Final

Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
16 September 2020, 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 September 2020 at 0930 hours.

Effective 1 June 2020, the 60 AMW/CC at Travis AFB directed Health Protection Condition (HPCON) Bravo (changed from HPCON Charlie) in response to the evolving COVID-19 public health situation in the local area. The base has cancelled all on-base gatherings of more than 10 people, and continues to encourage teleworking and virtual meetings in place of in-person meetings.

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
Glenn Anderson	AFCEC/CZOW
Chet Storrs	AFCEC/CZOW
Angel Santiago	AFCEC/CZOW
Gene Clare	AFCEC/CZOW
Greg Capra	Travis AFB/ISS
Lou Briscese	Travis AFB/PA
Dave Leeson	AFCEC/CZRW
Sarah Miller	USACE-Omaha
Brian Boccellato	USACE-Omaha
Paul Gedbaw	USACE-Omaha
Nadia Hollan Burke	EPA
Adriana Constantinescu	RWQCB
David Elias	RWQCB
Kimiye Touchi	DTSC
Randall Bleichner	DTSC/GSU
Megan Duley	SRS
Alan Soicher	USACE-Albuquerque
Mike Wray	CH2M/Jacobs
Leslie Royer	CH2M/Jacobs
Jeff Gamlin	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 (August 2020)
Attachment 4	CGWTP Monthly Data Sheet (August 2020)
Attachment 5	LF007C Monthly Data Sheet (August 2020)
Attachment 6	ST018 Monthly Data Sheet (August 2020)
Attachment 7	Land Use Control Sites Update (September 2020)
Attachment 8	PFOS PFOA Update (September 2020)
Attachment 9	Presentation: Program Update

1. ADMINISTRATIVE

A. Previous Meeting Minutes

DTSC and the Water Board had no comments on the August 2020 Draft RPM Meeting Minutes. The EPA suggested that Bullet 5 in Section 2C (PFOS/PFOA Program Status, August 2020) should be updated to say "EPA noted that half the LHA is a more conservative value for determining exceedances…"

B. Action Item Review

Action items from August 2020 were reviewed.

Action Item 1 is ongoing: Include the progress of the optimized Emulsified Vegetable Oil (EVO) delivery via solar-powered organic carbon (SPOC) injection system pilot test at Site SS015 during future monthly program updates. September 2020 update: The SPOC has been moved to Site DP039. The solar panel was moved on the worst day for wildfire smoke, but is getting enough sunlight to run despite ongoing poor air quality. The wells are accepting the water and pumping. The team is optimistic about this new location. This action item remains open.

Action Item 2 is ongoing: Ms. Constantinescu to confer with her SMEs on whether TPH-D detected in the LF007C groundwater extraction treatment system is naturally occurring rather than petroleum based. The decision will be made based on data collected by Jacobs in the July 2020 O&M sampling event (total bacteria count, matrix spike/matrix spike duplicate, and current and historical chromatograms). Ms. Royer will provide this data to the Water Board when it is available. September 2020 update: The presentation and information promised to the Water Board has been sent, and the team will discuss it in detail after this RPM meeting. This action item remains open; Ms. Constantinescu noted that the 30 September 2020 deadline is realistic.

Action Item 3: The Air Force will send the 2019 CAMU Monitoring Report to DTSC for ESPO review, and will extend the agency review period and comment due date to 18 September 2020 on the next MMDS. September 2020 update: The document was sent to DTSC ESPO on 9 September 2020, and the agency comment due date was updated to 9 October 2020. This action item is now closed.

Action Item 4: Mr. Duke will obtain and provide historical data from Site SD037 to the regulatory agency representatives. September 2020 update: This action item was discussed in detail during the Current Projects/LUC Sites agenda item. This action item is now closed.

Action Item 5: Mr. Duke will provide a clear copy of the figure from the Site SD037 presentation to the regulatory agency representatives. September 2020 update: a better figure from the base map was included in the handouts that will be discussed during the Current Projects/LUC Sites agenda item. This action item is now closed.

Action Item 6: Mr. Duke will elevate the agencies' request for PFOS/PFOA data from the 6 residential well tests, and will inquire about the timing of the fact sheet. September 2020 update: Mr. Duke provided some initial information to the Water Board yesterday for an upcoming meeting. This action item remains open.

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

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

Travis AFB Annual Meeting and Teleconference Schedule

Mr. Anderson reminded everyone that all upcoming meetings will be held as MS Teams teleconferences until California meets the requirements for the "green phase" of COVID-19 reopening; however, the MMDS will remain the same. Teammates will be notified if we will resume in-person meetings, but he

anticipates that the remainder of meetings in 2020 will be held virtually, and possibly into 2021.

The next RPM meeting is scheduled for 1300 on Thursday, 22 October 2020 via MS Teams, in order to allow more setup time if needed ahead of the virtual Restoration Advisory Board (RAB) Meeting.

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.

— Community Relations Plan Update (CRP): There was no change to the schedule. This document will be finished as soon as the other higher-priority documents are completed.

— Site SD031 Soil Remedial Investigation/Feasibility Study (RI/FS): The Response to Comments and Draft-Final due dates changed to 1 September 2020 based on actual submittals. EPA noted that they had no technical changes but that the document is still in legal review; a response is expected by 18 September 2020. DTSC noted they only had legal comments and that the Air Force provided responses on 26 August. The Water Board indicated that they have not yet received a response from their legal department. The funds for this document expire on 30 September 2020.

— Quarterly Newsletter (October 2020): There was no change to the schedule on the MMDS. Mr. Anderson noted that, due to the upcoming first-ever virtual RAB meeting, necessary changes to previously standard language have been made regarding where to find information, links to the meeting, and how to participate. As a result, review timeframes are a bit different than in previous years to allow more review time.

— 2019 Annual Groundwater Remediation Implementation Status Report (GRISR): The Response to Comments and Final due dates were changed to 21 September 2020. The Water Board has accepted the Air Force response to comments. DTSC indicated that they only have a few clarification questions and their letter will be sent by tomorrow. Due to a glitch, EPA didn’t receive responses to their comments until yesterday and will review by the end of the month.

— 2019 Annual Corrective Action Management Unit (CAMU) Monitoring Report: The Draft to Agencies and RAB due date was changed to 9 September 2020 to reflect actual submittal; the agency comment due date was changed to 9 October

2020. The rest of the dates remained unchanged. The DTSC Special Projects Office will be reviewing the document.

— Site SS016 Soil Remedial Action Completion Report: There were no changes to the schedule. The Water Board promised comments by the end of the week; DTSC and EPA comments have been received.

— Site LF008 Remedial Infrastructure Decommissioning Technical Memorandum: This is a new document; the Travis AFB document lead will be Mr. Anderson, and the CH2M document lead will be Mr. Wray. The Predraft to Air Force/Service Center was assigned a due date of 2 October 2020; all other dates were assigned accordingly.

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

— MOVED TO HISTORY:

Site FT004 POCO Corrective Action Plan

Site SD043 Well Decommissioning and Site Closeout Technical Memorandum

2. CURRENT PROJECTS

A. Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant, August 2020 (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.8% uptime, and 6.317 million gallons of groundwater were extracted and treated in August 2020. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 146.6 gallons per minute (gpm). Electrical power usage was 18,528 kilowatt hours (kWh), and approximately 15,311 pounds of CO_2 were created (based on DOE calculation). Approximately 1.10 pounds of volatile organic compounds (VOCs) were removed in August. The total mass of VOCs removed since startup of the system is 529.7 pounds.

On 10 August 2020, the totalizer for EW2784x05 was replaced. On 17 August 2020, the SBBGWTP was shut down for approximately 1.5 hours to backwash the lead granulated activated carbon (GAC) vessel.

No optimization activities were conducted in August 2020.

Central Groundwater Treatment Plant, August 2020 (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 939,070 gallons of groundwater extracted and treated in August 2020. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 21.6 gpm. Electrical power usage was 1,120 kWh for all equipment connected to the Central Plant, and approximately 1,717 pounds of CO_2 were generated. Approximately 1.65 pounds of VOCs were removed from groundwater by the treatment plant in August. The total mass of VOCs removed since the startup of the system is 11,553 pounds.

The Site SS016 subgrade biogeochemical reactor and the Site DP039 bioreactor continued operating in August 2020. The water inside the new infiltration trench is close to the ground surface and will be monitored for ground surface moisture to ensure ponding does not occur and water does not overtop the trench.

No optimization activities were conducted in August 2020.

