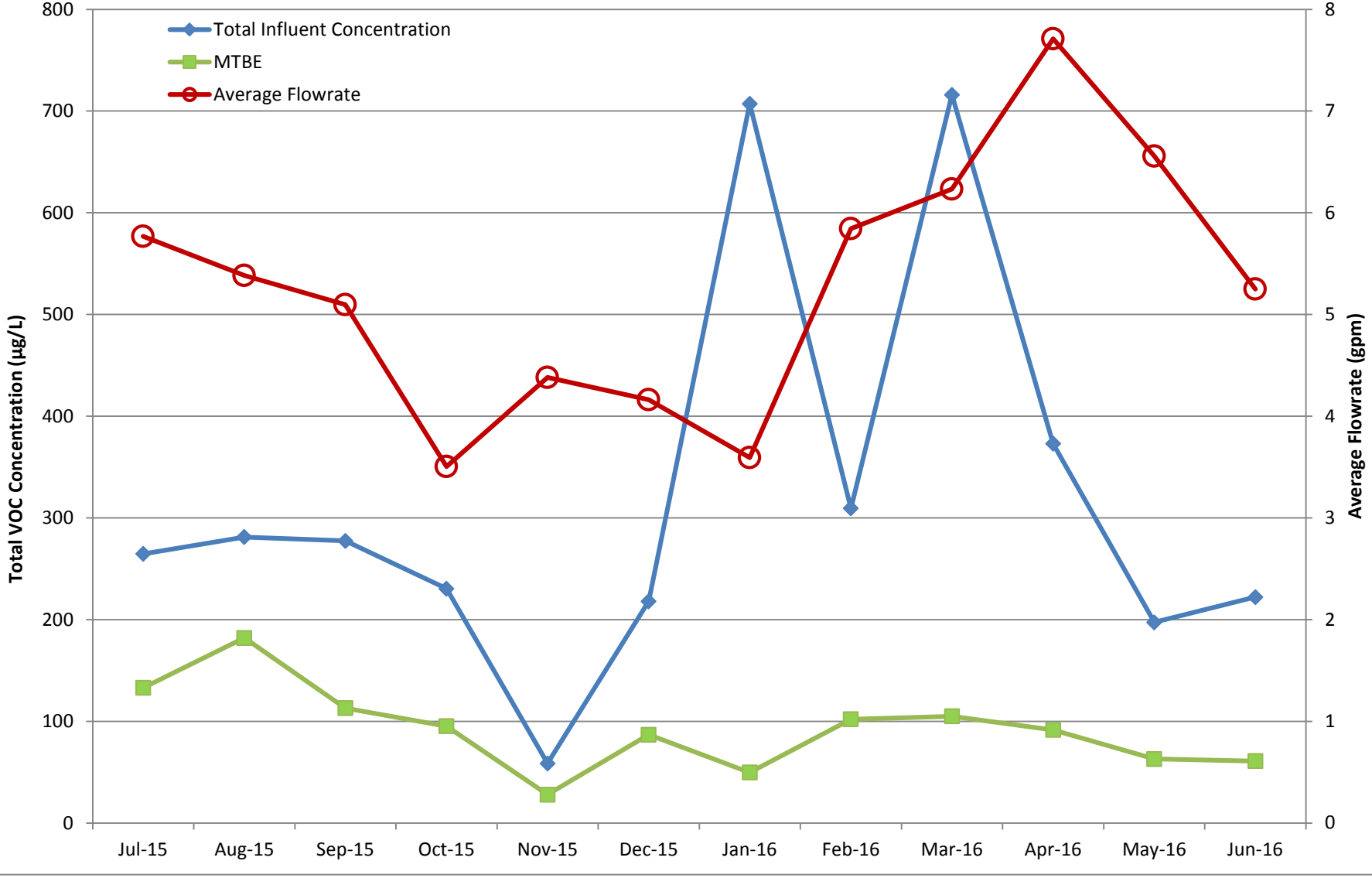
