Final

Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
16 June 2021, 0930 Hours

Mr. Lonnie Duke of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Section (ISS) conducted the Restoration Program Manager's (RPM) teleconference on 16 June at 0930 hours.

The 60 AMW/CC at Travis Air Force Base (AFB) has directed Health Protection Condition (HPCON) Bravo (changed from HPCON Bravo +) in response to the evolving COVID-19 public health situation in the local area. Masks are optional on-base for fully vaccinated personnel. The base continues to encourage teleworking and virtual meetings in place of in-person meetings. Essential missions will continue, and visitors are permitted with an approved base pass.

All attendees participated via telephone or Microsoft TEAMS due to increased teleworking measures meant to reduce the number of employees on the base at one time. Attendees included:

Lonnie Duke	AFCEC/CZOW
Chet Storrs	AFCEC/CZOW
Mobashir Ahmad	AFCEC/CZOW
Angel Santiago	AFCEC/CZOW
Kurt Grunawalt	Travis AFB 60 AMW/JA
Louis Briscese	Travis AFB 60 AMW/PA
Brian Boccellato	USACE-Omaha
Paul Gedbaw	USACE-Omaha
Nadia Hollan Burke	EPA
Adriana Constantinescu	RWQCB
Kimiye Touchi	DTSC
David Kremer	DTSC
Leslie Royer	CH2M/Jacobs
Jill Dunphy	CH2M/Jacobs

Handouts distributed prior to the meeting included:

Attachment 1	Meeting Agenda
Attachment 2	Master Meeting and Document Schedule
Attachment 3	SBBGWTP Monthly Data Sheet (May 2021)
Attachment 4	CGWTP Monthly Data Sheet (May 2021)
Attachment 5	LF007C GWTP Monthly Data Sheet (May 2021)
Attachment 6	ST018 GWTP Monthly Data Sheet (May 2021)
Attachment 7	Presentation: Program Update (June 2021)
Attachment 8	Travis AFB LUC Sites Update (June 2021)
Attachment 9	Travis AFB PFOS/PFOA Update (June 2021)

I. JACOBS PBR CONTRACT UPDATES

A. ADMINISTRATIVE

1. Agenda and Introductions

Mr. Duke reviewed the agenda for the meeting.

2. Previous Meeting Minutes

There were no Regional Water Quality Control Board (RWQCB) or Environmental Protection Agency (EPA) comments on the content of the May 2021 RPM Meeting Minutes. Ms. Touchi of the Department of Toxic Substances Control (DTSC) stated that she had not yet had a chance to review, and would therefore provide her comments via email. Changes were made to the Final version of the May minutes based on DTSC input.

3. Action Item Review

There were no action items from May 2021.

4. 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 is scheduled for 0930 on 21 July 2021, via MS Teams. At this time, the August and October RPM meetings are planned as in-person meetings, although a virtual attendance option will still be available for those who cannot attend in person. The platform has not yet been determined. The October RPM meeting will be held at 1400 on the same day as the October RAB meeting, which is also currently planned as an in-person meeting.

If the team needs to switch back to monthly teleconferences in the future due to increased COVID precautions, the team will be notified and the schedule will be updated accordingly.

Travis AFB Master Document Schedule

There is limited capability for producing document hard copies and CDs due to ongoing COVID-19 restrictions. For now, electronic versions of small documents will be emailed, and larger versions will be distributed via DOD SAFE. Hard copies and CDs cannot be made at the present time due to the CH2M/Jacobs offices being closed for COVID-19, with no access to reproduction equipment.

— Travis AFB AFFF Remedial Investigation Work Plan: The Response to Comments Meeting date was changed to 16 June 2021; the Response to Comments due date was changed to 30 June 2021. The rest of the schedule remained unchanged.

— Travis AFB AFFF Remedial Investigation Quality Assurance Program Plan (QAPP): The Response to Comments Meeting date was changed to 16 June 2021; the Response to Comments due date was changed to 30 June 2021. The rest of the schedule remained unchanged.

— Quarterly Newsletter (October 2021): The Predraft to AF/Service Center was assigned a due date of 31 August 2021; the rest of the dates were assigned accordingly. The ORC contractor will be responsible for this newsletter; however, if there are delays associated with awarding the ORC, this may change.

— 2020 Annual Groundwater Remedy Implementation Status Report (GRISR): The Travis AFB document lead was changed to Mobashir Ahmad.

— Technology Demonstration Technical Memorandum: The Response to Comments and Final due dates were changed to 30 June 2021.

— Site SD031 and FT004 Groundwater Sampling Results Technical Memorandum: The Response to Comments and Final due dates were changed to 24 June 2021.

— Vapor Intrusion Assessment Report: There was no change to the schedule.

— 2020 Annual Site LF007 CAMU Monitoring Report: The Predraft to AF/Service Center due date was changed to 3 June 2021. The rest of the schedule was changed accordingly.

— Site SD031B POCO Additional Site Investigation Report: There was no change to the schedule. The team agreed that two weeks is enough time for regulatory review of the AF response to comments.

— Potrero Hills Annex (FS, PP, and ROD): There were no updates to the schedule.

— Community Relations Plan (CRP) Update: There was no change to the schedule. This document will be updated as a priority in the upcoming Optimized Remediation Contract.

— MOVED TO HISTORY:

— None

B. CURRENT PROJECTS

1. Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant, May 2021 (Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 87.7% uptime, and 5.217 million gallons of groundwater were extracted and treated in May 2021. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 125.4 gallons per minute (gpm). Electrical power usage was 16,177 kilowatt hours (kWh), and approximately 13,571 pounds of CO2 were created (based on DOE calculation). Approximately 1.21 pounds of volatile organic compounds (VOCs) were removed in May. The total mass of VOCs removed since startup of the system is 537.3 pounds.

Troubleshooting was performed on three extraction wells in May 2021, and the pumps and transducers were removed from two extraction wells. Details can be found in Attachment 3. The SBBGWTP was shut down on 20 May 2021 due to a power outage, and restarted on 24 May 2021 without issue.

No optimization activities were conducted in May 2021.

Central Groundwater Treatment Plant, May 2021 (Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1,050,493 gallons of groundwater extracted and treated in May 2021. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 22.7 gpm. Electrical power usage was 1,240 kWh for all equipment connected to the Central Plant, and approximately 1,806 pounds of CO2 were generated. Approximately 1.97 pounds of VOCs were removed from groundwater by the treatment plant in May. The total mass of VOCs removed since the startup of the system is 11,570 pounds.

The Site DP039 SBGR continued operating in April 2021. The Site SS016 bioreactor, which has been offline since EW003x16 was taken offline in November 2020 to support the KC46 hangar construction, was brought back online in April 2021. A small, solar-operated pump was installed at monitoring well MW2022x16, located adjacent to the bioreactor, to provide groundwater to the bioreactor. The pump runs approximately 2 hours per day and has an automatic shutoff to prevent the well from running dry. Pumping will continue to maintain the bacterial population until the new horizontal well is brought online. The original horizontal well, EW003x16, has been decommissioned.

No optimization activities were conducted in May 2021.

LF007C Groundwater Treatment Plant, May 2021 (Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 100% uptime with approximately 135,088 gallons of groundwater extracted and treated in May 2021. All treated water was discharged to Northgate Pond for beneficial reuse. The average flow rate was 3.1 gpm. Approximately 1.04×10^{-3} of a pound of VOCs was removed from groundwater by the treatment plant in May. The total mass of VOCs removed since the startup of the system is 174.4 pounds. There was no electrical power usage statistics because this plant operates on solar power only.

No optimization activities were conducted in May 2021.

ST018 Groundwater (MTBE) Treatment Plant, May 2021 (Attachment 6)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 97,560 gallons of groundwater extracted in May 2021. All groundwater was discharged to the Fairfield – Suisun Sewer District. The average flow rate for the ST018 GWTP was 2.1 gpm. Electrical power usage for the month was 59 kWh for all equipment connected to the ST018 GWTP. The total CO2 discharge equivalent equates to approximately 44 pounds. Approximately 0.04 of a pound of MTBE, BTEX, VOCs, and TPH was removed in May by the treatment plant, and 0.01 of a pound of MTBE-only was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 50.0 pounds, and the total MTBE mass removed since startup of the system is 12.2 pounds.

Note: Electrical power use at the ST018 GWTP is only for the alarm system and a pump that pushes influent tank water to the Fairfield-Suisun Sanitary Sewer line. The four groundwater extraction pumps in the system are all solar powered.

No optimization activities were conducted in May 2021.

C. PRESENTATIONS

1. Presentation: Program Update (see Attachment 7)

Ms. Royer reported on the status of fieldwork and documents that have been completed, are in progress, or are upcoming. Please refer to Attachment 7 for the full briefing.

D. PROGRAM ISSUES/UPDATE

Ms. Burke inquired if the O&M Manuals will be updated before the Performance-Based Remediation Contract ends. Ms. Royer replied that the O&M manuals are updated after major changes to the systems. The SBBGWTP manual was updated in 2021 following the installation of the upgraded SCADA system, but that the upgrades to the other systems have been minor. It is anticipated that there will be a transition period from the PBC to the ORC, during which the ORC contractor will have the opportunity to become familiar with the treatment systems. Ms. Royer concluded the discussion by saying that the most recent treatment plant O&M manuals can be provided to the EPA for their document repository by the end of the PBC POP.

E. NEW ACTION ITEM REVIEW

Ms. Royer will provide the most recent treatment plant O&M manuals to the EPA for their document repository by the end of the PBC POP.

F. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
1.	Ms. Royer	Ms. Royer will provide the most recent treatment plant O&M manuals to the EPA for their document repository by the end of the PBC POP.	30 September 2021	Open

II. TRAVIS AFB UPDATES

A. Land Use Control Sites, June 2021 (Attachment 8)

Mr. Duke reported on the status of the LUC sites at Travis AFB. Please refer to Attachment 8 for the full briefing. Mr. Duke reminded everyone that projects on sites with LUCs will be included in the Annual Report going forward. He noted that a lesson learned from the KC-46 hangar construction process is that for future construction work, he will request any associated environmental work is completed before major construction activities. The project is running into a lot of design issues and resulting logistical issues involving the related environmental work.

