Travis Air Force Base Environmental Restoration Program Restoration Program Manager's Meeting Minutes 17 November 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 17 November 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 required on-base, regardless of vaccination status. 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
Tom Potter	AFCEC/CZOW
Angel Santiago	AFCEC/CZOW
Kurt Grunawalt	Travis AFB 60 AMW/JA
Jessica Faragalli	USACE-Sacramento
Alan Soicher	USACE-Omaha
Nadia Hollan Burke	EPA
Kimiye Touchi	DTSC
Dave Kremer	DTSC
Jimmy Spearow	DTSC
Li Wang	DTSC
Adriana Constantinescu	RWQCB
Megan Duley	SRS
Diane Escobedo	SRS
Matt Mayry	SRS
Gaby Atik	FPM
Chris Coonfare	FPM
Lynette Mockry	FPM
Leslie Royer	Jacobs
Mike Perlmutter	Jacobs
Jeannette Cumberland	Jacobs
Jill Dunphy	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 (October 2021)
Attachment 4	CGWTP Monthly Data Sheet (October 2021)
Attachment 5	LF007C GWTP Monthly Data Sheet (October 2021)
Attachment 6	ST018 GWTP Monthly Data Sheet (October 2021)
Attachment 7	Presentation: Program Update (November 2021)
Attachment 8	Travis AFB LUC Sites Update (November 2021)
Attachment 9	Travis AFB PFOS/PFOA Update (November 2021)
Attachment 10	Presentation: Phase 1 Remedial Investigation of AFFF Areas (November 2021)

I. JACOBS PBR CONTRACT UPDATES

A. ADMINISTRATIVE

1. Agenda and Introductions

Mr. Duke reviewed the agenda for the meeting.

Mr. Duke introduced Tom Potter, who will be taking over Gene Clare's role in the program. Mr. Potter is very familiar with Travis AFB, airfield operations, and working with the Civil Engineering staff.

2. Previous Meeting Minutes

Minor editorial comments on the October 2021 RPM Meeting Minutes were received from the Regional Water Quality Control Board (RWQCB) via email. These items will be addressed in the Final meeting minutes. The Department of Toxic Substances Control (DTSC) and Environmental Protection Agency (EPA) had no comments.

3. Action Item Review

There were no ongoing or new action items to report on in November 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

This is the last RPM meeting of 2021. The next RPM meeting is scheduled for 0930 on 19 January 2022. It will be held as a teleconference via MSTeams.

All RPM meetings planned for 2022 will be held via MSTeams until all three regulatory agencies are permitted to attend in person. At that time, the schedule will resume to alternating in-person meetings and teleconferences.

The next RAB meeting is scheduled for April 2022. The April 2022 RAB meeting will include information from both the PFAS project and the new ORC.

Travis AFB Master Document Schedule

- Travis AFB AFFF Remedial Investigation Work Plan: There were no changes in the schedule. The Oneida Team submitted the Final Work Plan via the Oneida SharePoint for regulatory review on 27 October 2021. The cover letters were signed and posted along with the Final documents. Hardcopies were successfully distributed as requested. This document will move to the History section in January 2022.
- Travis AFB AFFF Remedial Investigation Quality Assurance Program Plan (QAPP): There were no changes in the schedule. The Oneida Team submitted the Final UFP-QAPP via the Oneida SharePoint for regulatory review on 27 October 2021. The cover letters were signed and posted along with the Final documents. Hardcopies were successfully distributed as requested. This document will move to the History section in January 2022.
- Universal Federal Program Quality Assurance Program Plan (UFP-QAPP):. The Draft to Agencies/RAB due date changed to 4 January 2022. The Agency Comments due date changed to 7 March 2022. All other dates remained the same.
- Site SD031 Data Gaps Investigation Work Plan: This is now a primary document. The Agency Comments due date was changed to 13 April 2022. The rest of the schedule changed accordingly.
- Community Relations Plan (CRP) Update: There was no change to the schedule. Now that the ORC has been awarded, this document will be re-prioritized; the first step in the update will be a community survey. Dates will be assigned once the timeframe for the surveys is identified.
- Quarterly Newsletter (October 2021): The final due date was changed to 21 October 2021.
- Potrero Hills Annex (FS, PP, and ROD): There were no updates to the schedule. The RWQCB received a Vapor Intrusion Assessment document approximately 3

weeks ago and will double check the distribution list to be sure the AF and EPA received copies.

— MOVED TO HISTORY:

- Vapor Intrusion Assessment Report
- 2020 Annual Site LF007 CAMU, Monitoring, and Maintenance Report

B. CURRENT PROJECTS

1. Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 98.5% uptime, and 6.150 million gallons of groundwater were extracted and treated in October 2021. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 120.6 gallons per minute (gpm). Electrical power usage was 18,108 kilowatt hours (kWh), and approximately 15,000 pounds of CO₂ were created (based on DOE calculation). Approximately 1.64 pounds of volatile organic compounds (VOCs) were removed in October. The total mass of VOCs removed since startup of the system is 544.3 pounds.

Updates on October 2021 groundwater treatment system sample results, troubleshooting activities, and system down-time are provided in Attachment 3.

No optimization activities were conducted in October 2021.

Central Groundwater Treatment Plant, October 2021 (Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 68.4% uptime with approximately 571,938 gallons of groundwater extracted and treated in October 2021. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 18.1 gpm. Electrical power usage was 950kWh for all equipment connected to the Central Plant, and approximately 1,591pounds of CO₂ were generated. Approximately 0.78 of a pound of VOCs were removed from groundwater by the treatment plant in October. The total mass of VOCs removed since the startup of the system is 11,576 pounds.