LF007C Groundwater Treatment Plant, August 2020 (Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 100% uptime with approximately 139,400 gallons of groundwater extracted and treated in August 2020. All treated water was discharged to the Duck Pond for beneficial reuse. The average flow rate was 3.2 gpm. Approximately 1.10×10^{-3} of a pound of VOCs was removed from groundwater by the treatment plant in August 2020. 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 August 2020.

ST018 Groundwater (MTBE) Treatment Plant, August 2020 (see Attachment 6)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 80.4% uptime with approximately 72,730 gallons of groundwater extracted in August 2020. 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 44 kWh for all equipment connected to the ST018 GWTP. The total CO_2 discharge equivalent equates to approximately 33 pounds. Approximately 0.05 of a pound of MTBE, BTEX, VOCs, and TPH was removed in August by the treatment plant, and approximately 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 49.4 pounds, and the total MTBE mass removed since startup of the system is 12.1 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.

The Site ST018 GWTP was temporarily shut down on 27 August 2020 to repair a minor leak. The system was inadvertently left offline after the repair was complete, and was restarted on 2 September 2020.

No optimization activities were conducted in August 2020.

B. Land Use Control Sites, August 2020 (see Attachment 7)

Site SS016 KC-46 Hangar

Two extraction wells previously powered by a portable generator are now permanently hardwired to the grid. The temporary groundwater piping switchover occurred at the same time as the power connection. A section of the temporary piping is a larger diameter than the original piping and has increased yield slightly. A restricted area free zone has been established for extraction well EW03x16 replacement work.

Mr. Duke recognized and thanked Mr. Clare for his ongoing work at this site.

Site SD037 Cargo Facility

- This is the largest cargo facility in the Air Force; the hydraulic rams used for moving pallets will be removed and replaced with a new system that does not use hydraulic fluid. the area is mostly open, there is no office space, it is used primarily for moving cargo pallets.
- The Air Force has rethought the approach to the equipment replacement project at this site from Land Use Control (LUC) Reduction, which would have been considered a remedial action and required a ROD Amendment, to LUC Maintenance. The Air Force wants to ensure that the actions taken to replace the cargo movement equipment do not constitute a new release or lead to exposures.
- This approach suggests that current LUCs will be maintained throughout the upcoming project, and that the only excavation that will occur is to fit the new system into the building footprint.
- Hydraulic fluid spills will be cleaned up; contaminated soils will be placed into containers, analyzed, and shipped to appropriate disposal facilities. Standard procedures to prevent releases will be put into place. This is essentially the same process as if a drill rig hydraulic line ruptured during drilling. The team would dig up the contaminated soils and dispose of them properly.
- Ms. Burke indicated that the discussion was very helpful; and acknowledged that the key is that any planned excavation is related to and necessary for removing

and replacing the hydraulic rams, which is in accordance with the existing LUC plan. She also noted that hydraulic fluid is not a CERCLA contaminant. She suggested ensuring the sampling and management of the soil is done in accordance with existing QAPPs and other documentation. Mr. Duke agreed.
- This is not yet funded; the work is probably a few years out.
- Ms. Burke (EPA) and Ms. Constantinescu (Water Board) agreed that their concurrence to the LUC Maintenance approach could be captured in the meeting minutes. Ms, Touchi (DTSC) said that this seems reasonable but before she concurs, she would like Mr. Forrester's input after he reviews the draft Meeting Minutes from today.
- Ms. Burke suggested documenting the work formally through an After-Action Report as part of the LUC Annual Report following project completion.

C. PFOS/PFOA Program Status, August 2020 (see Attachment 8)

- The program is being managed Air Force-wide by AFCEC Headquarters in San Antonio, TX to ensure a centralized and consistent approach; the Travis AFB team is not managing it. Mr. Storrs is the Project Manager for the PFOS/PFOA program at Travis AFB.
- The Emergency Removal Action Memorandum has been submitted for internal Air Force review and will be routed to the Wing Commander once review is complete. It must be signed by the AFCEC Director prior to submittal to the regulatory agencies; the signature routing process is complex.
- Validated data from the off-base residential well testing has been received. Letters will be sent to the residents once signed by the Wing Commander.
- Six additional residential wells were identified within 4 miles of the base for sampling based on the residences where PFOS/PFOA were detected. Letters will be sent certified with tracking. Two weeks will be allotted for responses. If the Air Force gets no response after the initial outreach, they are responsible for 2 additional attempts at contacting the property owners. Sampling could occur as soon as late October/early November. Validated data will be available within 4-6 weeks, results will be provided to participating property owners
- The Water Board and EPA noted ongoing concerns about analysis methods and detection limits. Mr. Duke noted that properties with results over half of the lifetime health advisory (LHA) will be sampled quarterly for at least a year. The Water Board is working on a maximum contaminant level (MCL) and may publish one before EPA does. At this time, the Department of Defense policy is to compare PFOS/PFOA concentrations to the LHA, and provide bottled water to residences where PFOS/PFOA are over the LHA.
- The public notice for the Relative Risk Site Evaluation will be in the base newspaper, the Daily Republic and the Vacaville Reporter the final week of September 2020 and the public comment period will run from 1 October until 30 October 2020. Mr. Duke will send a fact sheet ahead of time so the information is available for the public comment period.

- The PreDraft of the Remedial Investigation Work Plan is expected by early October. Initial reconnaissance of AFFF sites occurred on 10 September 2020.

3. Presentations:

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

Ms. Royer reported on the status of fieldwork and documents that have been completed, are in progress, or are upcoming. Please refer to Attachment 9 for the full briefing. Highlights of the discussion are as follows:

FIELD WORK: PASSIVE VENT SYSTEM SAMPLING

- The data from the first round of samples were received and Ms. Royer provided a general overview of the data. The report won't be provided until winter sampling is complete. The Air Force and Jacobs are working on a contract modification that will allow for a more extensive winter sampling event. The winter sampling event will likely not occur until January or so while the contract modification is finalized and a work plan addendum is prepared.

4. New Action Item Review

1. Ms. Touchi will confer with Mr. Forrester if he concurs with the new LUC Maintenance approach at Site SD037, and if documenting DTSC concurrence via the meeting minutes is acceptable.

5. PROGRAM ISSUES/UPDATE

None

6. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
1.	Mr. Wray and Ms. Royer	Mr. Wray or Ms. Royer to include the progress of the optimized EVO delivery via solar-powered organic carbon (SPOC) injection system pilot	Ongoing	Open

		test at Site SS015 during future monthly program updates.		
2.	Ms. Constantinescu and Ms. Royer	Ms. Constantinescu will confer with Water Board SMEs on whether the TPH samples on the system detections at the LF007C groundwater extraction treatment system are naturally occurring or represent petroleum contamination. The Water Board decision will be based on total bacteria sampling data, matrix spike/matrix spike duplicate data, and current and historical chromatograms. Ms. Royer will provide this data to the Water Board when it is available.	30 September 2020	Open
3.	Mr. Duke	Mr. Duke will elevate the agencies' request for PFOS/PFOA data from the 6 residential well tests, and will inquire about the timing of the fact sheet.	22 October 2020	Open
4.	Ms. Touchi	Ms. Touchi will confer with Mr. Forrester if he concurs with the new LUC Maintenance approach at Site SD037, and if documenting DTSC concurrence via the meeting minutes is acceptable.	22 October 2020	Open

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

The RPM Teleconference is scheduled for 9:30 AM PST on 16 September 2020. **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

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

   A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE

   B. LAND USE CONTROL SITES

   C. PFOS/PFOA

      1. ESI
      2. RRSE
      3. RI

3. PRESENTATIONS

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

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

   TRIAD DISCUSSION: LF007C TPH REVIEW

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.