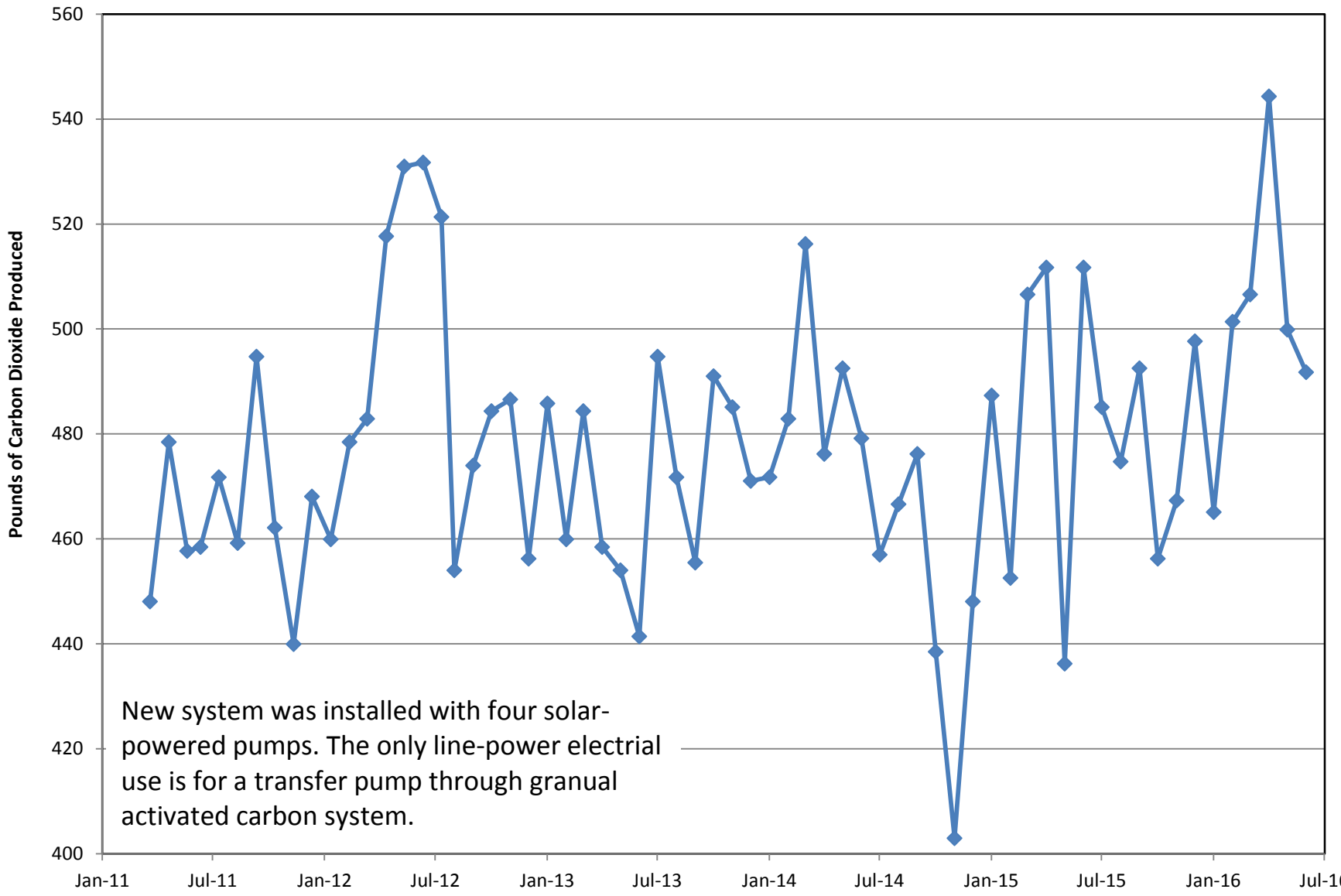