Updates on October 2021 groundwater treatment system sample results, troubleshooting activities, and system down-time are provided in Attachment 4.

No optimization activities were conducted in October 2021.

LF007C Groundwater Treatment Plant, October 2021 (Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 100% uptime (until it was taken offline on 25 October due to vernal pool formation) with approximately 89,106 gallons of groundwater extracted and treated in October 2021. All treated water was discharged to Northgate Pond (formerly known as the Duck Pond) for beneficial reuse. The average flow rate was 2.4 gpm. Approximately 6.53 x 10^{-4} of a pound of VOCs was removed from groundwater by the treatment plant in October. 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.

Updates on October 2021 groundwater treatment system sample results, troubleshooting activities, and system down-time are provided in Attachment 5.

No optimization activities were conducted in October 2021.

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

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 88.5% uptime with approximately 42,889 gallons of groundwater extracted in October 2021. All groundwater was discharged to the Fairfield – Suisun Sewer District. The average flow rate for the ST018 GWTP was 1.0 gpm. Electrical power usage for the month was 27 kWh for all equipment connected to the ST018 GWTP. The total CO₂ discharge equivalent equates to approximately 20 pounds. Approximately 0.02 of a pound of MTBE, BTEX, VOCs, and TPH was removed in October 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 50.2 pounds, and the total MTBE mass removed since startup of the system is 12.3 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.

Updates on October 2021 groundwater treatment system sample results, troubleshooting activities, and system down-time are provided in Attachment 6.

No optimization activities were conducted in October 2021.

The following discussion took place during the Jacobs portion of the meeting; however, these items are relevant to the SRS/Oneida Team's Travis AFB Phase I RI AFFF Areas presentation:

Ms. Touchi asked if the DTSC had questions regarding the groundwater treatment system operations as they may relate to PFAS, should the team ask now or would Mr. Berwick be available later to answer questions regarding the sample results for the treatment plants? Some of the questions he may be able to answer as they are related to the granulated activated carbon (GAC) system change-out frequency.

Mr. Duke noted that the Jacobs team may be unable to provide clarity on these questions as they do not sample for PFAS. Change out of carbon at the treatment plants generally occurs about every six months. GAC systems have the capacity to function for several years. If there are any other questions regarding the GAC systems that have yet to be answered, the base can help provide clarity.

Ms. Constantinescu asked Mr. Duke if he had reviewed an email she sent yesterday on behalf of RWQCB regarding the results from the groundwater treatment plant samples.

Ms. Constantinescu noted that RWQCB is concerned with the results from the preliminary data since all of the results show presence of PFAS constituents. RWQCB is concerned that the AF may be discharging PFAS constituents to surface water at Union Creek. As there are not established ecological criteria, it is unknown whether the discharge contains PFAS at levels that could be damaging to ecological environments. RWQCB is interested in understanding how the AF will verify that PFAS constituents are not discharged.

Mr. Duke noted that these questions are important but will need to be addressed at a higher level of command. The AF has provided the carbon information and will provide information for the other treatment plants as well.

Ms. Constantinescu will provide in detail the concerns from the Water Board so that Mr. Duke may send to the proper personnel who can support further discussion and resolution.

Ms. Constantinescu noted that additional sampling will be needed to understand the GAC systems duration for effectively removing PFAS because the sampling event performed in August 2017 showed detected PFOA and PFOS in the influent and effluent at the South Plant.

C. PRESENTATIONS

1. Presentation: Program Update (see Attachment 7)

Ms. Royer reported on the status of upcoming fieldwork and documents. Please refer to Attachment 7 for the full briefing.

D. PROGRAM ISSUES/UPDATE

This is Mr. Duke's last RPM meeting in his current role. His position will be backfilled and he will still be available to answer questions or provide input. Mr. Storrs will lead the January 2022 RPM Meeting.

This is also Ms. Jeannette Cumberland's last RPM meeting. She is retiring on 3 January 2022. She provided critical support for field sampling events including field crew coordination, and had also spent time as the contractor lead for the RPM meetings and RAB activities.

E. NEW ACTION ITEM REVIEW

No new action items were identified.

F. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
		No action items identified		

II. TRAVIS AFB UPDATES

A. Land Use Control Sites, November 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. Highlights of the discussion are as follows:

- The old material handling system is scheduled for removal; this is on an LUC site. This is not CERCLA work, but Mr. Duke asked if there was any reason the agencies would need to review the work plan, adding that the contractor has the QAPP and know they have to do confirmation sampling.
- The project is not scoped to determine nature and extent of any spills or leaks discovered during the sampling; either the LUCs will remain at the site since that is the remedy that has been agreed to, or they will be lifted.
- After further clarifying discussion, Ms. Constantinescu concluded that the project is acceptable to the Water Board and will not require regulatory review from the Water Board.
- Ms. Burke noted that if the AF proposes to remove the LUCs at the site, a CERCLA level review will be needed. Mr. Duke noted that an After Action Report will be included as an appendix to the next LUC report, which can be used for future discussions. Ms. Burke indicated that the project seems acceptable for now without further regulatory review from EPA; however, noted that EPA may not accept any conclusions regarding removal of LUCs if they haven't been included in ongoing discussions.
- After further clarifying discussions, Ms. Touchi also indicated that the proposed activities could continue without additional regulatory review from DTSC.

B. PFAS PROGRAM STATUS, October 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. He clarified for the regulatory agencies that the installation information and sampling data from the private well point of entry treatment systems will be presented as part of this briefing in future RPM meetings, but not in a formal document.

III. SRS PFOS/PFOA CONTRACT

A. ADMINISTRATIVE

All administrative topics were discussed earlier in the RPM meeting.