(2020)

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.)
—	01-15-20	—
02-19-20	—	—
—	03-18-20	—
04-16-20 (Thursday 1:00 PM)	—	~~04-16-20~~
—	05-20-20	—
06-17-20	—	—
—	07-15-20	—
~~08-26-20~~	08-19-20	—
—	09-16-20	—
10-22-20 (Thursday 1:00 PM)	—	10-22-20
—	11-18-20	—
—	—	—

[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	**Community Relations Plan Update Travis AFB, Glenn Anderson CH2M, Jill Dunphy**	**Site SD031 Soil Remedial Investigation/Feasibility Study Travis AFB, Glenn Anderson CH2M, Rick Sturm**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	08-23-16	05-24-19
AF/Service Center Comments Due	09-07-16	06-10-19
Draft to Agencies / RAB	09-28-16 (03-22-18)	09-12-19
Agency Comments Due	10-28-16 (04-27-18)	11-12-19 (01-14-20)
Response to Comments Meeting	**TBD**	**08-19-20**
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**
Response to Comments Due	TBD	08-31-20 (09-01-20)
Draft Final Due	TBD	08-31-20 (09-01-20)
Final Due	TBD	09-30-20 (09-30-20)

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	**Quarterly Newsletter (October 2020) Travis, Glenn Anderson**	**2019 Annual GRISR Travis AFB, Glenn Anderson CH2M, Levi Pratt**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	09-08-20	05-04-20
AF/Service Center Comments Due	NA	06-04-20
Draft to Agencies / RAB	09-15-20	06-25-20
Agency Comments Due	09-29-20	07-27-20 (08-07-20)
Response to Comments Meeting	**10-01-20**	**08-05-20 (08-21-20)**
Response to Comments Due	10-06-20	08-21-20 (09-21-20)
Draft Final Due	NA	NA
Final Due	10-08-20	08-21-20 (09-21-20)
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	2019 Annual CAMU Monitoring Report Travis AFB, Gene Clare CH2M HILL, Levi Pratt	Site SS016 Soil Remedial Action Completion Report Travis AFB, Glenn Anderson CH2M, Doug Berwick CAPE, Meg Greenwald	Site LF008 Remedial Infrastructure Decommissioning Technical Memorandum Travis AFB, Glenn Anderson CH2M, Mike Wray
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	07-22-20	06-17-20	10-02-20
AF/Service Center Comments Due	08-21-20	07-20-20	11-02-20
Draft to Agencies / RAB	09-09-20	08-14-20	11-16-20
Agency Comments Due	10-09-20	09-14-20	12-17-20
Response to Comments Meeting	**10-22-20**	10-22-20	**01-20-21**
Response to Comments Due	11-05-20	11-05-20	02-03-21
Draft Final Due	NA	NA	NA
Final Due	11-05-20	11-05-20	02-03-21
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
	Potrero Hills Annex Travis, Glenn Anderson		
Life Cycle	FS	Proposed Plan	ROD
Scoping Meeting	**180 days after Water Board Order Rescinded**	**+470 days**	**+735 days**
Predraft to AF/Service Center	+ 270 days	+530 days	+ 915 days
AF/Service Center Comments Due	+ 300 days	+560 days	+ 975 days
Draft to Agencies	+330 days	+590 days	+ 1035 days
Draft to RAB	+ 330 days	+590 days	+ 1035 days
Agency Comments Due	+390 days	+650 days	+ 1095 days
Response to Comments Meeting	**+ 405 days**	**+665 days**	**+ 1110 days**
Agency Concurrence with Remedy	NA	NA	+ 1130 days
Public Comment Period	NA	+735 to 765 days	NA
Public Meeting	**NA**	**+745 days**	**NA**
Response to Comments Due	+430 days	+695days	+ 1190 days
Draft Final Due	+430 days	+695 days	+ 1190 days
Final Due	+460 days	+725 days	+ 1250 days

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

Travis AFB Master Meeting and Document Schedule

HISTORY		
Life Cycle	Site SD043 Well Decommissioning and Site Closeout Technical Memorandum Travis AFB, Glenn Anderson CH2M, Levi Pratt	Site FT004 POCO Corrective Action Plan Travis AFB, Glenn Anderson CH2M, Doug Berwick CAPE, Meg Greenwald
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	04-06-20	03-20-20
AF/Service Center Comments Due	05-06-20	04-20-20
Draft to Agencies / RAB	05-27-20	04-29-20
Agency Comments Due	06-26-20	05-29-20 (07-13-20)
Response to Comments Meeting	**07-15-20**	**06-17-20 (07-15-20)**
Response to Comments Due	07-29-20 (07-24-20)	07-01-20 (07-31-20)
Draft Final Due	NA	NA
Final Due	07-29-20 (07-24-20)	07-01-20 (07-31-20)
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 238 **Reporting Period: 3 August 2020 – 2 September 2020** **Date Submitted: 10 September 2020**

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 August 2020 reporting period.

Table 1 – Operations Summary – August 2020

Initial Data Collection:	8/3/2020 13:30	**Final Data Collection:**	9/2/2020 13:00
Operating Time:		Percent Uptime:	
SBBGWTP:	718 hours	**SBBGWTP:**	99.8%
Electrical Power Usage:			
SBBGWTP:	18,528 kWh (15,311 lbs CO_2 generated[a])		
Gallons Treated: **6.317 million gallons**		Gallons Treated Since July 1998: **1.215 billion gallons**	
Volume Discharged to Union Creek: **6.317 million gallons**		Gallons Treated from Other Sources: **0 gallons**	
VOC Mass Removed: **1.10 lbs**[b]		VOC Mass Removed Since July 1998: **529.7 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: **$24,068**[c]			
Monthly Cost per Pound of Mass Removed: **$16,815**[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 August 2020 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)[a] – August 2020

FT005[b]				SS029		SS030	
EW01x05	Offline	EW743x05	Offline	EW01x29	Offline[c]	EW01x30	8.4
EW02x05	Offline	EW744x05	0.9	EW02x29	Offline[c]	EW02x30	7.8
EW03x05	Offline	EW745x05	8.4	EW03x29	9.7	EW03x30	12.6
EW731x05	6.7	EW746x05	Offline	EW04x29	1.4	EW04x30	17.9
EW732x05	Offline	EW2291x05	5.8	EW05x29	5.3	EW05x30	6.3
EW733x05	Offline	EW2782x05	5.7	EW06x29	15.6	EW2174x30	1.6
EW734x05	4.0	EW2783x05	3.7	EW07x29	11.4	EW711x30	3.5
EW735x05	7.0	EW2784x05	9.5			MW269x30	0.5
EW736x05	Offline	EW2785x05	6.7				
EW737x05	Offline	EW2786x05	11.8				
EW742x05	Offline						
FT005 Total: 70.2				**SS029 Total: 43.4**		**SS030 Total: 58.6**	

SBBGWTP Average Monthly Flow[e]: 146.6 gpm

[a] Flow rates presented are instantaneous measurements taken at the end of the reporting period.
[b] Most extraction wells at FT005 were taken offline in accordance with the *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.*
[c] Extraction wells taken off line because of persistent fouling of the well pumps and associated discharge piping.
[d] Extraction wells were operational; however, well was recharging.
[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 per minute
SBBGWTP – South Base Boundary Groundwater Treatment Plant

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart[a]		Cause
	Date	Time	Date	Time	
SBBGWTP	17 August 2020	9:30	17 August 2020	11:00	Backwash the lead GAC vessel.

[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 August 2020. Sample results are presented in Table 4. The total VOC concentration (20.8 µg/L) in the influent sample increased from the July 2020 sample results (16.1 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 19 µg/L. 1,2-DCA, cis-1,2-DCE, and chloroform were detected in the midpoint sampling location, and no VOCs were detected in the effluent sample. The effluent sample also contained TPH-g and TPH-d at concentrations lower than effluent limitations.

Figure 1 presents a plot of influent VOC concentrations and average flow at the SBBGWTP over the past twelve (12) months. An overall increasing trend was observed for the VOC influent concentrations in the past 12 months. An overall decreasing flow rate trend was also observed in the past 12 months.

On 10 August 2020, the totalizer for EW2784x05 was replaced.

On 17 August 2020, the SBBGWTP was shut down for approximately 1.5 hours to backwash the lead GAC vessel.

Optimization Activities

No optimization activities occurred at the SBBGWTP in August 2020.