Figure 2

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



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 152 **Reporting Period: 9 May 2016 – 28 June 2016** **Date Submitted: 15 July 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 May/June 2016 reporting period:

Table 1 – Operations Summary – May/June 2016

Initial Data Collection:	5/9/2016 16:45		**Final Data Collection:**	6/28/2016 15:45	
Operating Time:		Percent Uptime:	Electrical Power Usage[a]:		
LF007C GWTP:	863 hours	**LF007C GWTP**	72.0%	**LF007C GWTP:**	0 kWh
Gallons Treated: **222,326 gallons**			Gallons Treated Since March 2000: **85.1 million gallons**		
Volume Discharged to Duck Pond: **222,326 gallons**			Volume Discharge to Storm Drain: **0 gallons**		
VOC Mass Removed: **3.46×10^{-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 June 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 – May/June 2016

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	4.5	219,010
EW615x07	1.7	1,070
LF007C GWTP	**4.29**	**222,326**

[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	24 December 2015	--	9 May 2016	16:45	Shut down due to vernal pools. Restarted when dry.
LF007C GWTP	13 May 2016	12:27	27 May 2016	12:45	Shut down while awaiting analytical results.

-- = 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

The LF007C GWTP (formerly referred to as the North Groundwater Treatment Plant [NGWTP]) was taken off line on 24 December 2015 when the analytical report showed TPH-d in the effluent sample. The system was also shut down for the winter because vernal pools had formed in Subarea LF007C. After the vernal pools had dried up on 9 May 2016, the LF007C GWTP was restarted, on 12 May 2016, treatment plant samples were collected, and on 13 May 2016, the treatment plant was shut down while the samples were being analyzed. The May 2016 analytical data are presented in Table 4. TCE (1.02 µg/L) was detected at the influent sample location. No contaminants were detected at the midpoint and final effluent sampling locations. The LF007C GWTP was restarted on 27 May 2016.

Analytical data from the 7 June 2016 sampling event are presented in Table 5. TCE (1.87 µg/L) and TPH-d (25.6 J µg/L) were detected at the influent sample location. No contaminants were detected at the midpoint and effluent sampling locations.

Figure 1 presents a chart of influent concentrations (total VOCs) at the LF007C GWTP versus time for the past twelve months. Analytical data (Tables 4 and 5) continue to indicate effective treatment of the influent process stream.

The average flow rate through the LF007C GWTP in June 2016 (4.29 gpm) was approximately three (3) times the flow rate measured in December 2015 (1.53 gpm).

Optimization Activities

In June 2016, extraction well EW615x07 was retrofitted with a new solar pump and new solar panel. The well was brought on line on 27 June 2016 with an approximate flow rate of 1.5 gpm when the sun is out. No batteries were attached to EW615x07.

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.

TABLE 4
Summary of Groundwater Analytical Data For May 2016 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (μg/L)	Detection Limit (μg/L)	N/C	12 May 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	1.02	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

TABLE 5
Summary of Groundwater Analytical Data For June 2016 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	7 June 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	1.87	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	0.60 J	NM	NM
Total Dissolved Solids (mg/L)	NA	4.2	0	NM	NM	2,040
Total Petroleum Hydrocarbons – Gasoline	50	30	0	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	24	0	25.6 J	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	24	0	ND	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