B. PRESENTATIONS

1. Travis AFB Phase I RI of AFFF Sites (Attachment 10)

Ms. Duley presented slides providing an update on the Phase I RI of AFFF sites. Please refer to Attachment 10 for the full briefing.

Phase 1 Remedial Investigation Data-Driven Process

Mr. Mayry discussed the next steps, data validation, and management and ongoing CSM development. As indicated on the data-driven process graphic, the Oneida Team will hold Stakeholder Meeting #1 with the Agencies to discuss the results from the initial sampling event and the recommendations. The meeting is targeted for early Spring 2022 with the next field event scheduled for late Spring 2022. The field event will include monitoring well installation, groundwater sampling, and sampling of soil, sediment, and surface water media. Ahead of the stakeholder meeting, the Oneida Team will provide meeting materials such as figures with analytical results and recommendations for monitoring well installation/sampling locations to support the meeting discussion. This meeting will be a platform for technical discussion/input and consensus on the recommended approach. The updated recommendations will be documented in the UFP-QAPP Amendment #1 and submitted for regulatory concurrence.

Initial Sampling Event and Next Steps

Mr. Duke noted that Ms. Duley and he have been discussing when the Oneida Team should schedule collection of the next SBBGTP sample prior to the carbon

changeout. At this time, it is anticipated for the April 2022 timeframe, based on current estimates of GAC operation and maintenance schedule.

Mr. Mayry noted that the Oneida Team has a local business unit near Travis AFB making it easier to mobilize a team for this type of sample.

Mr. Sparrow asked how frequently the Base samples the effluent for PFAS Mr. Duke explained that the team initially agreed to collect one round of samples at the treatment systems during the initial sampling event for the Phase I RI but the system O&M contractor or Base does not sample for PFAS constituents on a scheduled basis. The Oneida Team is contracted to collect a second sample at the SBBGTP.

AFFF and Remedial Investigation Areas

A map showing the AFFF areas and the sampled wells was presented.

C. PROGRAM ISSUES/UPDATE

None

D. NEW ACTION ITEM REVIEW

No new action items were identified.

E. ACTION ITEMS

ltem #	Responsible	Action Item Description	Due Date	Status
1	Megan Duley/Diane Escobedo	Send meeting minutes to Travis AFB.	24 November 2021	Attached

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

The RPM Teleconference is scheduled for 9:30 AM PST on 17 November 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)	_
	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.

2022 Annual Meeting and Teleconference Schedule

Monthly RPM Meeting ¹	RPM Teleconference	Restoration Advisory Board Meeting (Begins at 7:00 p.m.)
(Begins at time noted)	(Begins at time noted)	(Poster Session at 6:30 p.m.)
_	01-19-22	—
02-16-22		
—	03-16-22	
		04-21-22 (Thursday 2:00 PM)
	05-18-22	
06-15-22		
	07-20-22	
08-17-22		
	09-21-22	
	_	10-20-22 (Thursday 2:00 PM)
	11-16-22	

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

PRIMARY DOCUMENTS				
Travis AFB AFFF RI Work Plan ² Travis AFB AFFF RI QA Travis AFB, Chet Storrs Travis AFB, Chet Storrs Life Cycle SRS, Megan Duley 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 (10-27-21)	07-30-21 (10-27-21)		

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

PRIMARY DOCUMENTS			
Life Cycle	UFP-QAPP Travis AFB, Mobashir N. Ahmad FPM, Chris Coonfare	Site SD031 Data Gaps Investigation Work Plan Travis AFB, Mobashir N. Ahmad Jacobs, Levi Pratt	Community Relations Plan Update Travis AFB,TBD Jacobs, Jill Dunphy
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	10-28-21	12-07-21	08-23-16
AF/Service Center Comments Due	11-29-21	01-10-22	09-07-16
Draft to Agencies / RAB	01-04-22	02-10-22	09-28-16 (03-22-18)
Agency Comments Due	03-07-22	04-13-22	10-28-16 (04-27-18)
Response to Comments Meeting	03-16-22	04-20-22	TBD
Agency Concurrence with Remedy	NA	NA	NA
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA
Response to Comments Due	03-30-22	05-04-22	TBD
Draft Final Due	03-30-22	05-04-22	TBD
Final Due	04-29-22	<mark>06-06-22</mark>	TBD

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
	Quarterly Newsletter (October 2021)		
Life Cycle	Travis, Lonnie Duke		
Scoping Meeting	NA		
Predraft to AF/Service Center	08-31-21		
AF/Service Center Comments Due	09-03-21		
Draft to Agencies / RAB	09-20-21		
Agency Comments Due	09-27-21		
Response to Comments Meeting	09-30-21		
Response to Comments Due	09-30-21		
Draft Final Due	NA		
Final Due	10-29-21 <mark>(10-21-21)</mark>		
Public Comment Period	NA		
Public Meeting	NA		

PRIMARY DOCUMENTS					
		Potrero Hills Annex Travis, Lonnie Duke			
Life Cycle	FS	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

HISTORY - INFORMATIONAL DOCUMENTS			
Life Cycle	Vapor Intrusion Assessment Report Travis AFB, Chet Storrs CH2M, Stephanie Curtis	2020 Annual Site LF007 CAMU, Monitoring, and Maintenance Report Travis AFB, Mobashir Ahmad CH2M HILL, Levi Pratt	
Scoping Meeting	NA	NA	
Predraft to AF/Service Center	07-14-21	06-03-21	
AF/Service Center Comments Due	07-28-21	07-06-21	
Draft to Agencies / RAB	08-11-21	07-19-21	
Agency Comments Due	08-25-21	08-18-21	
Response to Comments Meeting	09-08-21	09-02-21	
Response to Comments Due	09-27-21 (09-29-20)	09-16-21 (09-24-20)	
Draft Final Due	NA	NA	
Final Due	09-27-21 (09-29-20)	09-16-21 (09-24-20)	
Public Comment Period	NA	NA	
Public Meeting	NA	NA	

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

 Report Number: 252
 Reporting Period: 29 September 2021 – 4 November 2021
 Date Submitted: 12 November 2021

This monthly data sheet presents information regarding the South Base Boundary Groundwater Treatment Plant (SBBGWTP).