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 August 2020, the SBBGWTP produced approximately 15,311 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 August 2020 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 August 2020 (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	0.16 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	0.52 J	0.64 J	ND
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	0	1.3	0.93 J	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	19	ND	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	12 J
Total Petroleum Hydrocarbons – Diesel	50	26	0	NM	NM	35 J
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

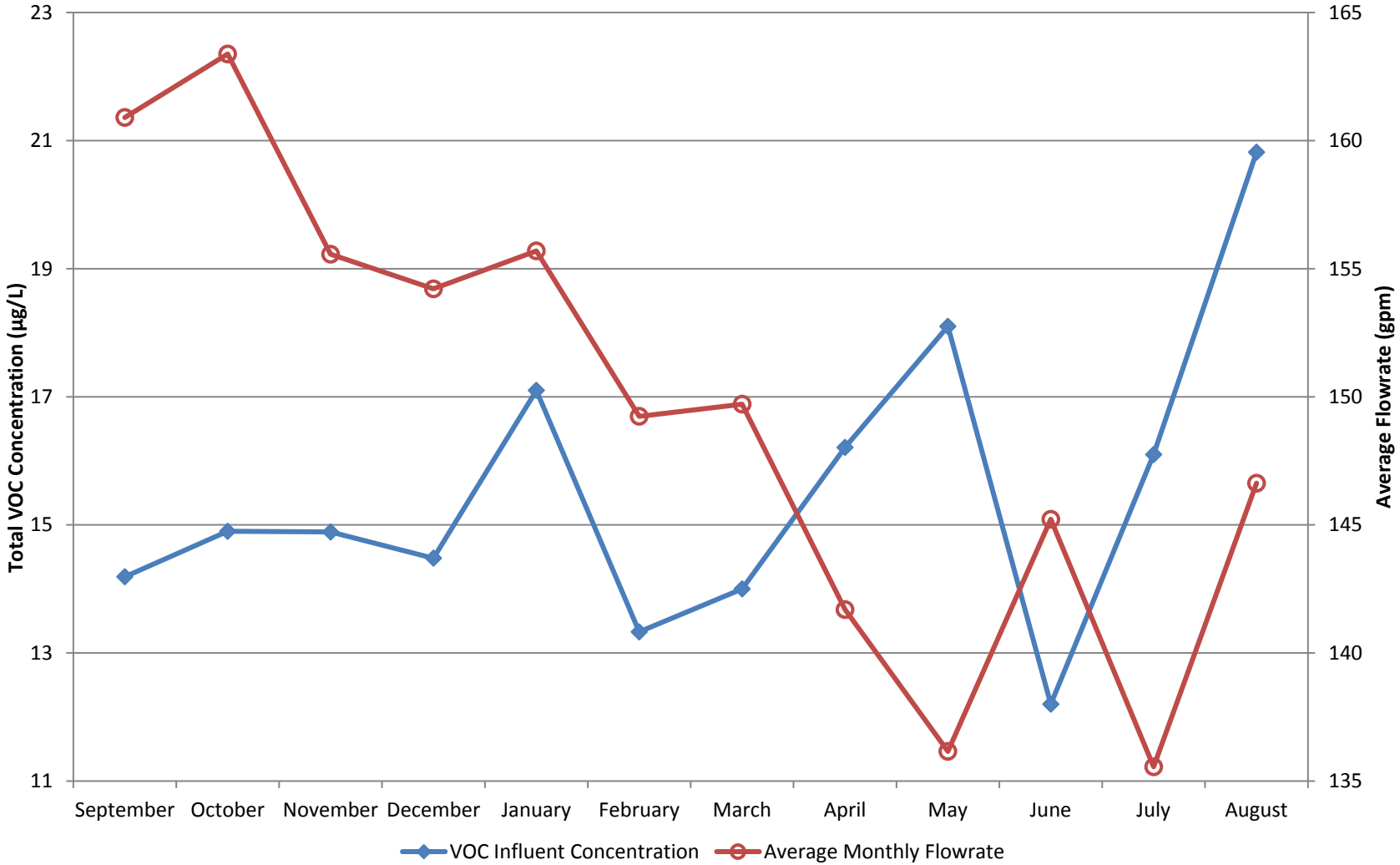
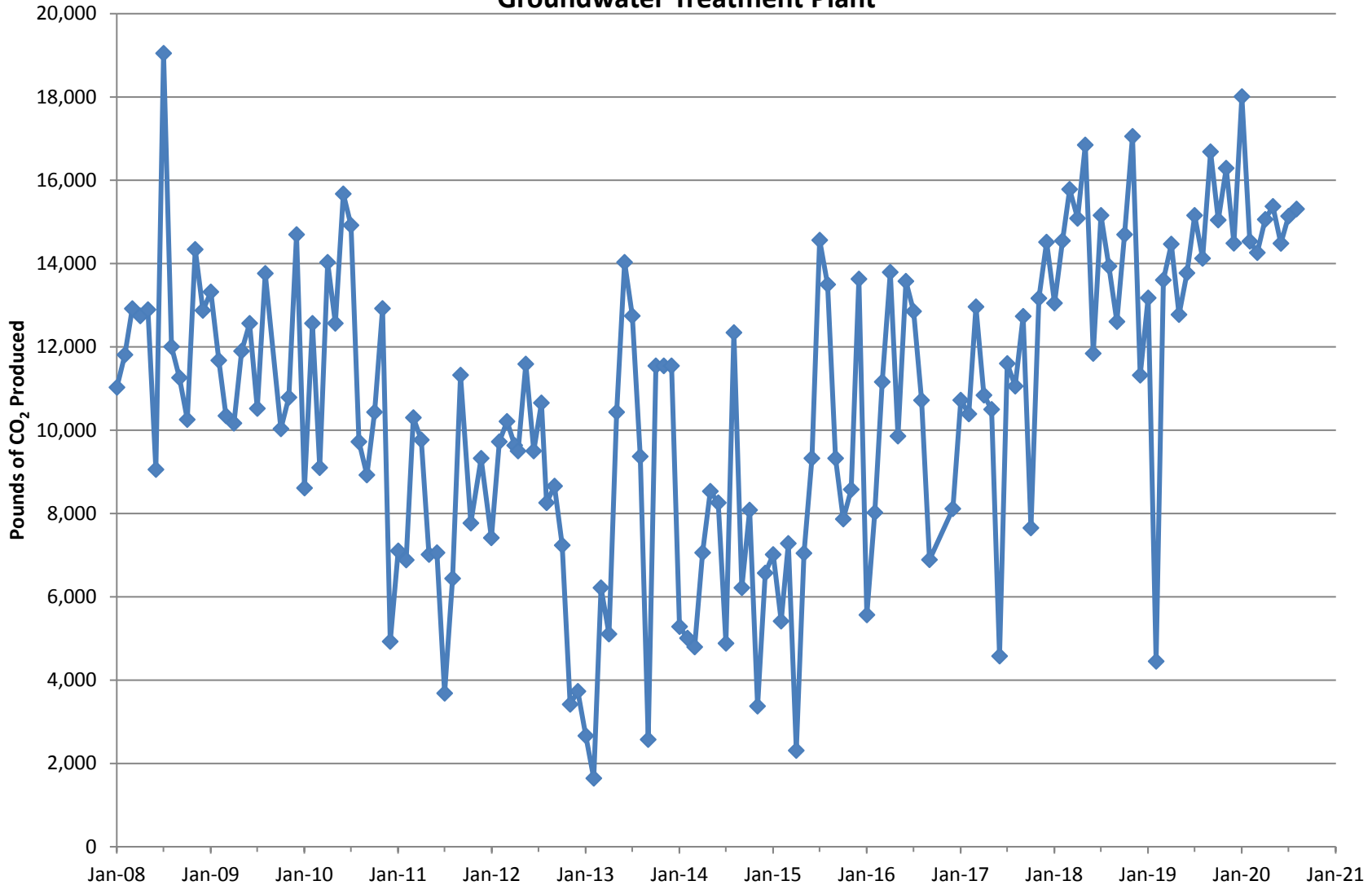


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 253 **Reporting Period: 3 August 2020 – 2 September 2020** **Date Submitted: 10 September 2020**

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 August 2020 reporting period.

Table 1 – Operations Summary – August 2020

Initial Data Collection:	8/3/2020 10:45		**Final Data Collection:**	9/2/20 15:00	
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	724 hours	**CGWTP:**	100%	**CGWTP:**	1,120 kWh (1,717 lbs CO_2 generated[a])

Gallons Treated (discharge to storm sewer): **939,070 gallons**

Gallons Treated Since January 1996: **585.5 million gallons**

VOC Mass Removed from groundwater: **1.65 lbs**[b]

VOC Mass Removed Since January 1996: **2,867 lbs from groundwater**; **8,686 lbs from vapor**

Rolling 12-Month Cost per Pound of Mass Removed: $2,662[c]

Monthly Cost per Pound of Mass Removed: $3,155[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 August 2020 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] – August 2020

Location	Average Flow Rate Groundwater (gpm)
EW001x16	11.0
EW002x16	6.9
EW003x16[b]	0.1
EW605x16[c]	4.5
EW610x16[c]	1.7
CGWTP	21.6

[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.
[c] Extraction wells EW605x16 and EW610x16 were intermittently off line for short periods during August 2020 due to construction activities in the OSA.
gpm = gallons per minute

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart		Cause
	Date	Time	Date	Time	
CGWTP	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 August 2020. Sample results are presented in Table 4. The total VOC concentration (211.35 µg/L) in the August 2020 influent sample has increased from the July 2020 sample (159.54 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 160 µg/L. Vinyl chloride was detected in the sample collected after the first carbon vessel. No VOCs were detected after the second carbon vessel or the effluent sample locations.