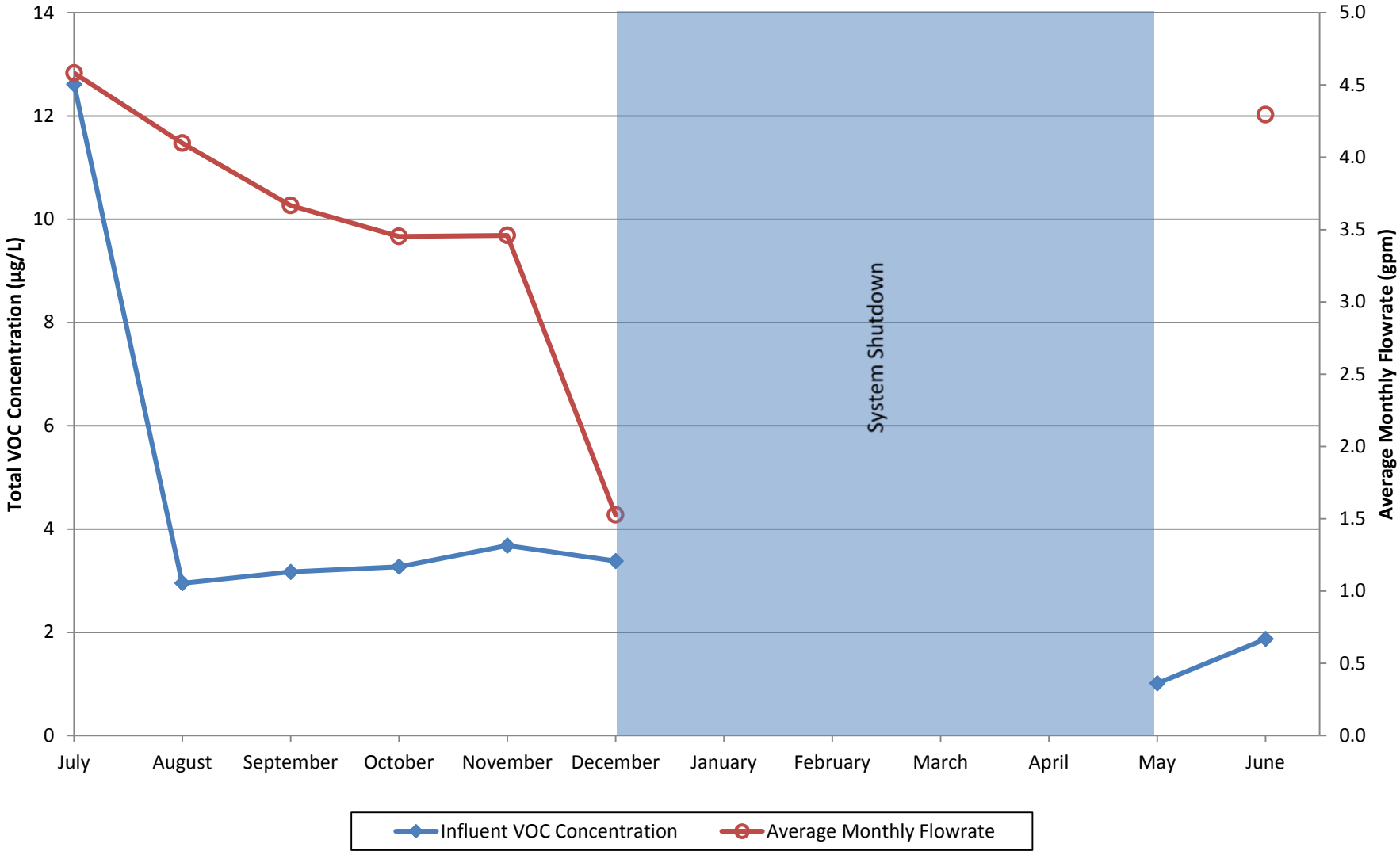