System Metrics

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

Table 1 – Operations Summary – October 2021					
Initial Data Collection	9/29/2021 12:40		Final Data Co	llection:	11/4/2021 12:00
Operating Time:	Percent Uptime:		Electrical Power Usage:		
SBBGWTP: 850	0 hours SBBGWTP:	98.5%	SBBGWTP:	18,108 kWh (15,000 lbs CO ₂ generated ^a)
Gallons Treated: 6.150) million gallons		Gallons Treate	d Since July 19	98: 1.288 billion gallons
Volume Discharged to	Union Creek: 6.150 million gall	ek: 6.150 million gallons Gallons Treated from Other Sources: 0 gallons			
VOC Mass Removed:	VOC Mass Removed: 1.64 lbs ^b VOC Mass Removed Since July 1998: 544.3 lbs			uly 1998: 544.3 lbs	
Rolling 12-Month Cost	per Pound of Mass Removed [:] \$2	22,194 ^c			
Monthly Cost per Pound of Mass Removed: \$14,679 °					
Ibs = 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 October 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) – October 2021								
FT005			SSC	SS029)30		
EW01x05	Offline ^a	EW743x05	Offline ^a	EW01x29	Offline ^c	EW01x30	6.4	
EW02x05	Offline ^a	EW744x05	4.4	EW02x29	7.4	EW02x30	3.7	
EW03x05	Offline ^a	EW745x05	13.1	EW03x29	20.0	EW03x30	15.6	
EW731x05	Offline ^b	EW746x05	Offline ^a	EW04x29	6.1	EW04x30	8.1	
EW732x05	Offline ^a	EW2291x05	Offline ^b	EW05x29	4.2	EW05x30	6.4	
EW733x05	Offline ^a	EW2782x05	Offlined	EW06x29	14.1	EW2174x30	4.5	
EW734x05	5.5	EW2783x05	3.7	EW07x29	7.1	EW711x30	5.1	
EW735x05	8.3	EW2784x05	11.0					
EW736x05	Offline ^a	EW2785x05	10.5					
EW737x05	Offline ^a	EW2786x05	12.8					
EW742x05	Offline ^a							
	FT005 To	otal: 69.3		SS029 Tota	al: 58.9	SS030 Tota	al: 49.8	
SBBGWTP Ave	erage Monthly F	low ^e : 120.6 gpm						
 ^a 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 was taken offline because the Site FT005 TD has concluded and COCs no longer exceed cleanup goals in this extraction area. ^c Extraction well taken offline because of persistent fouling of the well pump and associated discharge piping. ^d Extraction well was offline for repair ^e 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. 								
gpm – gallons pe SBBGWTP – So	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								
	Shutdown	j ^a	Restart ^a Date Time					
Location	Date	Time			Cause			
SBBGWTP	25 October 2021	13:35	25 October 2021	15:20	Significant rain event. System offline to drain backwash tank.			
SBBGWTP	26 October 2021	9:15	26 October 2021	15:45	System offline to drain backwash tank.			
SBBGWTP	27 October 2021	12:05	27 October 2021	13:00	System offline to drain backwash tank.			
SBBGWTP	2 November 2021	12:15	2 November 2021	16:10	Replacing wellhead piping at EW07x29.			

^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 4 October 2021. Sample results are presented in Table 4. The total VOC concentration ($31.9 \ \mu g/L$) in the influent sample increased from the September 2021 sample results ($31.0 \ \mu g/L$). TCE was the primary VOC detected in the influent sample at a concentration of 29 $\mu g/L$. TCE, cis-1,2-DCE, and 1,2-DCA were detected in the midpoint sampling location. Cis-1,2-DCE, 1,2-DCA, and chloroform were detected in the effluent sampling location, and the cis-1,2-DCE and 1,2-DCA trace concentrations slightly exceeded their respective discharge limits, which are both 0.5 $\mu g/L$.

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

On 4 November, confirmation samples were collected from the effluent sample location and upstream and downstream of the discharge point in Union Creek. The effluent sample results were rushed; however, the upstream and downstream samples were placed on a standard turn-around-time because of the laboratory's limited capacity. In the effluent sample, cis-1,2-DCE (1.0 μ g/L) and 1,2-DCA (0.29 J μ g/L) were detected, and the cis-1,2-DCE concentration exceeded the discharge limit of 0.5 μ g/L. Upon receipt of the preliminary laboratory results on 11 November 2021, the SBBGWTP was taken offline while awaiting the carbon change out.

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

- EW745x05 The flowmeter cartridge was replaced. The well is currently online.
- EW2782x05 The circuit breaker trips when starting this pump. Rodent-damaged power wiring was discovered in a pull box near the extraction well. Repairs will be completed in early November. The well is currently offline.
- EW04x29 The pump was cleaned. The well is currently online.
- EW07x29 Replaced the wellhead piping and appurtenances. The well is currently online.
- EW2174x30 The transducer was malfunctioning and will be investigated in November. The well is currently offline.