The effluent sample was also analyzed for TPH-g, TPH-d, and TPH-mo. TPH-d was reported at a concentration of 39 J µg/L, which is less than the effluent limitation of 50 µg/L. 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 show a decreasing trend over the past 12 months along with a decreasing trend for the flow rate through the treatment plant. This pattern of decreasing well yield and VOC concentrations is typical for this time in the dry season.

The Site SS016 subgrade biogeochemical reactor (SBGR), also known as the bioreactor and the Site DP039 bioreactor, continued operating in August 2020.

After a month of operation with the new infiltration trench, the water inside the new trench is close to the ground surface. The trench will be monitored for ground surface moisture to ensure ponding does not occur from overtopping of the trench.

Optimization Activities

No optimization activities occurred at the CGWTP in August 2020.

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 1,717 pounds of GHG during August 2020.

TABLE 4
Summary of Groundwater Analytical Data for August 2020 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 August 2020 (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	0.42 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.13 – 0.26	0	1.0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16 – 0.32	0	0.52 J	ND	ND	ND
Bromodichloromethane	NA	0.17 – 0.34	0	ND	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	0.29 J	ND	ND	ND
1,1-Dichloroethene	0.50	0.23 – 0.46	0	0.69 J	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15 – 0.30	0	44	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	3.1	ND	ND	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	0.58 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	160	ND	ND	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	0.75 J	0.44 J	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	25	0	NM	NM	NM	39 J
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40)	100	32	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

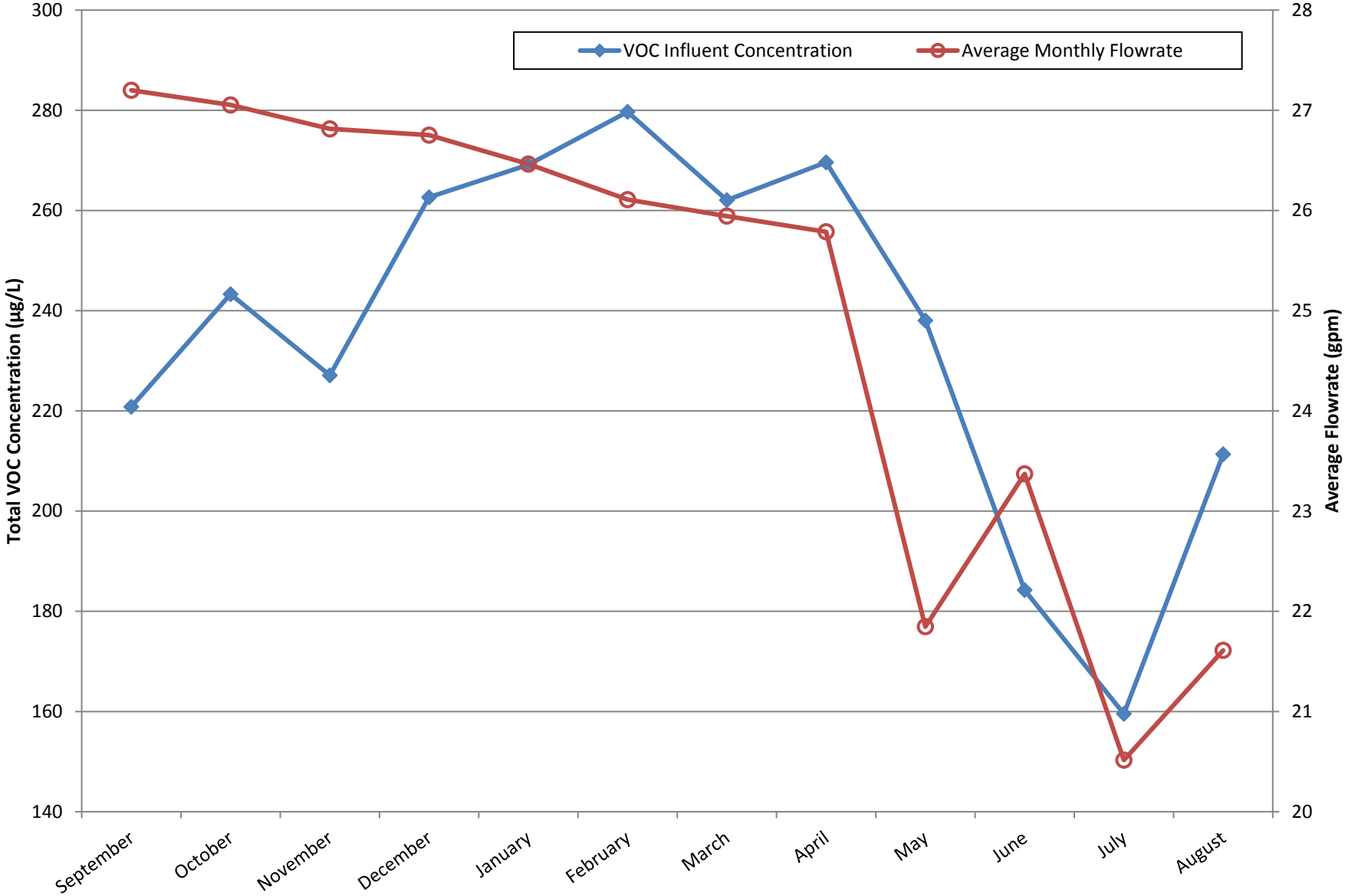
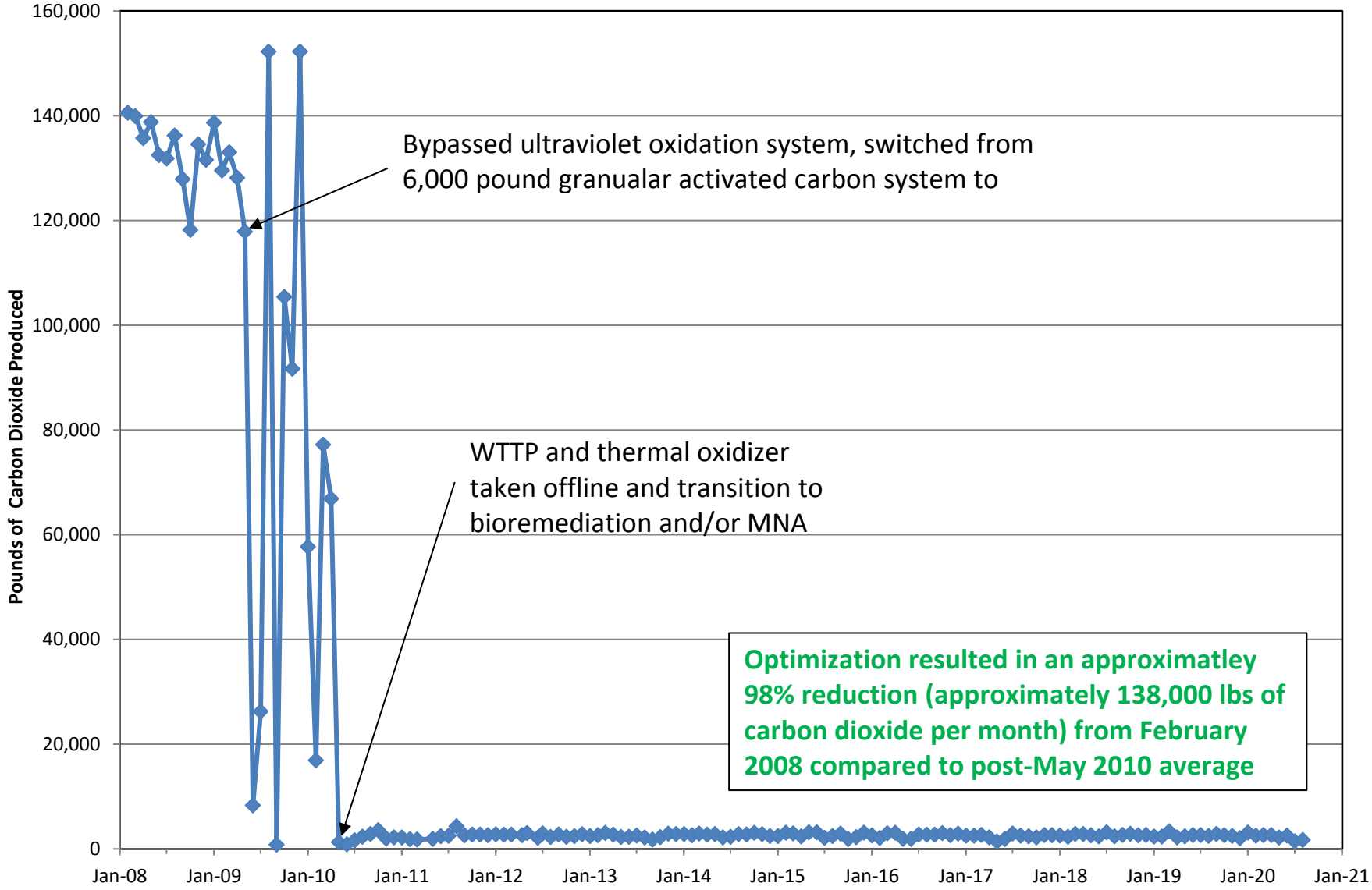