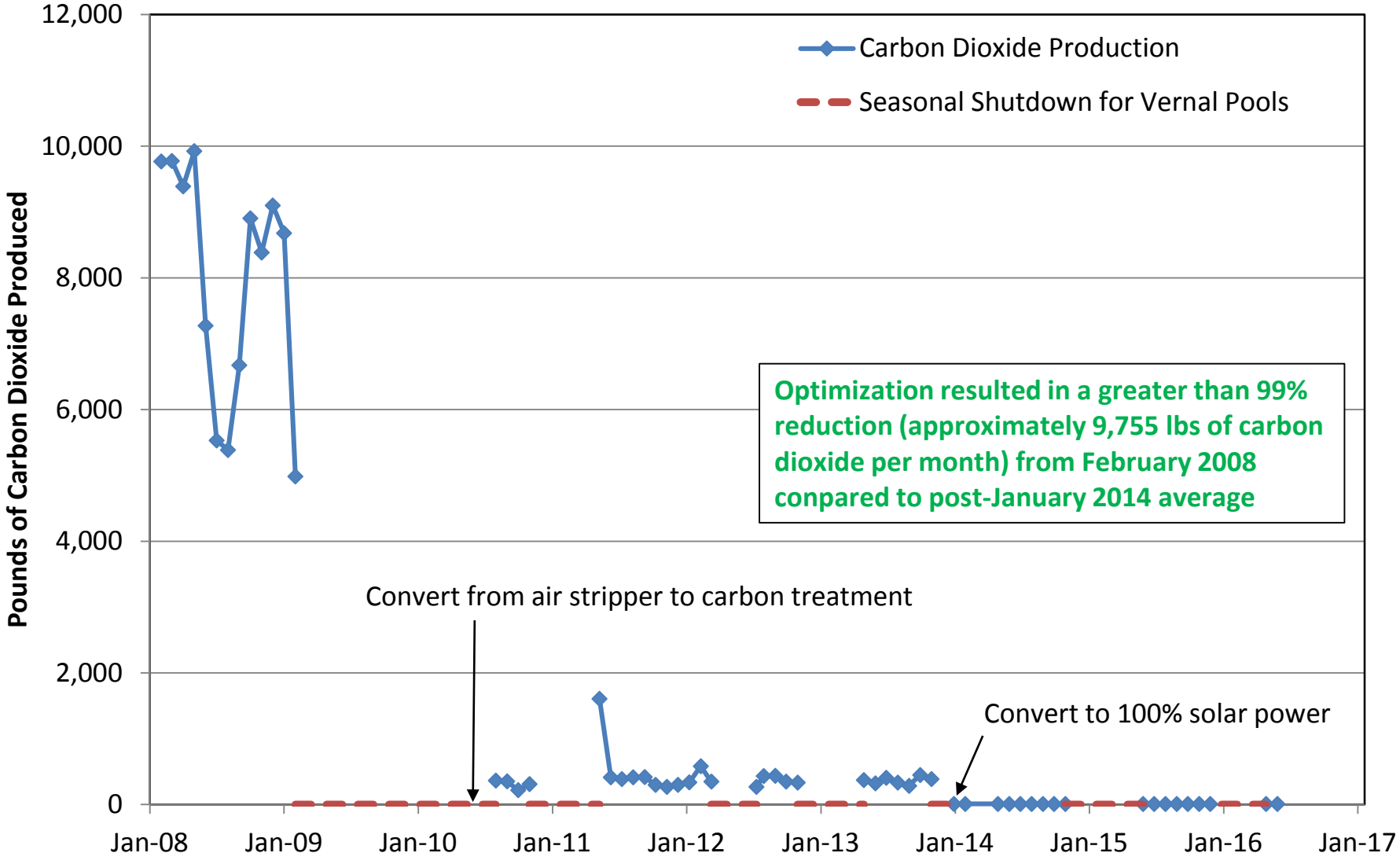