B. PFOS/PFOA PROGRAM STATUS, June 2021 (Attachment 9)

Mr. Storrs reported on the status of the PFOS/PFOA Program at Travis AFB. Please see Attachment 9 for the full briefing.

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

The RPM Teleconference is scheduled for 9:30 AM PST on 16 June 2021. **The call-in number will be provided in the MS Teams meeting invite and also in the same email that the meeting materials are provided in. If you are able to participate via MS Teams meeting, you will see the shared documents that will be viewable by all participants.**

AGENDA

A. JACOBS PBR CONTRACT

1. ADMINISTRATIVE

    a. INTRODUCTIONS
    b. PREVIOUS MEETING MINUTES
    c. ACTION ITEM REVIEW
    d. MASTER MEETING AND DOCUMENT SCHEDULE REVIEW

2. CURRENT PROJECTS

    TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE

3. PRESENTATIONS

    PROGRAM UPDATE:
    DOCUMENTS & ACTIVITIES COMPLETED, IN PROGRESS & PLANNED

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

B. TRAVIS UPDATES

1. CURRENT PROJECTS

    a. LUC SITES
    b. PFOS / PFOA

C. SRS PFAS RI CONTRACT

1. ADMINISTRATIVE

    a. INTRODUCTIONS
    b. PREVIOUS MEETING MINUTES
    c. ACTION ITEM REVIEW
    d. MASTER MEETING AND DOCUMENT SCHEDULE REVIEW

2. CURRENT PROJECTS

    PHASE 1 REMEDIAL INVESTIGATION OF AFFF AREAS

3. PRESENTATIONS

    PROGRAM UPDATE

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

NOTES: AFTER THE RPM TELECONFERENCE, BASED ON THE DISCUSSION DURING THE REVIEW OF THE MASTER MEETING AND DOCUMENT SCHEDULE, WE WILL 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.

2021
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.)
—	01-20-21	—
—	02-17-21	—
—	03-17-21	—
—	04-15-21 (Thursday 2:00 PM)	—
—	05-19-21	—
—	06-16-21	—
—	07-21-21	—
08-18-21	—	—
—	09-15-21	—
10-21-21 (Thursday 2:00 PM)	—	10-21-21
—	11-17-21	—
—	—	—

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

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS		
Life Cycle	**Travis AFB AFFF RI Work Plan[2] Travis AFB, Chet Storrs SRS, Megan Duley**	**Travis AFB AFFF RI QAPP[2] Travis AFB, Chet Storrs SRS, Megan Duley**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	10-27-20	10-27-20
AF/Service Center Comments Due	12-08-20	12-08-20
Draft to Agencies / RAB	03-26-21	03-26-21
Agency Comments Due	**05-26-21**	**05-26-21**
Response to Comments Meeting	06-16-21	06-16-21
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**
Response to Comments Due	06-30-21	06-30-21
Draft Final Due	06-30-21	06-30-21
Final Due	07-30-21	07-30-21

[2] Note: SRS documents will be discussed during the afternoon meeting session.

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	**Quarterly Newsletter (October 2021)** **Travis, Lonnie Duke**	**2020 Annual GRISR** **Travis AFB, Mobashir Ahmad** **CH2M, Levi Pratt**	**Technology Demonstration Technical Memorandum** **Travis AFB, Lonnie Duke** **CH2M, Tony Chakurian**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	08-31-21	04-27-21	01-13-21
AF/Service Center Comments Due	09-03-21	05-27-21	03-02-21
Draft to Agencies / RAB	09-07-21	06-11-21	03-16-21
Agency Comments Due	09-21-21	07-12-21	04-15-21
Response to Comments Meeting	**09-28-21**	07-21-21	**05-28-21**
Response to Comments Due	09-28-21	08-06-21	06-14-21 (06-30-21)
Draft Final Due	NA	NA	NA
Final Due	10-07-21	08-06-21	06-14-21 (06-30-21)
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	NA	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	**Site SD031 and FT004 Groundwater Sampling Results Technical Memorandum** **Travis AFB, Chet Storrs** **CH2M, Tony Chakurian**	**Vapor Intrusion Assessment Report** **Travis AFB, Chet Storrs** **CH2M, Stephanie Curtis**	**2020 Annual Site LF007 CAMU, Monitoring Report** **Travis AFB, Mobashir Ahmad** **CH2M HILL, Levi Pratt**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	01-22-21	07-14-21	06-03-21
AF/Service Center Comments Due	03-10-21	07-28-21	07-06-21
Draft to Agencies / RAB	04-14-21	08-11-21	07-20-21
Agency Comments Due	05-14-21	08-25-21	08-19-21
Response to Comments Meeting	**05-19-21**	**09-08-21**	**09-02-21**
Response to Comments Due	06-16-21 (06-24-21)	09-22-21	09-16-21
Draft Final Due	NA	NA	NA
Final Due	06-16-21 (06-24-21)	09-22-21	09-16-21
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS	
Life Cycle	**SD031B POCO Additional Site Investigation Report** **Travis AFB, Chet Storrs** **CH2M, Levi Pratt**
Scoping Meeting	**NA**
Predraft to AF/Service Center	01-28-21
AF/Service Center Comments Due	03-17-21
Draft to Agencies / RAB	04-21-21
Agency Comments Due	06-21-21
Response to Comments Meeting	**07-21-21**
Response to Comments Due	08-04-21
Draft Final Due	NA
Final Due	08-04-21
Public Comment Period	NA
Public Meeting	**NA**

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
	Potrero Hills Annex Travis, Lonnie Duke		
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

https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL20299915

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS	
Life Cycle	**Community Relations Plan Update[3] Travis AFB,TBD ORC Contractor TBD**
Scoping Meeting	**NA**
Predraft to AF/Service Center	08-23-16
AF/Service Center Comments Due	09-07-16
Draft to Agencies / RAB	09-28-16 (03-22-18)
Agency Comments Due	10-28-16 (04-27-18)
Response to Comments Meeting	**TBD**
Agency Concurrence with Remedy	NA
Public Comment Period	NA
Public Meeting	**NA**
Response to Comments Due	TBD
Draft Final Due	TBD
Final Due	TBD

[3] Note: The Community Relations Plan Update will be finalized in the first year of the ORC contract.

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 247 **Reporting Period: 30 April 2021 – 1 June 2021** **Date Submitted: 11 June 2021**

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

System Metrics

Table 1 presents operational data from the May 2021 reporting period.

Table 1 – Operations Summary – May 2021

Initial Data Collection:	4/30/2021 9:30	**Final Data Collection:**	6/1/2021 9:00
Operating Time:		Percent Uptime:	
SBBGWTP:	673 hours	**SBBGWTP:**	87.7%
Electrical Power Usage:			
SBBGWTP:	16,177 kWh (13,571 lbs CO_2 generated[a])		
Gallons Treated: **5.217 million gallons**		Gallons Treated Since July 1998: **1.261 billion gallons**	
Volume Discharged to Union Creek: **5.217 million gallons**		Gallons Treated from Other Sources: **0 gallons**	
VOC Mass Removed: **1.21 lbs**[b]		VOC Mass Removed Since July 1998: **537.3 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: **$23,817**[c]			
Monthly Cost per Pound of Mass Removed: **$14,553**[c]			

lbs = pounds
[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG. Value also includes approximately 1,600 pounds of GHG from GAC change out services averaged to a per month basis.
[b] Calculated using May 2021 EPA Method SW8260C analytical results.
[c] Costs include operations and maintenance, carbon change out, 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) – May 2021

FT005[a]				SS029		SS030	
EW01x05	Offline	EW743x05	Offline	EW01x29	Offline[b]	EW01x30	6.0
EW02x05	Offline	EW744x05	4.6	EW02x29	3.3	EW02x30	Offline[c]
EW03x05	Offline	EW745x05	7.2	EW03x29	1.8	EW03x30	15.6
EW731x05	Offline[e]	EW746x05	Offline	EW04x29	5.4	EW04x30	10.1
EW732x05	Offline	EW2291x05	Offline[e]	EW05x29	Offline[c]	EW05x30	6.5
EW733x05	Offline	EW2782x05	6.9	EW06x29	13.4	EW2174x30	4.1
EW734x05	6.2	EW2783x05	2.1	EW07x29	9.4	EW711x30	5.1
EW735x05	0.8	EW2784x05	11.0				
EW736x05	Offline	EW2785x05	Offline[c]				
EW737x05	Offline	EW2786x05	11.2				
EW742x05	Offline						
FT005 Total: 50.0				**SS029 Total: 33.3**		**SS030 Total: 47.4**	

SBBGWTP Average Monthly Flow[d]: 125.4 gpm

[a] 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.*
[b] Extraction well taken off line because of persistent fouling of the well pump and associated discharge piping.
[c] Extraction wells were operational; however, well was recharging.
[d] The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time the system was operational.
[e] Extraction well was taken offline because the Site FT005 TD has concluded and COCs no longer exceed cleanup goals in this extraction area.

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	20 May 2021	10:00	24 May 2021	8:30	Power outage

[a] Shutdown and restart times estimated based on field notes
SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the SBBGWTP on 3 May 2021. Sample results are presented in Table 4. The total VOC concentration (27.9 µg/L) in the influent sample increased from the April 2021 sample results (20.4 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 26 µg/L. TCE, cis-1,2-DCE, chloroform, and 1,2-DCA was detected in the midpoint sampling location. No VOCs were detected in the effluent sampling location. A carbon change out for the lead GAC vessel is being coordinated for June 2021.

The effluent sample was also analyzed for TPH-g, TPH-d, and TPH-mo, and no TPH was detected.