On 24 October 2021, a significant storm event delivered several inches of rain to Travis AFB. Between 25 and 27 October, the SBBGWTP was periodically shut down for a total of approximately 9 hours to drain the backwash tank. The existing backwash tank transfer pump had malfunctioned, so a sump pump was used to transfer the water through the treatment system. On 28 October, the backwash tank transfer pump was replaced.

On 2 November, the SBBGWTP was shut down for approximately 4 hours to replace the wellhead piping at EW07x29. The system was taken off line to prevent backflow of wellfield water to the EW07x29 wellhead while the piping replacement was taking place.

Optimization Activities

No optimization activities occurred at the SBBGWTP in October 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 offline that are no longer necessary for contaminant plume capture.

Figure 2 presents the historical GHG production from the SBBGWTP. In October 2021, the SBBGWTP produced approximately 15,000 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 October 2021 – South Base Boundary Groundwater Treatment Plant

	Instantaneous Maximuma	Detection	E		4 October 2021 (μg/L)		4 November 2021
Constituent	(μg/L)	(μg/L)	N/C	Influent	Midpoint	Effluent ^b	Effluent ^b
Halogenated Volatile Orga	anics						
Acetone	NA	1.9	0	ND	ND	ND	ND
Bromodichloromethane	NA	0.17	0	ND	ND	ND	ND
Chloroform	1.9	0.16	0	0.16 J	ND	0.16 J	ND
Chloromethane	NA	0.30	0	ND	ND	ND	ND
1,1-Dichloroethane	0.50	0.22	0	ND	ND	ND	ND
1,2-Dichloroethane	0.50	0.13	1	0.46 J	0.30 J	0.51 J	0.29 J
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	1	2.3	2.1	0.73 J	1.0
trans-1,2-Dichloroethene	0.50	0.11	0	ND	ND	ND	ND
Dichlorodifluoromethane	NA	0.31	0	ND	ND	ND	ND
Tetrachloroethene	0.50	0.20	0	ND	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.16	0	ND	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.27	0	ND	ND	ND	ND
Trichloroethene	0.65	0.16	0	29	3.8	ND	ND
Vinyl Chloride	0.90	0.10	0	ND	ND	ND	ND
Non-Halogenated Volatile	Organics						
Benzene	0.50	0.13	0	ND	ND	ND	ND
Ethylbenzene	0.50	0.15	0	ND	ND	ND	ND
Toluene	0.50	0.25	0	ND	ND	ND	ND
Xylenes	0.50	0.10 – 0.18	0	ND	ND	ND	ND
Other							
Total Petroleum	50	10	0	NM	NM	ND	NM
Hydrocarbons – Gasoline							
Total Petroleum	50	25	0	NM	NM	ND	NM
Hydrocarbons – Diesel							
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	NM	NM	ND	NM

^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

 μ g/L = micrograms per liter





Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 267Reporting Period: 30 September 2021 – 1 November 2021Date Submitted: 12 November 2021

This monthly data sheet presents information regarding the Central Groundwater Treatment Plant (CGWTP) and its associated bioreactors (Sites DP039 and SS016).

System Metrics

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

Table 1 – Operations Summary – October 2021							
Initial Data Collection:	9/30/2021 13:00		Final Data Collection:	11/1/2	2021 13:00		
Operating Time:		Percent Up	time:	Electrical Pov	wer Usage:		
CGWTP: 525 ho	ours	CGWTP:	68.4%	CGWTP:	950 kWh (1,591 lbs CO₂ generatedª)		
Gallons Treated (discharge to storm sewer):Gallons Treated Since January 1996: 598.0 million gallons571,938 gallons					illion gallons		
VOC Mass Removed from	groundwater:	VOC Mass Removed Since January 1996:					
0.78 lbs ^b		2,890 lbs from groundwater					
8,686 lbs from			8,686 lbs from vapor				
Rolling 12-Month Cost per	Pound of Mass Remove	d [:] \$3,345 ^c					
Monthly Cost per Pound of	Mass Removed: \$5,516	Sc					
 ^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 October 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 individ	able 2 presents individual extraction well flow rates during the monthly reporting period.						

Table 2 – CGWTP Average Flow Rates ^a – October 2021							
Location Average Flow Rate Groundwater (gpm)							
EW001x16	12.1						
EW002x16 5.4							
EW003x16 ^b 0.0							
EW605x16 NM ^c							
EW610x16	NMc						
CGWTP	18.1						
^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 had been treated in Site SS016 bioreactor until November 2020 when it was taken offline and decommissioned. The well replacing EW003x16 (EW003Ax16) has been installed but is not yet online. ^c 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								
	Shutdown ^a		Restart		Restart			
Location	Date	Time	Date	Time	Cause			
CGWTP	None							
= Date/Tin	= Date/Time not recorded							
^a Shutdown and restart times estimated based on field notes								
CGWTP = 0	Central Groundwater Trea	itment Plar	ıt					

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the CGWTP on 4 October 2021. Sample results are presented in Table 4. The total VOC concentration (163.1 μ g/L) in the October 2021 influent sample has decreased slightly from the September 2021 sample (164.5 μ g/L). TCE was the primary VOC detected in the influent sample at a concentration of 100 μ g/L. Vinyl chloride was detected at trace concentrations in the samples collected after the first and second carbon vessels. No VOCs were detected in the system effluent sample. The effluent sample was also analyzed for TPH-g, TPH-d, and TPH-mo, and no TPH was detected.

On 7 October 2021, EW002x16 was offline because of a level sensor alarm. On 12 October, a temporary switch was installed to the level sensor to allow the well to be turned back on. The placement of the level sensor will be adjusted when the wellhead is accessible. EW002x16 remains online.