Figure 2

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

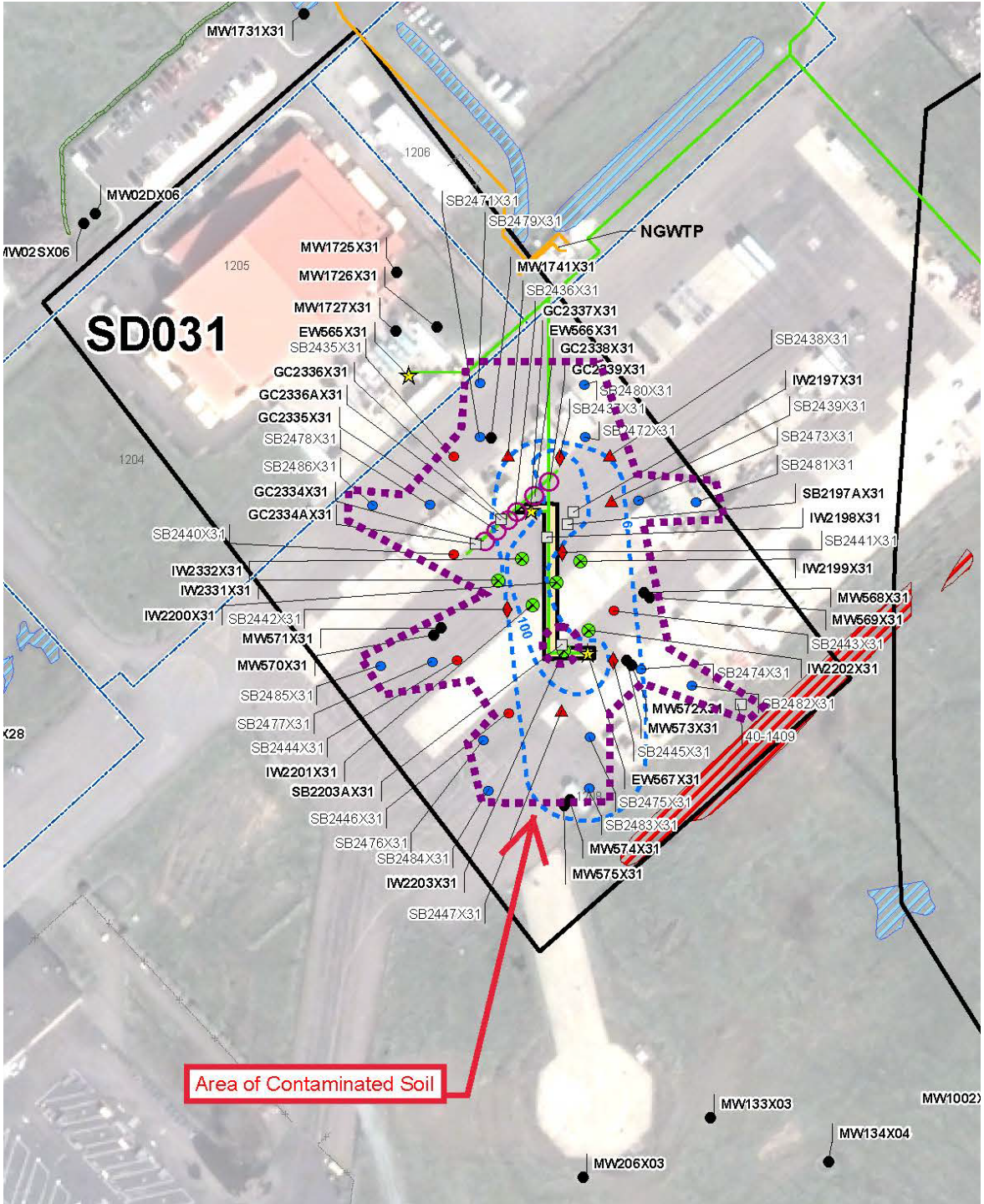
July 20, 2016

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 29 boring locations were stained.
- Product was observed in boring SB2478x31 at 5 feet bgs.
- Analytical results indicated that each of the soil borings had concentrations of at least one compound that was greater than their respective screening levels.
- Contamination is generally found from 2 to 5 feet bgs, with the highest concentrations generally at 5 feet bgs.
- In some borings soil contamination was found as deep as the smear zone at approximately 14 feet bgs.