Figure 2

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



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 192 **Reporting Period: 3 August 2020 – 2 September 2020** **Date Submitted: 10 September 2020**

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 August 2020 reporting period:

Table 1 – Operations Summary – August 2020

Initial Data Collection:	8/3/2020 11:15		**Final Data Collection:**	9/2/2020 14:00	
Operating Time:		Percent Uptime:		Electrical Power Usage[a]:	
LF007C GWTP:	723 hours	**LF007C GWTP**	100%	**LF007C GWTP:**	0 kWh
Gallons Treated: **139,400 gallons**				Gallons Treated Since March 2000: **90.8 million gallons**	
Volume Discharged to Duck Pond: **139,400 gallons**					
VOC Mass Removed: **1.10 x 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 August 2020 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 – August 2020

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	2.9	127,353[b]
EW615x07	0.5	22,224
LF007C GWTP	**3.2**	**139,400**

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
[b] The extraction pump takes in air from the subsurface, which alters the flow and totalizer. An air-release valve was installed on 12 November 2019 to help minimize the effects on the system.
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 August 2020. Sample results are presented in Table 4. The total VOC concentration in the August 2020 influent sample was 0.95 J- µg/L. TCE was the only VOC detected at the influent sample location. 1,2-DCA was detected in the midpoint and effluent sample locations at trace concentrations. In addition, TPH-g, TPH-d, and TPH-mo were detected in the effluent sample; however, the results were less than the effluent limitations.

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 decreased. The average flow rate through the LF007C GWTP has slightly decreased over the last 12 months.

Optimization Activities

No optimization activities occurred at the LF007C GWTP in August 2020.

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 August 2020 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 August 2020 (µg/L)		
				Influent	After Carbon 1	Effluent[b]
Halogenated Volatile Organics						
Acetone	NA	2.1	0	ND	ND	ND
Bromodichloromethane	5.0	0.29	0	ND	ND	ND
Bromoform	5.0	0.10	0	ND	ND	ND
2-Butanone	5.0	0.35	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND
Chloroform	1.9	0.12	0	ND	ND	ND
Chloromethane	NA	0.30	0	ND	ND	ND
Dibromochloromethane	5.0	0.13	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.11	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.13	0	ND	ND	ND
1,1-Dichloroethane	0.50	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.50	0.22	0	ND	0.19 J	0.19 J
1,1-Dichloroethene	0.50	0.14	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.10	0	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.11	0	ND	ND	ND
Methylene Chloride	5.0	0.35	0	ND	ND	ND
Tetrachloroethene	0.50	0.15	0	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.19	0	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.31	0	ND	ND	ND
Trichloroethene	0.65	0.13	0	0.95 J-	ND	ND
Vinyl Chloride	0.90	0.22	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	15 J
Total Petroleum Hydrocarbons – Diesel	50	5.5	0	NM	NM	47 J
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	NM	NM	44 J

[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.
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 low.
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

LF007CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

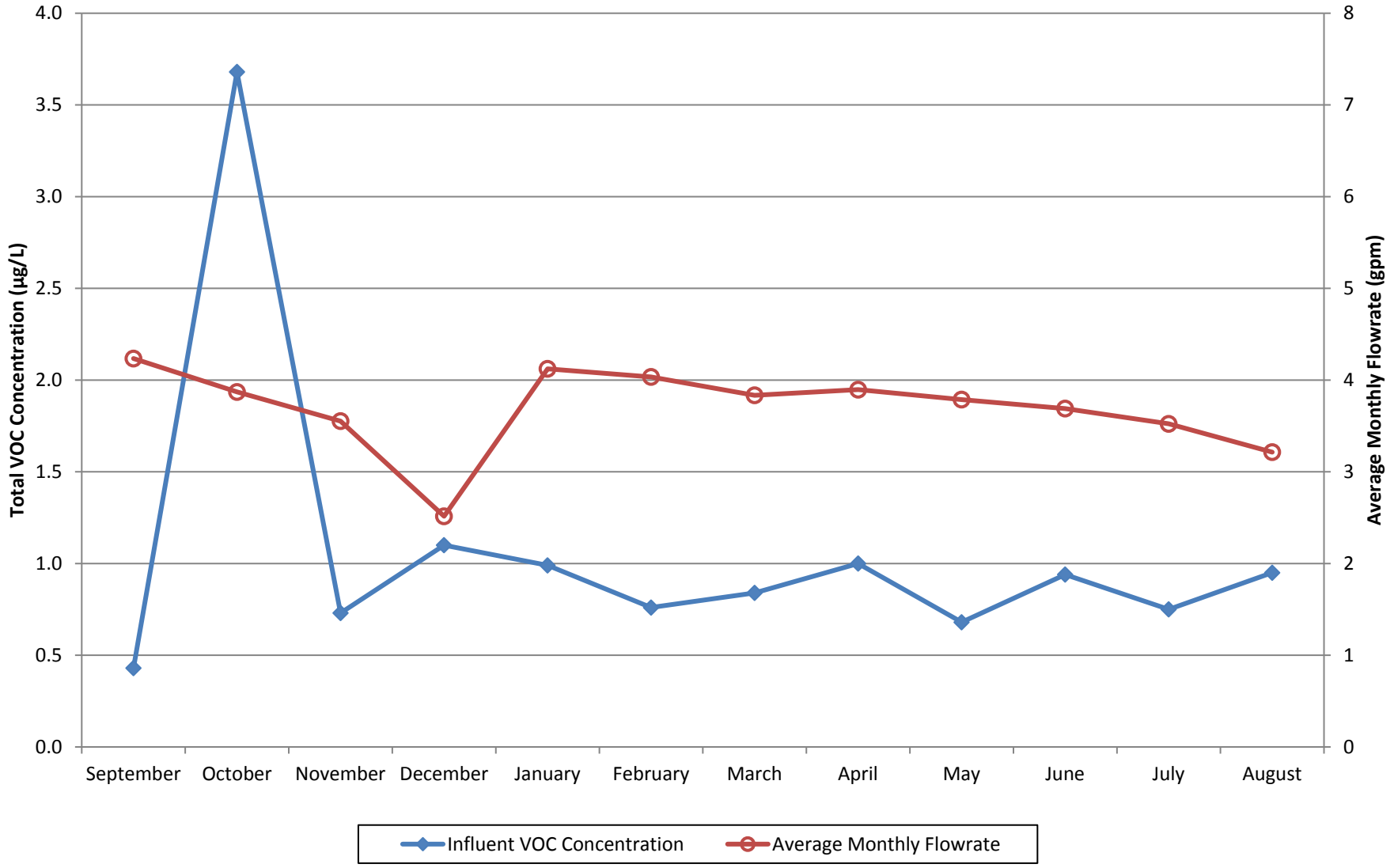
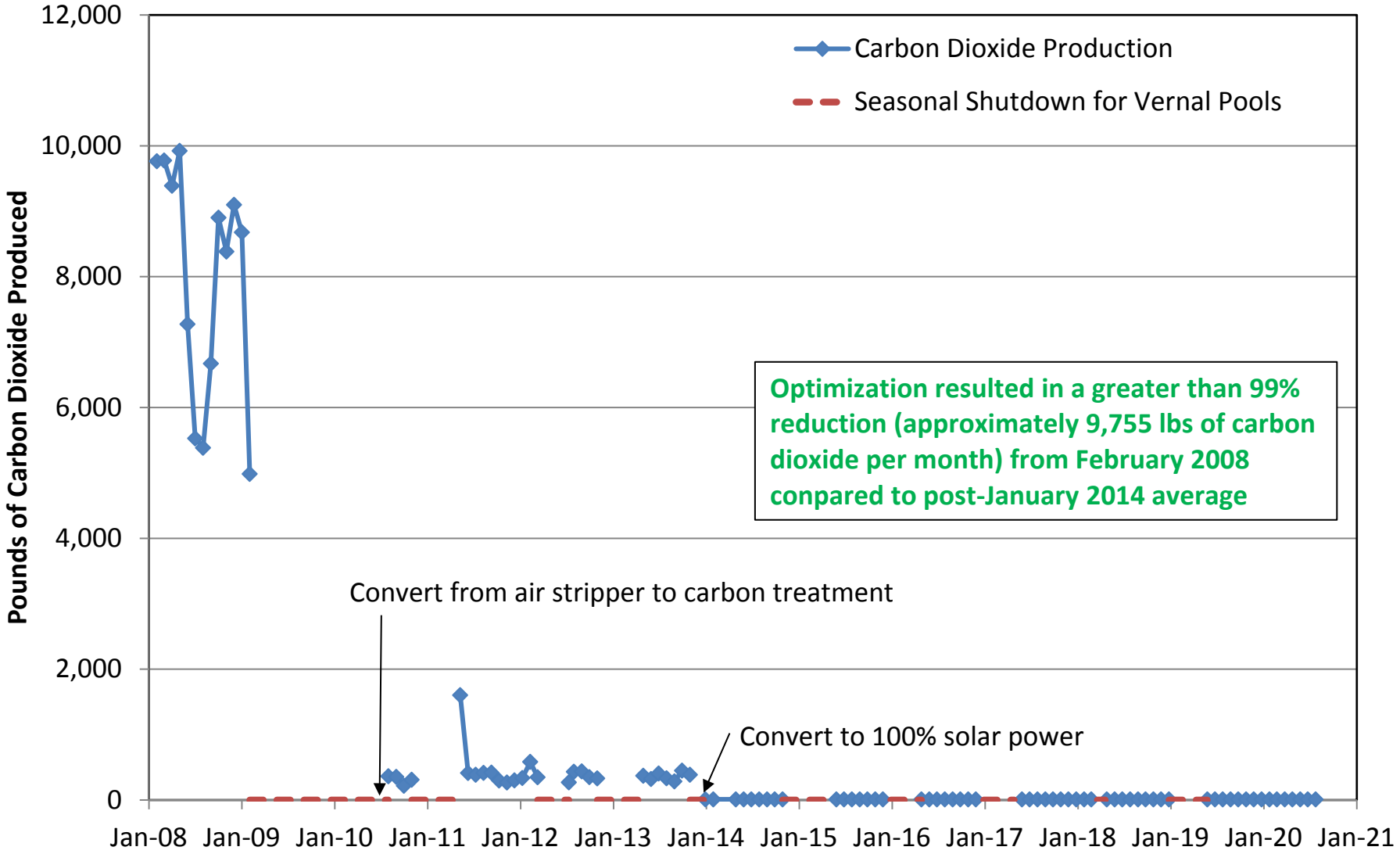