Figure 1 presents a plot of influent VOC concentrations and average flow at the SBBGWTP over the past twelve (12) months. VOC concentrations have been seasonally variable; however, over the last 12 months the trend has increased. An overall decreasing flow rate trend was also observed in the past 12 months.

In May 2021 troubleshooting was performed on three extraction wells. The following list presents the maintenance activities and status of those extraction wells:

- EW02x29 – The pump and pressure gauge were replaced. Well is currently online.
- EW05x29 – The pressure gauge and sample port were replaced. Well is currently online.
- EW06x29 – The pump was replaced. Well is currently online.

In addition, the pumps and transducers were removed from extraction wells EW731x05 and EW2291x05.

The SBBGWTP shut down on 20 May 2021 at approximately 10:00 due to a power outage. The treatment plant was restarted on 24 May 2021 at approximately 08:30 without issue. The SBBGWTP remained on line through the end of May 2021.

Optimization Activities

No optimization activities occurred at the SBBGWTP in May 2021.

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. In May 2021, the SBBGWTP produced approximately 13,571 pounds of GHG, which includes approximately 1,600 pounds of GHG generated from GAC change out services averaged to a per month basis.

TABLE 4
Summary of Groundwater Analytical Data for May 2021 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 May 2021 (µg/L)		
				Influent	Midpoint	Effluent[b]
Halogenated Volatile Organics						
Acetone	NA	1.9	0	ND	ND	ND
Bromodichloromethane	NA	0.17	0	ND	ND	ND
Chloroform	1.9	0.16	0	ND	0.21 J	ND
Chloromethane	NA	0.30	0	ND	ND	ND
1,1-Dichloroethane	0.50	0.22	0	ND	ND	ND
1,2-Dichloroethane	0.50	0.13	0	0.42 J	0.41 J	ND
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	0	1.5	1.3	ND
trans-1,2-Dichloroethene	0.50	0.11	0	ND	ND	ND
Dichlorodifluoromethane	NA	0.31	0	ND	ND	ND
Tetrachloroethene	0.50	0.20	0	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.16	0	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.27	0	ND	ND	ND
Trichloroethene	0.65	0.16	0	26	0.19 J	ND
Vinyl Chloride	0.90	0.10	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	0.50	0.13	0	ND	ND	ND
Ethylbenzene	0.50	0.15	0	ND	ND	ND
Toluene	0.50	0.25	0	ND	ND	ND
Xylenes	0.50	0.10 – 0.18	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	10	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	25	0	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	NM	NM	ND

[a] In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.

[b] Concentrations in **bold** exceeded discharge limits.

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

Figure 1

SBBGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

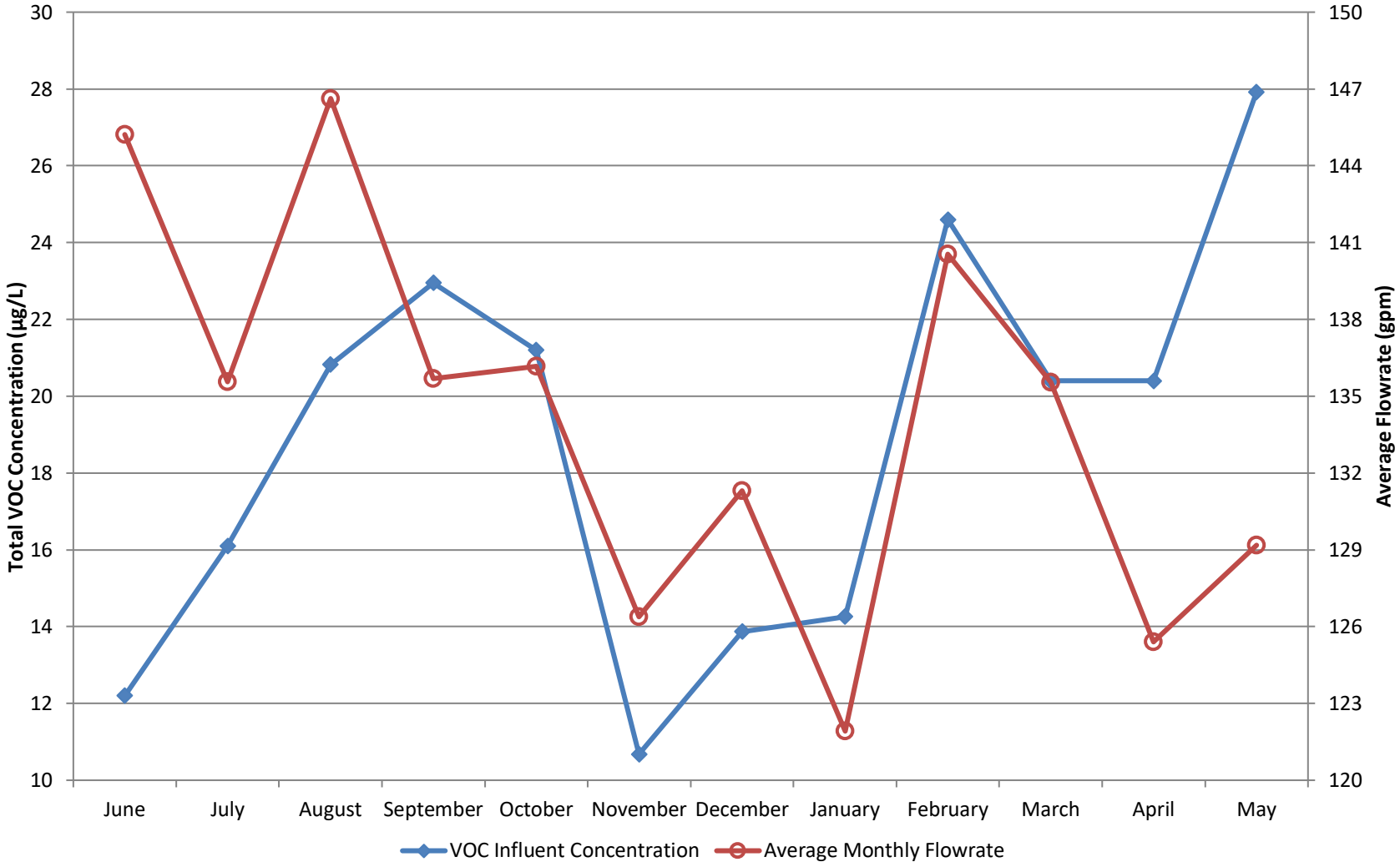
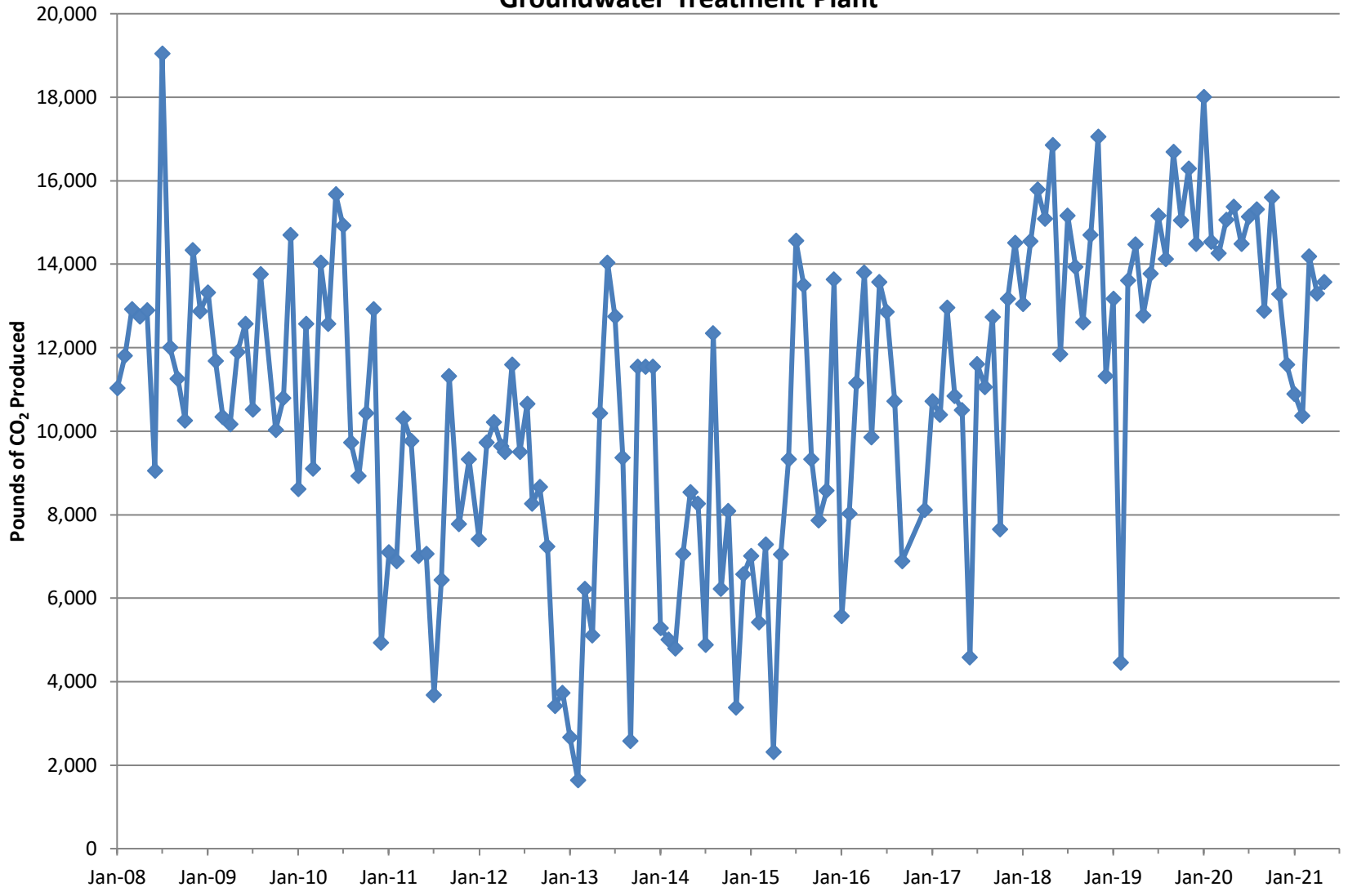


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 262 **Reporting Period: 30 April 2021 – 1 June 2021** **Date Submitted: 11 June 2021**

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

System Metrics

Table 1 presents operational data from the May 2021 reporting period.