In October, EW605x16 was temporarily offline because the motor starter overload had tripped. After the overload was reset, the well resumed operation.

In October, the programmable logic control (PLC) lost connection with the SCADA system several times. This issue was corrected by disabling the sleep function on the SCADA computer. Though the system PLC lost connection with the SCADA computer, this did not result in the system shutting down. The system remained online.

At times during the reporting period, only two wells were online (EW001x16 and EW610x16). This resulted in periods of low flow into the treatment plant compared to when all four (4) wells are operating. The reduced flow may have resulted in the treatment plant operating in a "batch mode," where the main transfer pump would turn off to allow the influent tank to refill with groundwater. The system hour meter is based on the operating time of the main system transfer pump, so if the transfer pump turns off, the hour meter would stop recording. In typical system operation, the transfer pump remains on continuously, and offers a good representation of system run time. No periods of downtime were observed during this reporting period (no system restarts required), so the reduced operating time may be an indication of "batch mode" rather than system downtime.

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 decreased. An overall decreasing flow rate trend was observed in the past 12 months.

The Site SS016 subgrade biogeochemical reactor (SBGR), also known as the bioreactor, and the Site DP039 bioreactor both continued operating in October 2021.

A 3-bay aircraft hangar is being constructed over much of the Oil Spill Area (OSA) source area (former Buildings 16 and 18 area). Construction activities are expected to continue through 2022. 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 facilitate construction activities. Both wells are currently operational.

Optimization Activities

No optimization activities occurred at the CGWTP in October 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 1,591 pounds of GHG during October 2021.

Summary of Groundwater Analytical Data for October 2021 – Central Groundwater Treatment Plant

					4 Octo (ب	ber 2021 ıg/L)	
Constituent	Instantaneous Maximum ^a (μg/L)	Detection Limit (µg/L)	N/C	Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent⁵
Halogenated Volatile Organics							
Acetone	NA	1.9 – 3.8	0	ND	ND	ND	ND
Bromomethane	NA	0.21 – 0.42	0	ND	ND	ND	ND
Carbon disulfide	NA	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	NA	0.15 – 0.30	0	0.61 J	ND	ND	ND
1,3-Dichlorobenzene	NA	0.13 – 0.26	0	0.71 J	ND	ND	ND
1,4-Dichlorobenzene	NA	0.16 – 0.32	0	0.33 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	0.67 J	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15 – 0.30	0	55	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	4.3	ND	ND	ND
Tetrachloroethene	0.50	0.20 - 0.40	0	0.74 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	100	ND	ND	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	0.73 J	0.44 J	0.28 J	ND
Non-Halogenated Volatile Orga	nics						
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

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

NM = not measured μg/L = micrograms per liter



Central Groundwater Treatment Plant Monthly Data Sheet CGWTP_Oct2021



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 206 Reporting Period: 29 September 2021 – 25 October 2021

Date Submitted: 12 November 2021

This monthly data sheet presents information regarding the Subarea LF007C Groundwater Treatment Plant (LF007C GWTP).

System Metrics

Table 1 presents operational data from the October 2021 reporting period:

Table 1 – Operations Summary – October 2021						
Initial Data Collection:	9/29/2021 12:00	Final Data Collection: 10/25/2021 11:35				
Operating Time:	Percent Uptime:	Electrical Power Usage ^a :				
LF007C GWTP: 624 hours	LF007C GWTP 100% ^b	LF007C GWTP: 0 kWh				
Gallons Treated: 89,106 gallons		Gallons Treated Since March 2000: 92.3 million gallons				
Volume Discharged to Northgate F 89,106 gallons	Pond (formerly the Duck Pond):					
VOC Mass Removed: 6.53 x 10 ⁻⁴	pounds ^c	VOC Mass Removed Since March 2000: 174.4 pounds (Groundwater)				
Rolling 12-Month Cost per Pound	of Mass Removed: Not Measured ^d					
Monthly Cost per Pound of Mass F	Removed: Not Measured ^d					
 ^a The LF007C GWTP operates on solar power only. ^b The system was operational 100% of the available time between 29 September and 25 October 2021 (when the system was taken off line due to vernal pool formation). ^c VOCs from October 2021 influent sample detected by EPA Method SW8260C. ^d 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 – October 2021							
Location	Average Flow Rate (gpm) ^a	Total Gallons Processed (gallons)					
EW614x07	2.2	82,461					
EW615x07	0.4	14,468					
LF007C GWTP	2.4	89,106					
^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							
	Shutdown	a	Restart ^a				
Location	Date	Time	Date	Time	Cause		
LF007C GWTP	25 October 2021	11:35			LF007C GWTP was shut down because vernal pools had formed at Subarea LF007C.		
= Time not record	= 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 treatment samples were collected at the LF007C GWTP on 4 October 2021. Sample results are presented in Table 4. The total VOC concentration in the October 2021 influent sample was 0.88 J μ g/L. TCE was the only VOC detected at the influent sample location. TCE (0.34 J μ g/L) and cis-1,2-DCE (0.18 J μ g/L) were detected in the midpoint sample location. No VOCs were detected in the effluent sample location.

The LF007C GWTP was taken offline on 25 October 2021 when vernal pools formed at Subarea LF007C. The system will be restarted once the vernal pools have dissipated.

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 shown to be seasonally variable; however, over the last 12 months the trend has decreased. The average flow rate through the LF007C GWTP has gradually increased over the last 12 months due to typical seasonal variation.