Figure 2

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: 114 **Reporting Period: 3 August 2020 – 2 September 2020** **Date Submitted: 10 September 2020**

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

System Metrics

Table 1 presents operation data from the August 2020 reporting period.

Table 1 – Operations Summary – August 2020

Initial Data Collection:	8/3/2020 11:35	**Final Data Collection:**	9/2/2020 14:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 580.5 hours		**ST018GWTP: 80.4**%	**ST018GWTP:** 44 kWh (33 lbs CO_2 generated[a])
Gallons Extracted: **72,730 gallons**		Gallons Extracted Since March 2011: **19.5 million gallons**	
Volume Discharged to Sanitary Sewer: **72,730 gallons**		Final Totalizer Reading: **19,489,559 gallons**	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **13.0 million gallons**			
MTBE, BTEX, VOC, TPH Mass Removed: **0.05 lbs**[b]		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **49.4 lbs**	
MTBE (Only) Removed: **0.01 lbs**[b]		MTBE (Only) Mass Removed Since March 2011: **12.1 lbs**	
Rolling 12-Month Cost per Total Pounds of Mass Removed: $64,770[bc]			
Monthly Cost per Pound of Mass Removed: $104,761[bc]			

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.
[b] Calculated using August 2020 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 – August 2020

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.1	580
EW2016x18	1.0	580
EW2019x18	0.0	Offline[b]
EW2333x18	2.1	580
ST018GWTP	2.1	580

[a] Flow rates calculated by dividing total gallons processed by amount of operating time of the pump/system.
[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	
ST018	27 August 2020	13:20	2 September 2020	11:20	System was inadvertently left off line after repairing a leak.

-- = 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 August 2020. 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 August 2020 laboratory data report is available upon request. The MTBE discharge concentration during the August 2020 sampling event was 19 µg/L, which is an increase from the July 2020 sample result of 18 µg/L. A number of other fuel-related constituents 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.

On 27 August 2020, the ST018GWTP was temporarily shut down to repair a minor leak. After the repair was completed, the system was inadvertently left off line. The system was restarted on 2 September 2020.

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, which is partially attributed to the shutdown of EW2019x18 in November 2019. 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 August 2020.

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 33 pounds of GHG during August 2020 and removed 72,730 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 August 2020 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 August 2020 (µg/L)
				System Discharge[b]
Fuel Related Constituents				
Methyl tert-Butyl Ether	6,400	0.25	0	19
Benzene	25,000[c]	0.16	0	0.23 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	32
Total Petroleum Hydrocarbons – Diesel	50,000[d]	15	0	29 J
Total Petroleum Hydrocarbons – Motor Oil	100,000	160	0	ND
Other				
Acetone	NA	1.9	0	ND
1,2-Dichloroethane	20	0.13	0	0.76 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.
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 VOC and MTBE Concentrations and Average Flowrate Twelve Month History