Table 1 – Operations Summary – May 2021

Initial Data Collection: 4/30/2021 8:30 **Final Data Collection:** 6/1/2021 12:30

Operating Time:
CGWTP: 772 hours

Percent Uptime:
CGWTP: 100%

Electrical Power Usage:
CGWTP: 1,240 kWh (1,806 lbs CO_2 generated[a])

Gallons Treated (discharge to storm sewer): **1,050,493 gallons**

Gallons Treated Since January 1996: **593.0 million gallons**

VOC Mass Removed from groundwater:
1.97 lbs[b]

VOC Mass Removed Since January 1996:
2,884 lbs from groundwater
8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $3,064[c]

Monthly Cost per Pound of Mass Removed: $2,562[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 services averaged to a per month basis.
[b] Calculated using May 2021 EPA Method SW8260C analytical results.
[c] Costs include operations and maintenance, carbon change out, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

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

Table 2 – CGWTP Average Flow Rates[a] – May 2021

Location	Average Flow Rate Groundwater (gpm)
EW001x16	10.3
EW002x16	5.7
EW003x16[b]	0.0
EW605x16	5.1
EW610x16	1.7
CGWTP	22.7

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
[b] Extracted groundwater from EW003x16 is treated in Site SS016 bioreactor. This well has experienced significant down time due to hangar construction activities in the OSA. The well replacing EW003x16 has been installed, but is not yet online.
[c] Extraction wells are operational. No current access available to the wellhead totalizers because of construction activities
gpm = gallons per minute
NM = not measured

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	None	--	--	--	

-- = Date/Time not recorded
[a] Shutdown and restart times estimated based on field notes
CGWTP = Central Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the CGWTP on 3 May 2021. Sample results are presented in Table 4. The total VOC concentration (224.98 µg/L) in the May 2021 influent sample has decreased from the April 2021 sample (239.70 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 170 µg/L. No VOCs were detected in the samples collected after the first and second carbon vessels nor in the effluent sample. The effluent sample was also analyzed for TPH-g, TPH-d, and TPH-mo, and no TPH was detected. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough.

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 concentrations have been seasonally variable; however, over the last 12 months the trend has increased. An overall increasing flow rate trend was also observed in the past 12 months.

The Site SS016 subgrade biogeochemical reactor (SBGR), also known as the bioreactor and the Site DP039 bioreactor, continued operating in May 2021. The Site SS016 bioreactor was offline between November 2020 and March 2021 because EW003x16, which fed the bioreactor, was offline. On 20 April 2021, the Site SS016 bioreactor began receiving groundwater from a pump installed in a nearby monitoring well, MW2022x16, located near the northwest corner of the bioreactor. In May 2021, the pump was programed to operate for two hours per day, but with dry-run protection that would stop the pump from operating if water levels in the well got too low. The amount of water pumped into the Site SS016 bioreactor each day was approximately 6-10 gallons.

A 3-bay aircraft hangar is being constructed over much of the Oil Spill Area (OSA) source area (former Buildings 16 and 18 area). This project is scheduled to be constructed over at least the next year or so. Every attempt will be made to keep all extraction wells and the Site SS016 bioreactor in operation. However, there may be times when extraction needs to be shutdown to avoid spills of extracted groundwater or to change out electrical equipment. In addition, the horizontal well (EW003x16) has been decommissioned. A replacement horizontal extraction well (EW003Ax16) has been installed, but has not yet been brought online

Optimization Activities

No optimization activities occurred at the CGWTP in May 2021.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy

consumed, and to implement sustainable treatment plant optimization programs, such as bioreactors and EVO injection well networks.

Figure 2 presents the historical GHG production from the systems associated with the CGWTP. The CGWTP produced approximately 1,806 pounds of GHG during May 2021.

TABLE 4
Summary of Groundwater Analytical Data for May 2021 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 May 2021 (µg/L) Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent[b]
Halogenated Volatile Organics							
Acetone	NA	1.9 – 3.8	0	ND	ND	ND	ND
Bromomethane	5.0	0.21 – 0.42	0	ND	ND	ND	ND
Carbon disulfide	5.0	0.17	0	ND	ND	ND	ND
Chloroform	1.9	0.16 – 0.32	0	ND	ND	ND	ND
Chloromethane	NA	0.30 – 0.60	0	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.15 – 0.30	0	0.30 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.13 – 0.26	0	0.44 J	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16 – 0.32	0	0.23 J	ND	ND	ND
1,1-Dichloroethane	0.50	0.22 – 0.44	0	ND	ND	ND	ND
1,2-Dichloroethane	0.50	0.13 – 0.26	0	ND	ND	ND	ND
1,1-Dichloroethene	0.50	0.23 – 0.46	0	0.62 J	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15 – 0.30	0	50	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	2.9	ND	ND	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	0.49 J	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.16 – 0.32	0	ND	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.27 – 0.54	0	ND	ND	ND	ND
Trichloroethene	0.65	0.16 – 0.32	0	170	ND	ND	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	ND	ND	ND	ND
Non-Halogenated Volatile Organics							
Benzene	0.50	0.16 – 0.32	0	ND	ND	ND	ND
Ethylbenzene	0.50	0.16 – 0.32	0	ND	ND	ND	ND
Toluene	0.50	0.17 – 0.34	0	ND	ND	ND	ND
Total Xylenes	0.50	0.15 – 0.38	0	ND	ND	ND	ND
Other							
Total Petroleum Hydrocarbons – Gasoline (C6 – C10)	50	10	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel (C10 – C28)	50	24 – 27	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40)	100	24 – 27	0	NM	NM	NM	ND

[a] In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.