Optimization Activities

No optimization activities occurred at the LF007C GWTP in October 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 October 2021 – Subarea LF007C Groundwater Treatment Plant

	Instantaneous Maximum ^a	Detection			4 October 2021 (μg/L)	
Constituent	(μg/L)	(μg/L)	N/C	Influent	After Carbon 1	Effluent ^b
Halogenated Volatile Organics						
Acetone	NA	1.9	0	ND	ND	ND
Bromodichloromethane	NA	0.17	0	ND	ND	ND
Bromoform	NA	0.46	0	ND	ND	ND
2-Butanone	NA	2.0	0	ND	ND	ND
Carbon Tetrachloride	NA	0.19	0	ND	ND	ND
Chloroform	1.9	0.16	0	ND	ND	ND
Chloromethane	NA	0.30	0	ND	ND	ND
Dibromochloromethane	NA	0.17	0	ND	ND	ND
1,3-Dichlorobenzene	NA	0.13	0	ND	ND	ND
1,4-Dichlorobenzene	NA	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	0.18 J	ND
trans-1,2-Dichloroethene	0.50	0.15	0	ND	ND	ND
Methylene Chloride	NA	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	0.88 J	0.34 J	ND
Vinyl Chloride	0.90	0.10	0	ND	ND	ND
Non-Halogenated Volatile Organ	ics					
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

 μ g/L = micrograms per liter





Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 128 Reporting Period: 29 September 2021 – 1 November 2021

Date Submitted: 12 November 2021

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

System Metrics

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

Table 1 – Operations Summary – October 2021								
Initial Data Collection: 9/29/2021 12:30	Final Data Collection:	11/1/2021 12:30						
Operating Time:	Percent Uptime:	Electrical Power Usage:						
ST018GWTP: 701 hours	ST018GWTP: 88.5%	ST018GWTP: 27 kWh (20 lbs CO ₂ generated ^a)						
Gallons Extracted: 42,889 gallons	Gallons Extracted Since March 2011: 20.6 million gallons							
Volume Discharged to Sanitary Sewer: 42,889 gallons	Final Totalizer Reading: 20,606,368 gallons							
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: 14.1 million gallons								
MTBE, BTEX, VOC, TPH Mass Removed: 0.02 lbs ^b	MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: 50.2 lbs							
MTBE (Only) Removed: 0.01 lbs ^b	MTBE (Only) Mass Removed Since March 2011: 12.3 lbs							
Rolling 12-Month Cost per Total Pounds of Mass Removed	d: \$90,900 ^{bc}							
Monthly Cost per Pound of Mass Removed: \$176,350 ^{bc}								
^a SiteWise [™] estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG. ^b Calculated using October 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.								
lbs = pounds	(Wh = kilowatt hour bs = 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 – October 2021				
Location	Average Flow Rate Groundwater (gpm) ^a	Hours of Operation		
EW2014x18	1.1	162 ^b		
EW2016x18	0.7	701		
EW2019x18	0.0	Offline ^b		
EW2333x18	1.4	701		
ST018GWTP	1.0	701		
 ^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 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					
	Shutdown ^a		Restart ^a		
Location	Date	Time	Date	Time	Cause
ST018GWTP	26 October 2021	14:00	26 October 2021	15:00	Float switch malfunctioned.
ST018GWTP	28 October 2021	15:00	1 November 2021	9:00	Treatment plant flooding.
= 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 4 October 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 October 2021 laboratory data report is available upon request. The MTBE discharge concentration during the October 2021 sampling event was 14 µg/L, which is a decrease from the September 2021 sample result of 16 µg/L. TPH-d, TPH-g, benzene, 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 μ g/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.

On 5 October 2021, EW2014x18 was turned off with regulatory approval because of low MTBE concentrations.

On 26 October 2021, the system was shut down for approximately 1 hour to repair a broken float switch in the EW2333x18 extraction well vault. The system was restarted without issue.

On 28 October 2021 at approximately 15:00, Travis AFB personnel discovered flooding in the Site ST018 GWTP containment pad. The system was in an alarm condition (high level in the influent tank), but water from the influent tank appeared to be actively leaking from the top of the tank. This was because the containment pad was flooded, and the sump pump was running. The sump pump discharges collected water in the containment pad into the influent tank, and because the tank was full, excess water was leaking from the top back into the containment pad (recirculating water). During an alarm condition, two actuated valves close on the influent groundwater pipeline, thus preventing water from entering the Site ST018 GWTP from the extraction wellfield. The pressure buildup in this influent line also triggers the individual extraction wells to shut off by way of a pressure switch in each extraction well vault.

The water in the containment pad was pumped through the system, and once the flooding was gone, troubleshooting commenced. All system failsafes and alarms were found to be working correctly, and both valves on the system influent piping were working effectively. The source of all the water in the containment area could have been excess rainwater from the severe storm that had recently occurred.

As a precaution, the Site ST018 GWTP was left off line on 28 October 2021 and operated during business hours only for the following week. No abnormal operation was observed during the rest of the reporting period. Travis AFB will continue to monitor system operation.

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 slightly increasing trend. The extracted MTBE concentrations and extracted total concentrations have exhibited overall decreasing trends over the past 12 months.

Optimization Activities

No optimization activities occurred at the ST018GWTP in October 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 20 pounds of GHG during October 2021 and removed 42,889 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 October 2021 – Site ST018 Groundwater Treatment Plant

	Instantaneous Maximum ^a	Detection Limit		4 October 2021 (μg/L)
Constituent	(µg/L)	(μg/L)	N/C	System Discharge ^b
Fuel Related Constituents				
Methyl tert-Butyl Ether	6,400	0.25	0	14
Benzene	25,000 ^c	0.16	0	0.50 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	19 J
Total Petroleum Hydrocarbons – Diesel	50,000 ^d	15	0	33 J
Total Petroleum Hydrocarbons – Motor Oil	100,000	160	0	ND
Other				
Acetone	NA	1.9	0	ND
Bromomethane	NA	0.21	0	ND
2-Butanone (MEK)	NA	2.0	0	ND
1,2-Dichloroethane	20	0.13	0	0.49 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

 $^{\rm c}$ The limit of 25,000 $\mu g/L$ is a combined limit for BTEX.