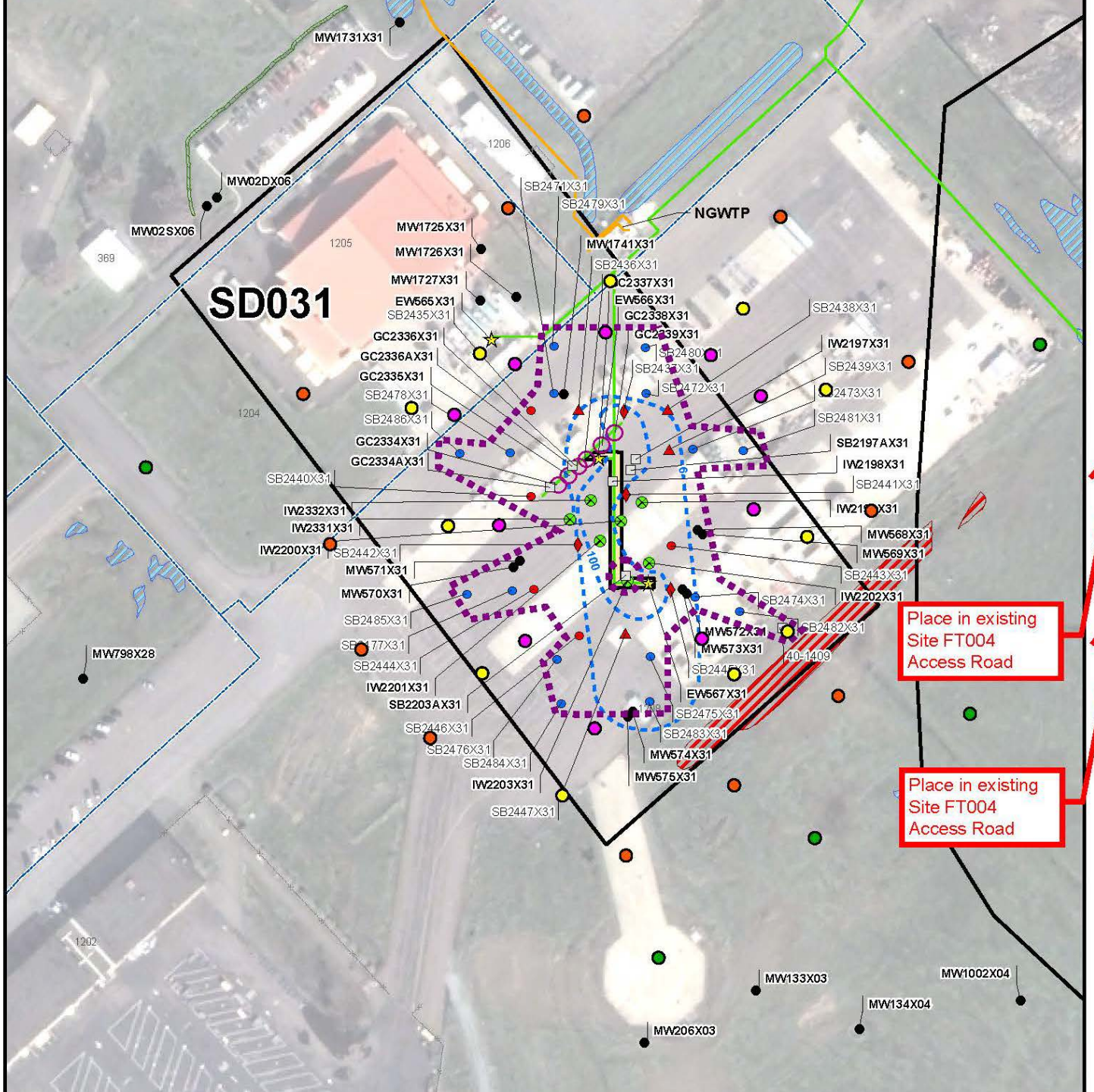
Field Work/Initial Results

- The compounds in the soil at concentrations above their respective screening levels from all of the sampling events include:
  - TPH-G
  - TPH-D
  - TCE
  - Acetone (possible lab contaminant)
  - Benzene
  - Ethylbenzene
  - Methylene Chloride (possible lab contaminant)
  - Total Xylenes
  - 2,4-Dimethylphenol
  - Benzo(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Dibenz(a,h)anthracene
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Naphthalene
  - Phenol
  - 2,3,7,8-TCDD Equivalent (dioxins and furans)
  - Hexavalent Chromium
  - Thallium


SD031
NGWTP
Area of Contaminated Soil
MW1731X31
MW02DX06
MW02SX06
MW1725X31
MW1726X31
MW1727X31
EW565X31
SB2435X31
SB2471X31
SB2479X31
MW1741X31
SB2436X31
GC2337X31
EW566X31
GC2338X31
GC2339X31
SB2480X31
SB2437X31
SB2472X31
GC2336X31
GC2336AX31
GC2335X31
SB2478X31
SB2486X31
GC2334X31
GC2334AX31
SB2440X31
IW2332X31
IW2331X31
IW2200X31
SB2442X31
MW571X31
MW570X31
SB2485X31
SB2477X31
SB2444X31
IW2201X31
SB2203AX31
SB2446X31
SB2476X31
SB2484X31
IW2203X31
SB2447X31
SB2438X31
IW2197X31
SB2439X31
SB2473X31
SB2481X31
SB2197AX31
IW2198X31
SB2441X31
IW2199X31
MW568X31
MW569X31
SB2443X31
IW2202X31
SB2474X31
SB2482X31
MW572X31
MW573X31
SB2445X31
EW567X31
SB2475X31
SB2483X31
MW574X31
MW575X31
MW133X03
MW134X04
MW206X03
1206
1205
1204
100

Step-out Sample Plan

- The purpose of the next round of sampling at Site SD031 will be to roughly delineate the lateral extent of the soil contamination in the vadose zone.
- Up to 40 step-out soil borings will be drilled by hand auger.
- Each boring will be drilled to a depth of 5 feet bgs.
- The step-out soil borings are grouped into different rounds by color with pink being the closest step-outs, then yellow, then orange, and green as the farthest step-out borings.
- The location of the borings are in areas that do not need additional biological approval or were included in the current supplement to the biological assessment.