[b] Concentrations in **bold** exceeded discharge limits

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

NM = not measured

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

µg/L = micrograms per liter

ND = not detected

Figure 1

CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

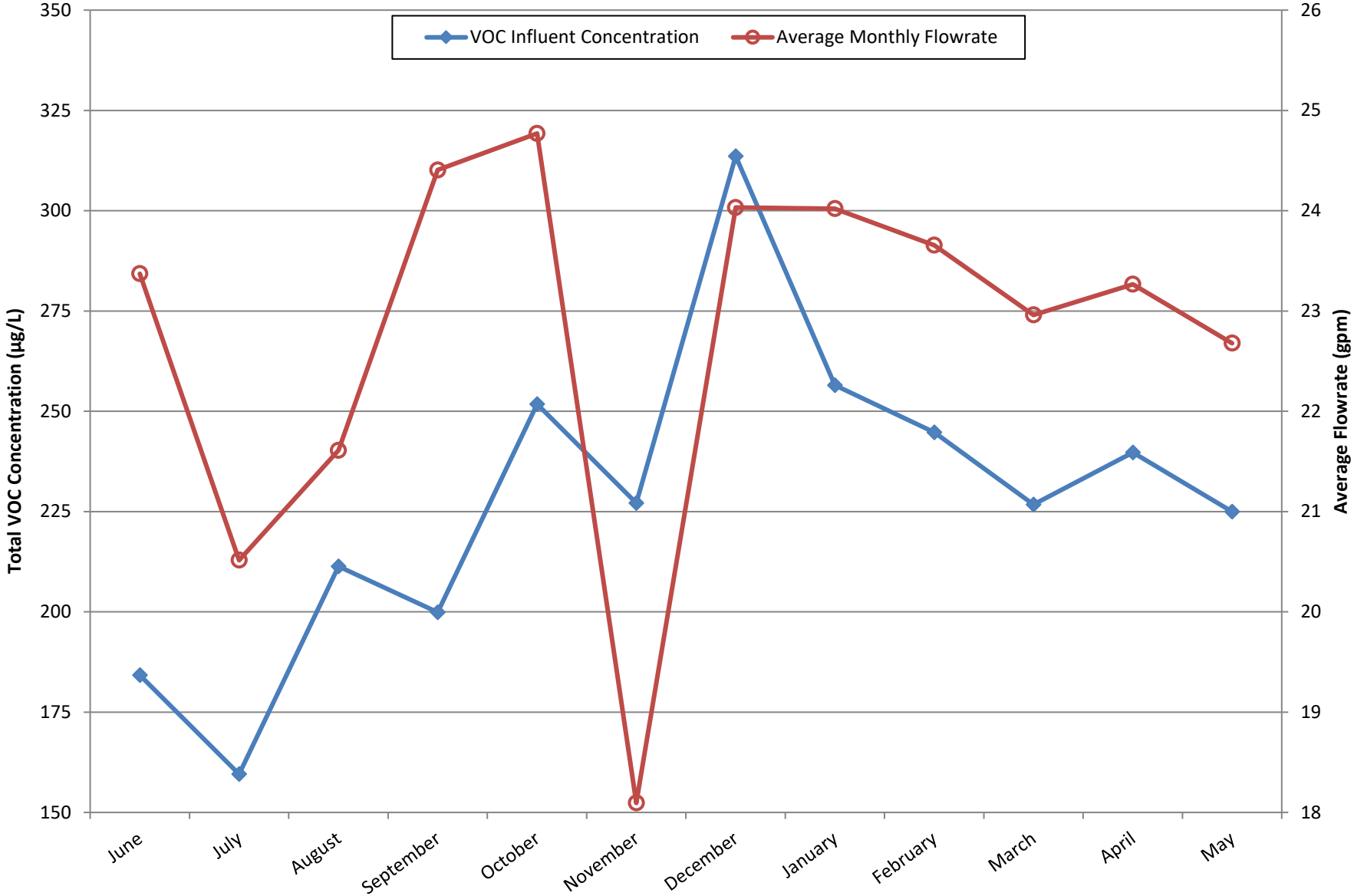
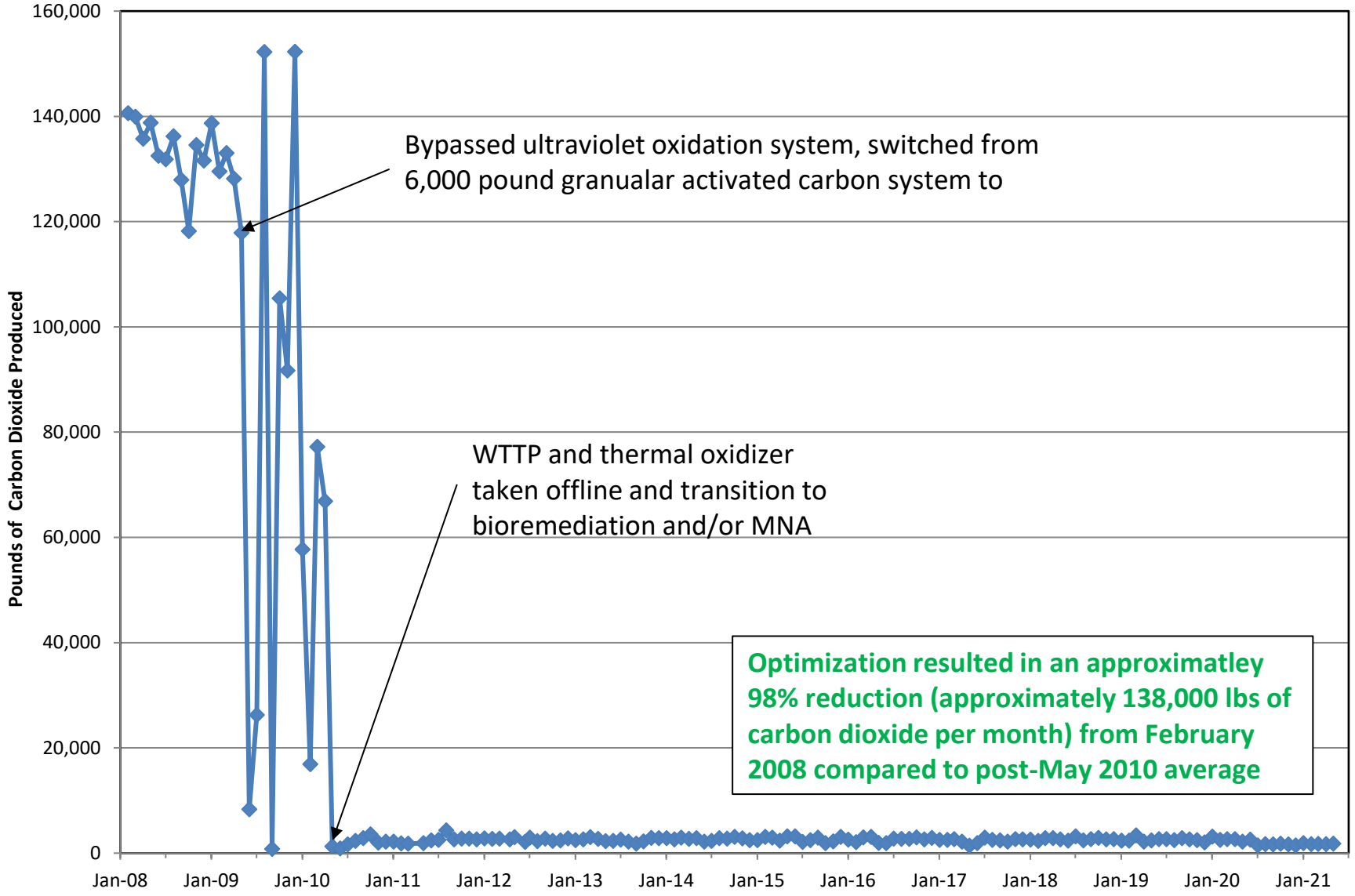


Figure 2

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



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 201 **Reporting Period: 30 April 2021 – 1 June 2021** **Date Submitted: 11 June 2021**

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 2021 reporting period:

Table 1 – Operations Summary – May 2021

Initial Data Collection:	4/30/2021 7:00		**Final Data Collection:**	6/1/2021 12:00	
Operating Time:		Percent Uptime:	Electrical Power Usage[a]:		
LF007C GWTP:	773 hours	**LF007C GWTP**	100%	**LF007C GWTP:**	0 kWh
Gallons Treated: **135,088 gallons**			Gallons Treated Since March 2000: **91.7 million gallons**		
Volume Discharged to Northgate Pond: **135,088 gallons**					
VOC Mass Removed: **1.04×10^{-3} pounds**[b]			VOC Mass Removed Since March 2000: **174.4 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 May 2021 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 2020

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	2.6	114,884
EW615x07	0.6	28,584
LF007C GWTP	**3.1**	**135,088**

[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	None	--	--	--	

-- = 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

Monthly groundwater samples were collected at the LF007C GWTP on 3 May 2021. Sample results are presented in Table 4. The total VOC concentration in the May 2021 influent sample was 0.92 J µg/L. TCE was the only VOC detected at the influent sample location. TCE and cis-1,2-DCE were detected in the midpoint sampling location. No VOCs were detected in the effluent sample location. Additional carbon vessels are currently being procured and will be installed on the back end of the process line in June 2021.

Figure 1 presents a chart of influent concentrations (total VOCs) at the LF007C GWTP versus time for the past twelve (12) months. VOC concentrations, primarily TCE, have been seasonally variable; however, over the last 12 months the trend has increased. The average flow rate through the LF007C GWTP has gradually decreased over the last 12 months due to typical seasonal variation.

Optimization Activities

No optimization activities occurred at the LF007C GWTP in May 2021.

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 a solar-only operated treatment system and does not generate GHG, with exception of a small amount of GHG generated from changing out the GAC averaged to a per month basis.

TABLE 4
Summary of Groundwater Analytical Data for May 2021 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 May 2021 (µg/L)		
				Influent	After Carbon 1	Effluent[b]
Halogenated Volatile Organics						
Acetone	NA	1.9	0	ND	ND	ND
Bromodichloromethane	5.0	0.17	0	ND	ND	ND
Bromoform	5.0	0.46	0	ND	ND	ND
2-Butanone	5.0	2.0	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND	ND
Chloroform	1.9	0.16	0	ND	ND	ND
Chloromethane	NA	0.30	0	ND	ND	ND
Dibromochloromethane	5.0	0.17	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.13	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	ND	ND	ND
1,1-Dichloroethane	0.50	0.22	0	ND	ND	ND
1,2-Dichloroethane	0.50	0.13	0	ND	ND	ND
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	0	ND	0.15 J	ND
trans-1,2-Dichloroethene	0.50	0.15	0	ND	ND	ND
Methylene Chloride	5.0	0.94	0	ND	ND	ND
Tetrachloroethene	0.50	0.20	0	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.16	0	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.27	0	ND	ND	ND
Trichloroethene	0.65	0.16	0	0.92 J	0.57 J	ND
Vinyl Chloride	0.90	0.10	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	0.50	0.16	0	ND	ND	ND
Ethylbenzene	0.50	0.16	0	ND	ND	ND
Toluene	0.50	0.17	0	ND	ND	ND
Xylenes	0.50	0.15 – 0.19	0	ND	ND	ND

[a] In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.
[b] Concentrations in **bold** exceeded discharge limits

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
µg/L = micrograms per liter