^d The limit of 50,000 μ g/L is a combined limit for TPH-g and TPH-d.

 μ g/L = micrograms per liter J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant.

NA = not applicable

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

ND = not detected above method detection limit.



Site ST018 Groundwater Treatment Plant Monthly Data Sheet St018gwtp_Oct2021





FPM Remediations, Inc. An **Olgoonik** Company





Travis AFB Restoration Program

ORC Program Update

RPM Meeting November 17, 2021

Documents Planned

<u>CERCLA</u>

• UFP- QAPP

January

Site SD031 Data Gaps Investigation WP
 February

<u>POCO</u>

None

Competed Field Work

• 4Q21 GRIP Event

Field Work Planned

<u>CERCLA</u>

- 2Q GRIP Event April '22
- Site SD031 Data Gaps Investigation June '22

<u>POCO</u>

None

Travis AFB RPM Meeting 17 November 2021

Land Use Control Sites Status/Update



Travis Air Force Base Environmental Restoration Program

Projects on Sites with LUCs Will Start Documenting in Annual Report

Site #	Project Description	Date Discussed/Approved	Additional Information
		Starting in 2018 with approval and following	Regulators provided input from the
SS016	KC-46 Hangar and Fuel System Project	up during construction	beginning of the design of this project
			Soil impacted with TPH from old
	New Material Handling System at Bldg.		hydraluic rams will be sampled and
SD037	977	January 2019 and August 2020	properly disposed of.
			Soil and or debris scraped up during
			ground preparation will be sampled
LF044	Concrete Batch Plant	May 2021 RPM meeting	and properly disposed of.
SS016/SS029/ST032	Runway Replacement	May 2021 RPM meeting	EA submitted to regulators on June 8
			Email notification that project is
			scheduled to begin sent 09 September
SS016	Fuel Sample Probes	Email Discussion Initiated 27 August 2021	2021



Travis Air Force Base Environmental Restoration Program

UPDATE

SS016-KC-46 Hangar Project

There continues to be issues with interference from other utilities and some systems are having to be redesigned.
As the step-rate pump test, sampling and work necessary to start EW003Ax16 is not something the hangar contractor normally does, this portion of the project will likely be contracted to Jacobs for completion.

SD037-Bldg. 977 Material Handling System-Contract Awarded-Design in Progress

LF044-Concrete Batch Plant-Construction-NSTR

SS016/SS029/ST032-Runway Replacement-Air Force working to finalize EA, still waiting for USFWS Consultation

SS016 Fuel Sampling Probe Installation and Sampling-Sampling complete and report is being written up now



Travis Air Force Base Environmental Restoration Program

PFOS/PFOA Updates



Travis Air Force Base Environmental Restoration Program

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

- 16 Nov Letters-to-residents received with 60 AMW CC signature.
- Will certify mail letters to the three property owners.
- Once letters are received by property owners, delivery of bottled water will be discontinued.



Travis Air Force Base Environmental Restoration Program

Expanded Site Inspection

 15 Nov 2021 the final Site Inspection Addendum Aqueous Film Forming Foam (AFFF) Release Areas Off-Base Drinking Water was uploaded to the Air Force Admin Record; AR # 612997.



Travis Air Force Base Environmental Restoration Program

AFFF RI Updates



Travis Air Force Base Environmental Restoration Program

Air Force Civil Engineer Center

Travis Air Force Base Phase I Remedial Investigation of AFFF Areas

Presented by Matt Mayry, Alt. PM



Battle Ready... Built Right!

THE FORCE CIVIL ENGINEER CONTRA

Planning Document Update

- 27 October 2021. Final WP and Final UPF-QAPP docs posted to Oneida SharePoint
- January May 2022. UFP-QAPP Addendum #1 Process

Phase I Remedial Investigation Data-Driven Process



Initial Sampling Event and Next Steps

- 23 Aug 2 Sep 2021. Sampled 96 monitoring wells and collected influent and effluent samples at the SBBGWTP, CGWTP, and LF007 treatment systems.
- 25 October 2021. Preliminary ESS Tech Memo and Cross Sections shared with Team.
- 30 Oct 2021. Receipt of remaining (unvalidated) laboratory data packages.
- *Nov/Dec 2021.* Data Validation.
- Dec/Jan 2021. Generate data tables and figures.
- *Target Jan/Feb 2021.* Stakeholder Meeting #1 and UFP-QAPP Addendum #1.

Initial Sampling Event Treatment System Preliminary Results

• 24 Sep 2021 and 28 Oct 2021. Preliminary (unvalidated) data for treatment system samples provided to RPMs.

Sample ID	PFOS (ng/L)	PFOA (ng/L)	PFBS (ng/L)
RSL	40	40	600
SBBGWTP-INF-20210830	2100	1600	570
SBBGWTP-EFF-20210830	1.00 U	10	220
SBBGWTPA1-EFF- 20210830	1.00 U	10	200
CGWTP-INF020210831	5,200	280	230
CGWTP-EFF-20210831	2.0 J	1.00 U	1.00 U
LF007C-INF-20210831	120	65	56
LF007C-EFF-20210831	31	38	45

U = non detect at the associated quantitation limit / J = estimated value

AFFF and Remedial Investigation Areas