SD031
NGWTP
MW1731X31
MW02DX06
MW02SX06
MW1725X31
MW1726X31
MW1727X31
EW565X31
GC2336X31
GC2336AX31
GC2335X31
GC2334X31
GC2334AX31
IW2332X31
IW2331X31
IW2200X31
MW571X31
MW570X31
IW2201X31
SB2203AX31
IW2203X31
MW798X28
SB2471X31
SB2479X31
MW1741X31
SB2436X31
GC2337X31
EW566X31
GC2338X31
GC2339X31
SB2435X31
SB2478X31
SB2486X31
SB2440X31
SB2442X31
SB2485X31
SB2444X31
SB2446X31
SB2476X31
SB2484X31
SB2447X31
SB2438X31
IW2197X31
SB2439X31
SB2481X31
SB2197AX31
IW2198X31
SB2441X31
MW568X31
MW569X31
SB2443X31
IW2202X31
SB2474X31
SB2482X31
MW572X31
MW573X31
EW567X31
SB2475X31
SB2483X31
MW574X31
MW575X31
MW133X03
MW1002X04
MW134X04
MW206X03
Place in existing Site FT004 Access Road
Place in existing Site FT004 Access Road

Step-out Sample Plan

- We will drill the orange step-out boring locations first.
- Should any of the orange step-out borings not have visible staining, we will collect a soil sample at 5 feet bgs and place it on hold for analysis at the laboratory.
- We will then step in to the yellow step-out boring nearest to the clean boring and see if there is visible staining. If there is visible staining we will analyze the soil sample from the orange step-out boring for TPH-G, TPH-D/TPH-MO, VOCs, SVOCs, PAHs, dioxins and furans, Title 22/CAM-17 metals, and hexavalent chromium.
- We will not analyze the sample for herbicides as the analytical results for the 29 soil borings showed non-detect to trace concentrations of herbicides present at Site SD031.

Step-out Sample Plan

- Should the yellow step-out sample not have visible staining, we will collect a soil sample from the boring at 5 feet bgs and place it on hold for analysis at the laboratory.
- We will then follow the same process with the pink step-out borings.
- Should the pink step-out borings not have visible staining, we will collect the soil sample at 5 feet bgs and run the samples for the analyses described previously.
- Should the orange borings show visible staining, we will then drill the green step-out locations.
- Should the green step-out boring have staining, we will need to setup another round of soil sampling by preparing another supplement to the biological assessment.

Step-out Sample Plan

- After we have completed roughly delineating the lateral extent of the soil contamination at Site SD031, we drill up to 10 soil borings with a direct push drill rig to give us vertical control of the soil plume in the area where we conducted to the hand auger step-out borings.
- The location of the direct push boring locations will be determined at a later time.

Questions

Travis AFB
Restoration Program

Program Update

RPM Meeting

July 20, 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***

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

Documents In-Progress

CERCLA

- 2015 Annual CAMU Monitoring Report
- Site SD031 Remedial Investigation Work Plan
- 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 ST028 POCO Completion Report
- ***Site FT004 POCO Soil Data Gap Investigation Work Plan***

Field Work In-Progress

- DP039 EVO Injection (chase water)
- SD031 Soil Remedial Investigation
- Oil Water Separators Step-out Drilling (4)
- ***Oil Water Separators Removal***

Documents Planned

CERCLA

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

Documents Planned

POCO

- ***Sites ST032 and ST028 Well Decommissioning Work Plan*** ***TBD***

Field Work Planned

CERCLA

- Data Gap Inv. for Soil Sites (SD033, SD043, SS046) Jul
- SS016 Soil Data Gaps Investigation Jul
- LF044 Berm Sampling Aug
- ***Multi-site Bioaugmentation Well Installation*** ***Aug***
- ***Multi-site Bioaugmentation EVO Injection*** ***Aug***
- SD034 Technology Demonstration Bioreactor Installation Aug
- SD034 Technology Demonstration Well Installation Aug
- SD031 Remedial Investigation Step-out Sampling (2^{nd} round) Aug
- TS060 Removal Action Aug

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 — Aug
- FT004 POCO Soil Data Gaps Investigation — Sep
- ***ST032 & ST028 Well Decommissioning*** — ***TBD***

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 Memorandum

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