Figure 1

LF007CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

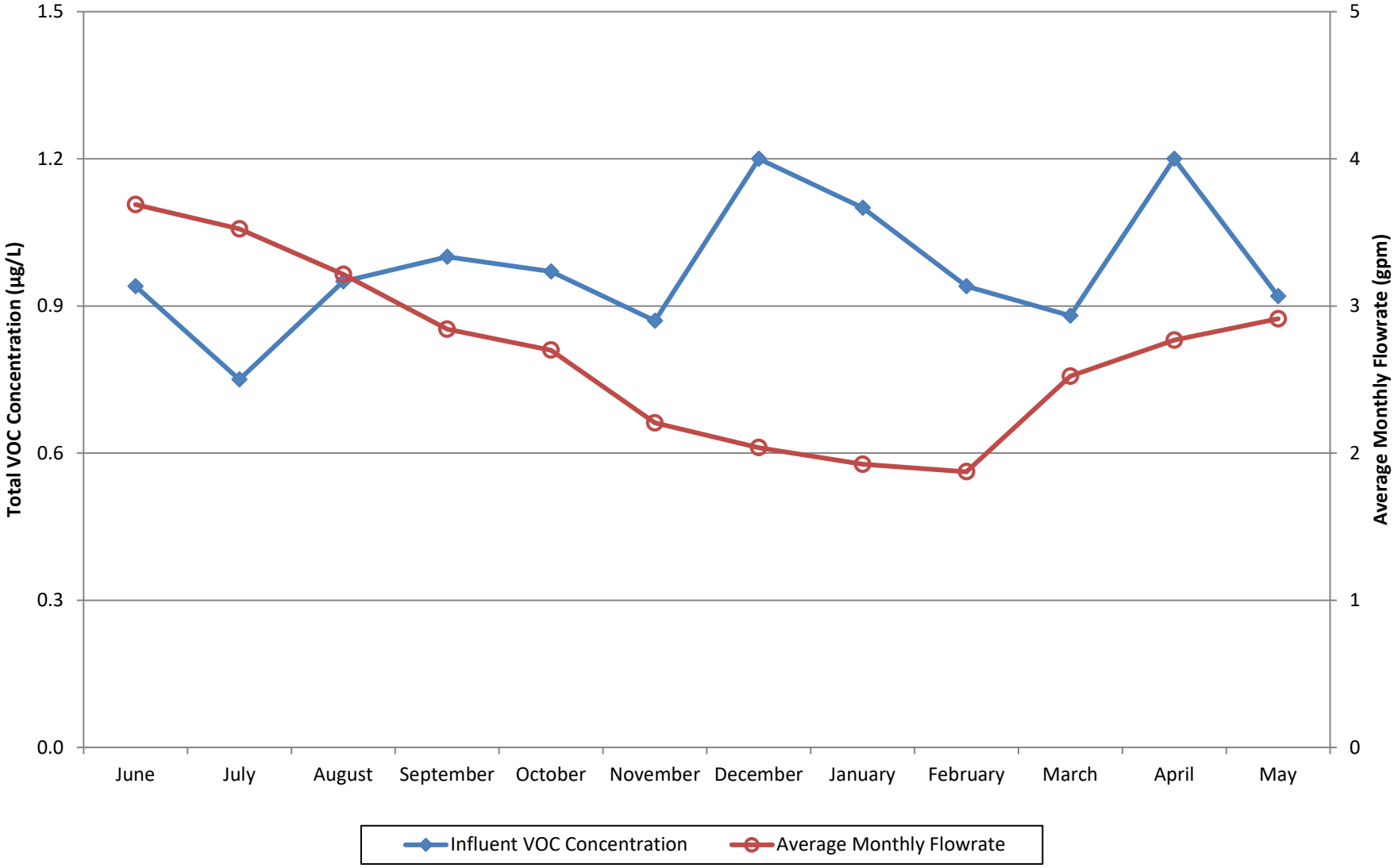
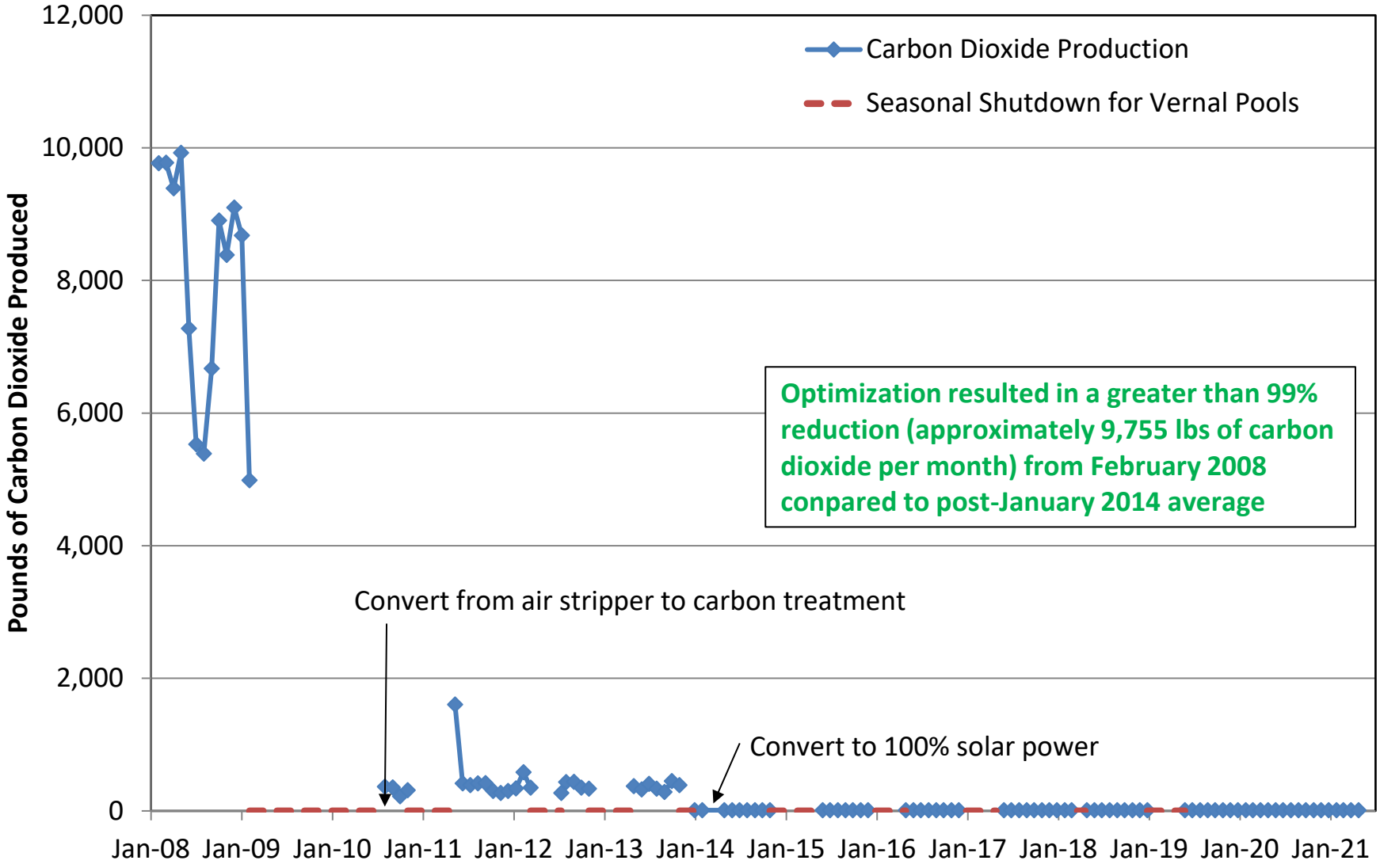


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the NGWTP/LF007C GWTP



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

Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 123 **Reporting Period: 30 April 2021 – 1 June 2021** **Date Submitted: 11 June 2021**

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

System Metrics

Table 1 presents operation data from the May 2021 reporting period.

Table 1 – Operations Summary – May 2021

Initial Data Collection: 4/30/2021 7:30	**Final Data Collection:** 6/1/2021 11:00
Operating Time:	Percent Uptime:	Electrical Power Usage:
ST018GWTP: 771.5 hours	**ST018GWTP: 100**%	**ST018GWTP:** 59 kWh (44 lbs CO_2 generated[a])
Gallons Extracted: **97,560 gallons**	Gallons Extracted Since March 2011: **20.2 million gallons**
Volume Discharged to Sanitary Sewer: **97,560 gallons**	Final Totalizer Reading: **20,231,209 gallons**
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **13.7 million gallons**	
MTBE, BTEX, VOC, TPH Mass Removed: **0.04 lbs**[b]	MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **50.0 lbs**
MTBE (Only) Removed: **0.01 lbs**[b]	MTBE (Only) Mass Removed Since March 2011: **12.2 lbs**
Rolling 12-Month Cost per Total Pounds of Mass Removed: $83,034[bc]	
Monthly Cost per Pound of Mass Removed: $135,609[bc]	

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.
[b] Calculated using May 2021 EPA Method SW8260C and SW8015B analytical results.
[c] Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.
kWh = kilowatt hour
lbs = pounds

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

Table 2 – ST018GWTP Average Flow Rates – May 2021

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.2	771.5
EW2016x18	1.1	771.5
EW2019x18	0.0	Offline[b]
EW2333x18	1.9	771.5
ST018GWTP	2.1	771.5

[a] Flow rates calculated by dividing total gallons processed by amount of operating time of the pump/system. The extraction pumps take in air from the subsurface, which alters the flow and totalizer.
[b] Extraction well was turned off with regulatory approval on 25 November 2019 because of low MTBE concentrations.

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	--	--	--	

-- = 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 discharge samples were collected at the ST018GWTP on 3 May 2021. Because the extracted groundwater is no longer treated with carbon prior to discharge to the sanitary sewer, only discharge samples are now collected, rather than influent and effluent samples. Results are presented in Table 4. The complete May 2021 laboratory data report is available upon request. The MTBE discharge concentration during the May 2021 sampling event was 14 µg/L, which is a decrease from the March 2021 sample result of 16 µg/L. TPH-d, benzene, bromomethane, and 1,2-DCA were also detected in the system discharge sample and are listed in Table 4.

The Fairfield-Suisun Sewer District does not currently have a discharge limit for MTBE, but a limit of 6,400 µg/L is advised based on worker health and safety. Travis AFB will continue to monitor discharge contaminant concentrations to maintain compliance with the Fairfield-Suisun Sewer District discharge permit.

Figure 1 presents plots of the average flow rate and total extracted contaminants (MTBE, TPH-g, TPH-d, TPH-mo, BTEX, and VOCs) and extracted MTBE concentrations at the ST018GWTP over the past twelve (12) months. The average flow rate through the ST018GWTP has been cyclical with typical flow rates decreasing during the dry season (summer and fall) and increasing during the rainy season (winter and spring). The overall average flow rates in the past 12 months show a decreasing trend as expected. The extracted MTBE

concentrations and extracted total concentrations have exhibited overall increasing trends over the past 12 months.

Optimization Activities

No optimization activities occurred at the ST018GWTP in May 2021.

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 a majority of the ST018GWTP system.

Figure 2 presents the historical GHG production from the ST018GWTP. The ST018GWTP produced 44 pounds of GHG during May 2021 and removed 97,560 gallons of water. The amount of GHG produced is directly attributed to the amount of water removed through the system because the only line-power electrical use is for a transfer pump to push the water from the system to the sanitary sewer.

TABLE 4
Summary of Groundwater Analytical Data for May 2021 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 May 2021 (µg/L)
				System Discharge[b]
Fuel Related Constituents				
Methyl tert-Butyl Ether	6,400	0.25	0	14
Benzene	25,000[c]	0.16	0	0.24 J
Ethylbenzene	25,000[c]	0.16	0	ND
Toluene	25,000[c]	0.17	0	ND
Total Xylenes	25,000[c]	0.19 – 0.34	0	ND
Total Petroleum Hydrocarbons – Gasoline	50,000[d]	10	0	ND
Total Petroleum Hydrocarbons – Diesel	50,000[d]	15	0	30 J
Total Petroleum Hydrocarbons – Motor Oil	100,000	160	0	ND
Other				
Acetone	NA	1.9	0	ND
Bromomethane	NA	0.21	0	0.23 J
2-Butanone (MEK)	NA	2.0	0	ND
1,2-Dichloroethane	20	0.13	0	0.55 J
Isopropylbenzene	NA	0.19	0	ND
Naphthalene	NA	0.22	0	ND
N-Propylbenzene	NA	0.16	0	ND

[a] In accordance with the Fairfield-Suisun Sewer District Discharge Limitations

[b] Concentrations in **bold** exceeded discharge limits

[c] The limit of 25,000 µg/L is a combined limit for BTEX.

[d] 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.
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, biased high.
NA = not applicable
N/C = number of samples out of compliance with discharge limits.
ND = not detected above method detection limit.

Figure 1

ST018GWTP Total Influent and MTBE Concentrations and Average Flowrate Twelve Month History

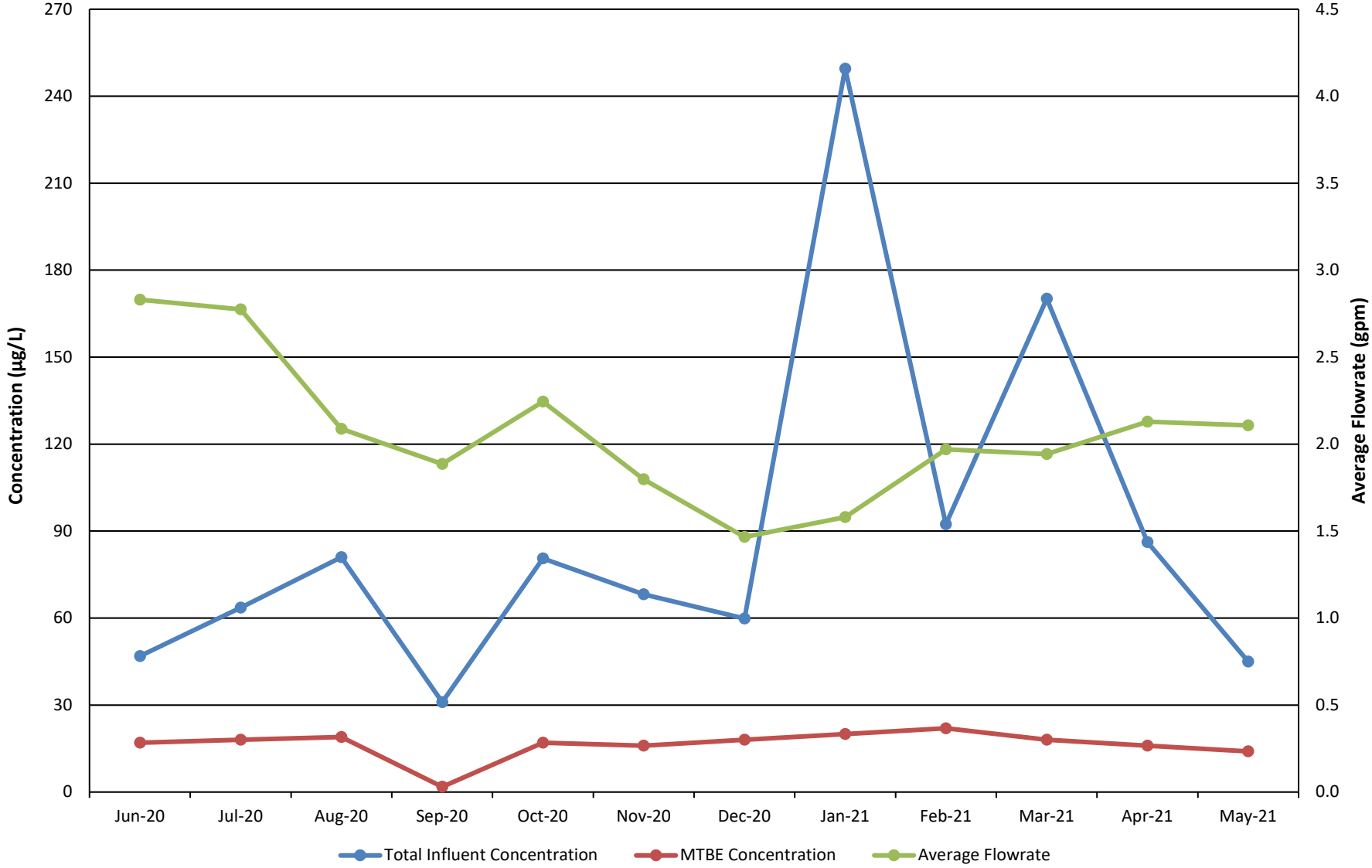
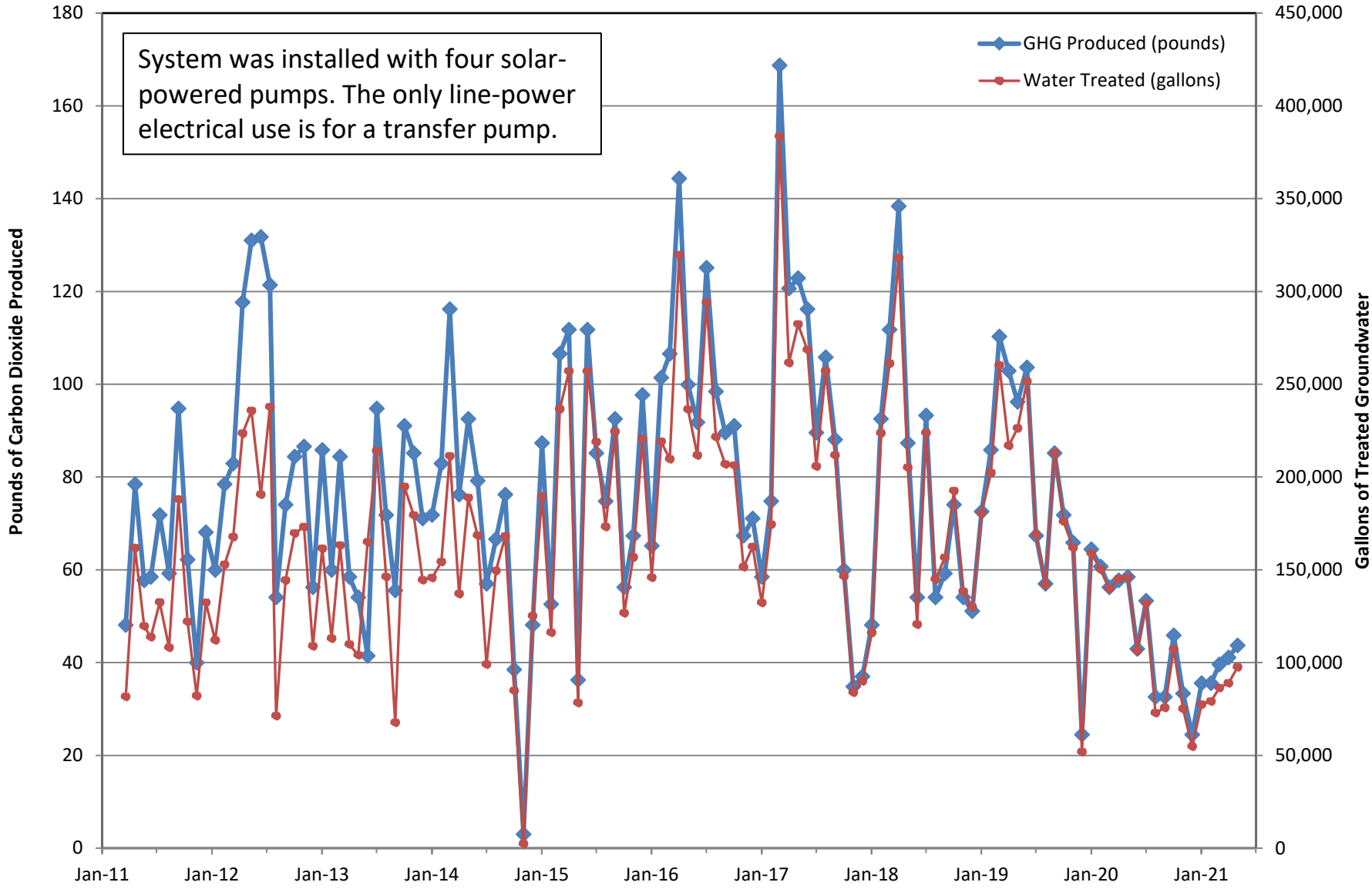


Figure 2

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



Travis AFB
Restoration Program

Program Update

RPM Meeting June 16, 2021

Completed Documents (1)

- 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 (2)

- 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 (3)

- 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
- Site SD034 Technology Demonstration Work Plan
- Site SS016 Soil Data Gaps Investigation Work Plan
- Multi-Site Bioaugmentation Technology Demonstration Work Plan
- Sites ST028 and ST032 POCO Well Decommissioning Work Plan
- Site TS060 Action Memorandum
- 2015 Annual GRISR
- FT005 Technology Demonstration Construction Completion Report
- Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum
- Site DP039 Remedial Action Construction Completion Report
- ST028 POCO Well Decommissioning/Site Closeout Technical Memorandum
- Site TS060 Removal Action Work Plan

Completed Documents (4)

- Multisite Technology Demonstration Construction Completion Report
- SS014 POCO Technology Demonstration Construction Completion Report
- Site LF044 Investigation Work Plan
- Site FT004 POCO Soil Data Gap Investigation Work Plan
- SD034 Technology Demonstration Construction Completion Report
- POCO Evaluation/Closeout Report for DERA-funded oil/water separators OW051, OW053, and OW054
- ST032 POCO Well Decommissioning and Site Closeout Technical Memorandum
- 2016 Annual CAMU Monitoring Report
- Work Plan for Fourth Five-year Review
- 2016 Annual GRISR
- Data Gap Investigation Results, Technical Memorandum for Soil, Sites SD033, SD043, SS046
- TS060 Removal Action Completion Report
- SS035 Site Closure Report
- AOC TA500 Data Gaps Investigation and Closure Report
- Site TS060 No Further Action Proposed Plan
- POCO Evaluation/Closure Report for DERA-funded Oil/Water Separators OW040, OW047, OW048, OW049, OW050, OW052, OW055, OW056, and OW057

Completed Documents (5)

- Data Gap Investigation Results, Technical Memorandum for Soil Site SS016
- LF006, SS030, SD031 Aquifer Test Activities Technical Memorandum
- SS015 Soil Sampling Plan
- Monitoring Well Installation Tech Memo for Site DP039, Addendum to the RACCR
- FT005 Extraction System Optimiz-ation Tech Memo
- 2017 Annual CAMU Monitoring Report
- LF044 Sediment Sampling Report
- SD043 RD/RA Work Plan
- SS046 RD/RA Work Plan
- Amendment to the WABOU Soil ROD for sites DP039, SD043, and SS046
- EVO Sites FT004, SS015, SD031, & SD036 Optimization Injections Tech Memo
- LF006 Technology Demonstration Work Plan
- AOC TA500 Well Decommissioning and Site Closeout Tech Memo
- SS015 Soil Sampling Results Tech Memo
- LF006 Technology Demonstration Construction Completion Report
- Subarea LF007C TPH Chromatogram Review TM
- 2017 Annual GRISR
- SS014 POCO Subsites 2, 4, and 5 Closure Evaluation Report
- Addendum to the Site SS016 Groundwater RD/RA Work Plan

Completed Documents (6)

- SD043 Remedial Action Completion Report
- NFA ROD for Old Skeet Range (TS060/TS060A MRA)
- 2018 Annual GRISR
- SS046 Remedial Action Completion Report and Well Decommissioning Work Plan
- 2018 LF007 CAMU Inspection, Monitoring, and Maintenance Report
- Amendment to the NEWIOU Soil ROD for Sites SS016 and SD033
- SS016 RD/RA Work Plan
- 4th Five Year Review Report for Multiple Groundwater, Soil, and Sediment Sites
- SD043 Site Closure Report
- SS046 Well Decommissioning and Site Closeout Tech Memo
- LF008 Remedial Action Evaluation Report
- SD031B POCO Additional Site Investigation Work Plan
- Initial Passive Vent Systems Sampling Work Plan Tech Memo
- Optimization Activities Tech Memo for SD034 and SD037
- SD043 Well Decommissioning and Site Closeout Tech Memo
- FT004 POCO Corrective Action Plan
- 2019 GRISR
- 2019 CAMU Monitoring Report
- SD031 Soil RI/FS

Completed Documents (7)

- SS016 Soil RACR
- Addendum to the Initial Passive Vent System Sampling Work Plan
- Site LF008 Remedial Infrastructure Decommissioning TM
- Site FT004 POCO Soil Corrective Action Completion Report

Completed Field Work (1)

- 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 (2)

- 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
- CG508 Well Decommissioning
- SD033 Soil Sampling
- Multi-site Bioaugmentation Well Installation
- SD034 Technology Demonstration Well Installation
- SS014 Bioreactor Installation
- ST028 & ST032 Well Decommissioning

Completed Field Work (3)

- SS016 Soil Data Gaps Investigation
- SD031 Remedial Investigation Soil Sampling (3rd round)
- Oil Water Separators Step-out Drilling
- OW055 Close-in-place
- Q4 2016 GRIP Sampling
- OW040 Soil Excavation/Surface Restoration
- OW057 Soil Excavation/Surface Restoration
- Multi-site Bioaugmentation & EVO Injection
- SD034 Technology Demonstration Bioreactor Installation
- OW050 Soil Sampling at Former Location of OWS
- OW055 Sidewalk Repairs
- SD031 Finish Soil Delineation (NE portion of site)
- Q2 2017 GRIP Sampling Event
- SS015 Optimization: Injection Well Installation
- DP039 Down-gradient Monitoring Well Installation (1st round)
- SD036 Optimization: Injection Well Installation
- SD031 Optimization: Injection Well Installation
- OW056 Site Excavation/Closure
- Well Re-development
- TS060 Removal Action

Completed Field Work (4)

- FT004 POCO Soil Data Gaps Investigation
- LF044 Sediment Sampling
- FT004 EVO Optimization
- DP039 Install downgradient monitoring wells (2nd round)
- FT005 – Install Extraction Wells
- DP039 Repair SBGR distribution headers
- Q4 2017 GRIP Sampling
- SD036 EVO Optimization
- SS015 EVO Optimization
- SD031 EVO Optimization
- FT005 Installation of Pumps and Controls in 5 New Extraction Wells
- Q1 2018 GRIP Sampling
- SD037 EVO reinjection
- Q2 2018 GRIP Sampling
- SS015 Soil sampling
- TA500 Well Decommissioning
- FT005 EVO injection
- FT004 POCO Soil Investigation
- 3Q 2018 GRIP Sampling
- LF006 Well Installations and Injections
- 4Q 2018 GRIP Sampling
- SD043 Soil excavation
- 1Q 2019 GRIP Sampling
- 2019 Annual LUC Inspections
- SS046 Soil excavation
- 2Q 2019 GRIP Sampling Event
- Well Re-development (11 wells)
- SD037 Injection Well Installation
- SS046 Well Decommissioning

Completed Field Work (5)

- 3rd Quarter 2019 GRIP Sampling
- SD034 O_2 Enhancement
- SS016 SBGR Repairs
- SD037 EVO Re-injection
- 4th Quarter 2019 GRIP Sampling
- SD031B POCO Additional Investigation (Gore Sorber Round 1)
- SD043 Well and GETS Decommissioning
- SS016 Soil excavation
- SS015 SPOC system installation
- SD031B POCO Additional Investigation (Gore Sorber Round 2)
- Annual CAMU Gas Monitoring
- SS015 SPOC Sampling
- 2Q20 GRIP Sampling
- DP039 Bioreactor Rejuvenation
- SD031B Phase 2 Soil, Vapor, & Groundwater Sampling
- DP039 Phytoremediation Trench extension
- Sampling Offbase LF007C wells
- LF008 Well Decommissioning
- Passive Vent Systems Sampling
- FT004 Soil Excavation
- SD031B Phase 3 MW Installation & GW Sampling
- PFAS Pilot Test

Completed Field Work (6)

- 4Q20 GRIP
- CAMU Topographic Survey
- SBBGWTP SCADA Upgrade
- Winter 2021 Vapor Intrusion Sampling Event
- ***2Q GRIP Event***
- ***Summer 2021 VI Sampling Event***

Documents In-Progress

CERCLA

- Technology Demonstration TM
- Site SD031 and FT004 Groundwater Sampling Results TM
- ***2020 GRISR***

POCO

- Site SD031B POCO Additional Site Investigation Report

Field Work In-Progress

CERCLA

None

POCO

None

Documents Planned

CERCLA

- Vapor Intrusion Assessment Report — August
- CAMU Report — July

POCO

None

Field Work Planned

CERCLA

None

POCO

None

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

Completed Documents (Historical 1)

- 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 (Historical 1)

- 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

Travis AFB
RPM Meeting
16 June 2021

Land Use Control Sites
Status/Update

Projects on Sites with LUCs Will Start Documenting in Annual Report

Site #	Project Description		Date Discussed/Approved		Additional Information
SS016	KC-46 Hangar and Fuel System Project		Starting in 2018 with approval and following up during construction		Regulators provided input from the beginning of the design of this project
SD037	New Material Handling System at Bldg. 977		January 2019 and August 2020		Soil impacted with TPH from old hydraluic rams will be sampled and properly disposed of.
LF044	Concrete Batch Plant		Discussed during May 2021 RPM meeting		Soil and or debris scraped up during ground preparation will be sampled and properly disposed of.
SS016/SS029/ST032	Runway Replacement		May-21		EA submitted to regulators on June 8

Concrete Batch Plant at LF044
2018 EA FONSI

- Project is getting started with contractors mobilizing to the site
- Construction trailers are being set up
- Initial grading underway to level area

Runway 03L/21R Replacement

- EA provided for regulatory review on June 8
- EA will also be provided via routine State Clearinghouse process
- 30 day public review/comment period

Land Use Control Sites
SS016: KC-46 Hangar

- New vaults are being installed!
- Step-rate pump test and baseline sampling being coordinated
- EW605x16 and EW610x16 will be off-line for a couple of weeks while final connections are being made

PFOS/PFOA Updates

Off-Base Point-Of-Entry-Treatment-Systems

- Permit approval for POETS installation at all three properties received from the County permitting department; sheds subsequently inspected and approved by the County Building inspector.
- Electrical and plumbing work on-going at the three properties with anticipated completion the week of 14 June.
- Filtration media is on-hand with vessel loading also expected for the week of 14 June followed by system flushing.

Property 1

Filtration vessels and associated plumbing. The system is plumbed to the wellhead which is located outside of the shed. The pressure tank is currently not installed.

Property 1

Installation of new electrical line. Horizontal drilling (rather than trenching) was used to increase utility depth per request of the property owner who has plans for future site improvements. Surface scarring was also negated.

Property 2

Filtration vessels and associated plumbing with the original wellhead and pressure tank.

Property 3

Filtration vessels and associated plumbing. The system is plumbed to the wellhead which is located outside of the shed. The pressure tank is currently not installed.

AFFF RI Updates

Updates will be provided during the 16 June 12:30 AFFF RI meeting.