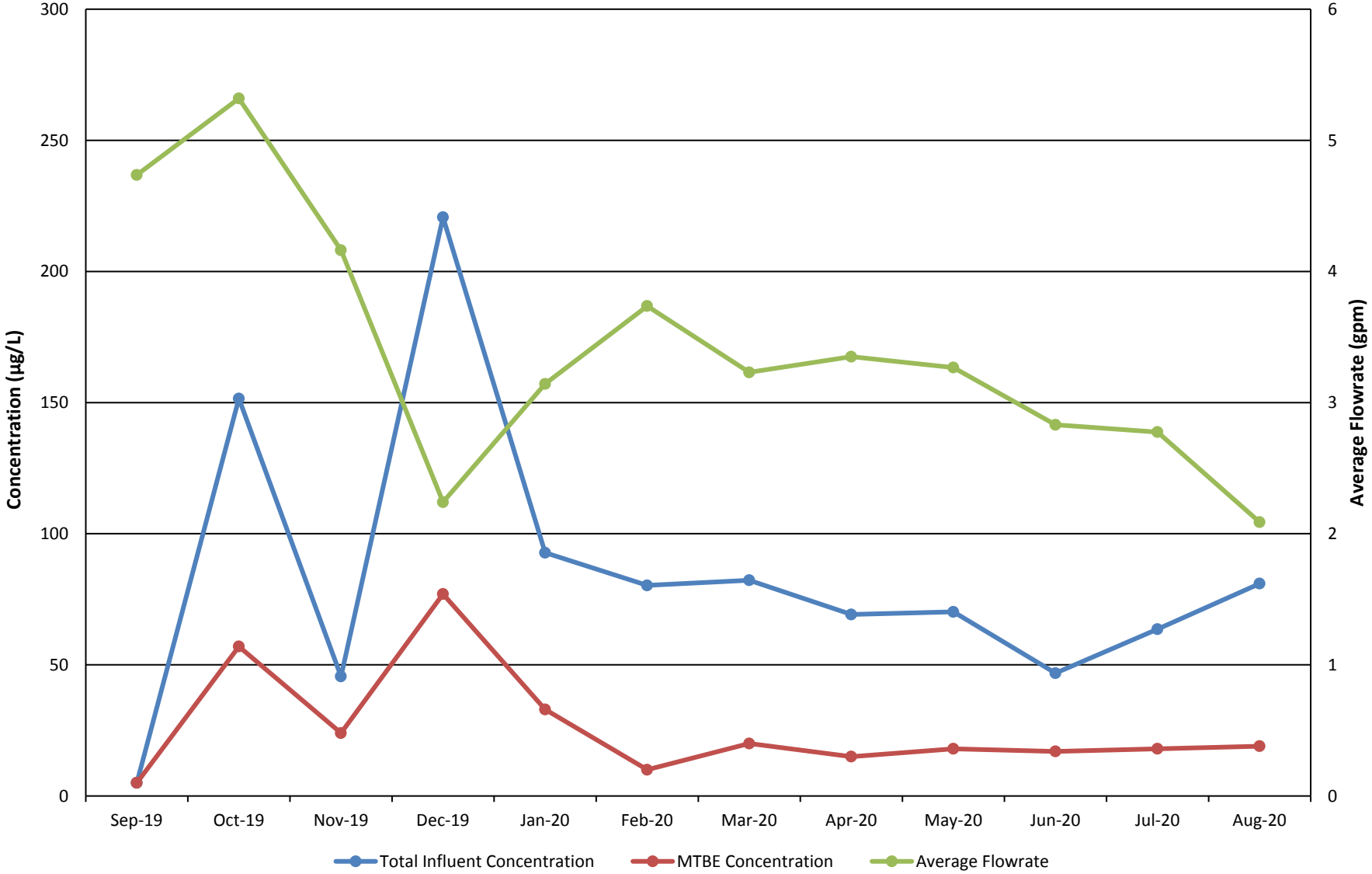
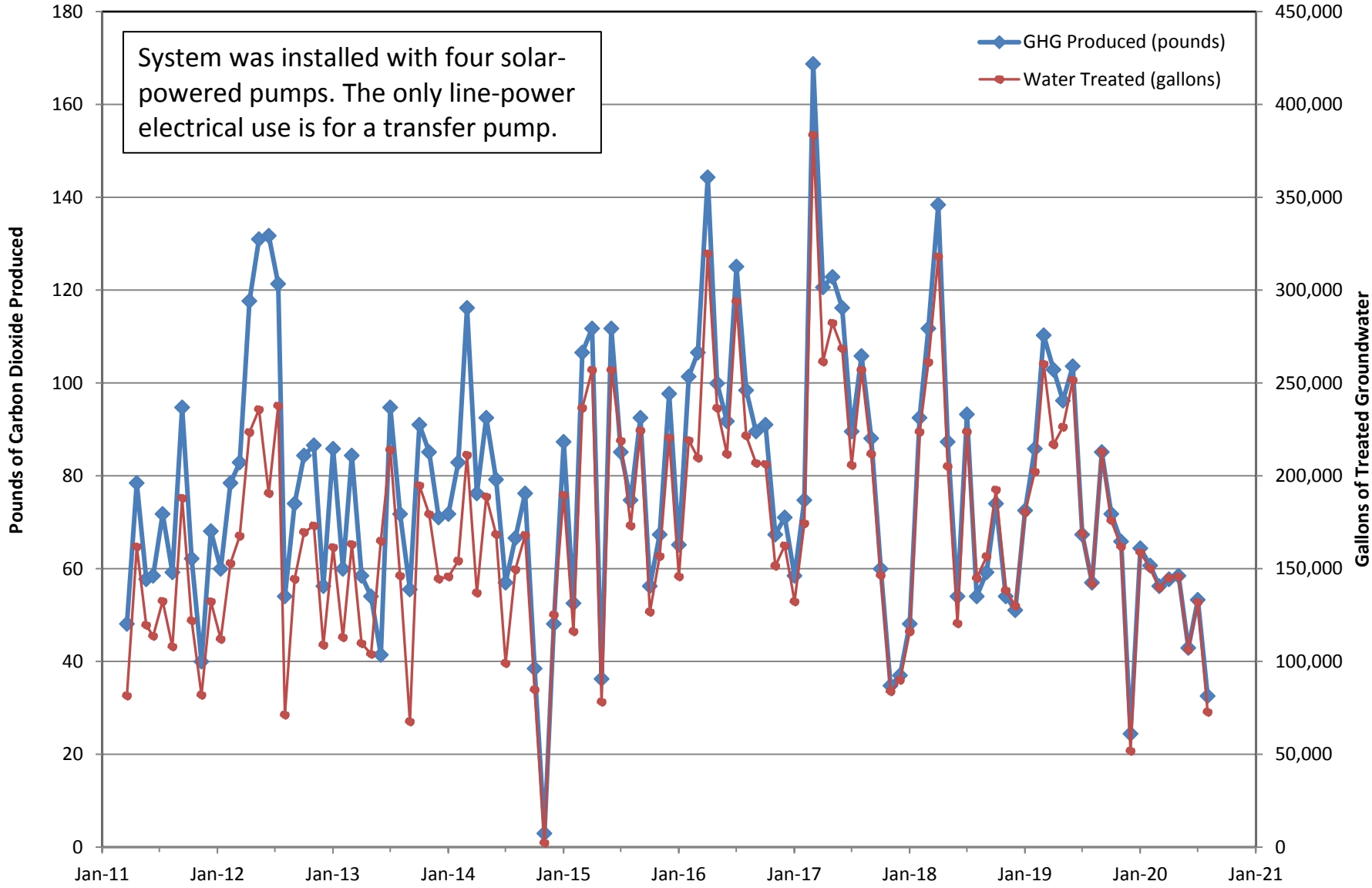


Figure 2

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



Travis AFB
RPM Meeting
16 September 2020

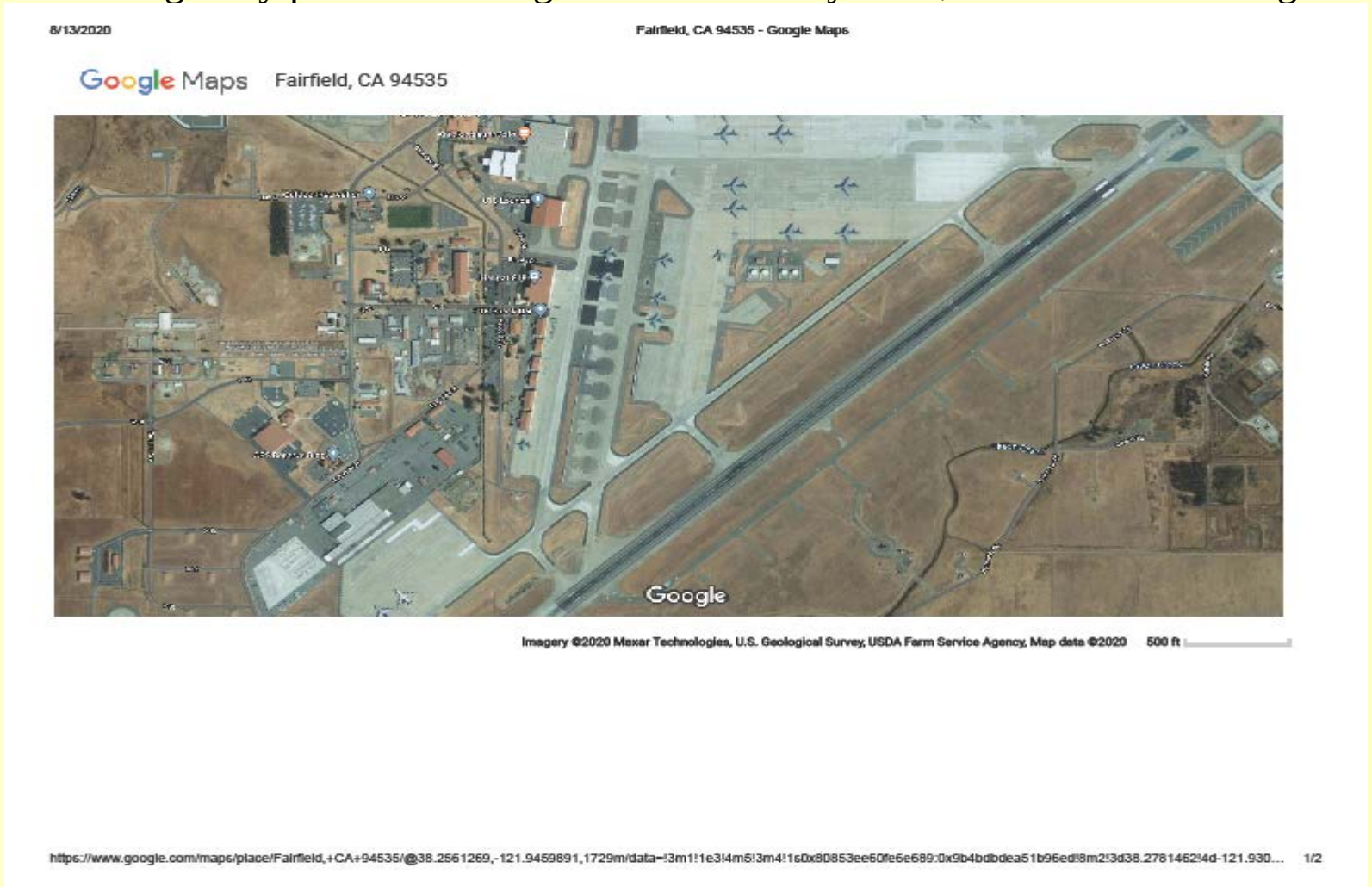
Work occurring or scheduled to occur on locations with Land Use Controls

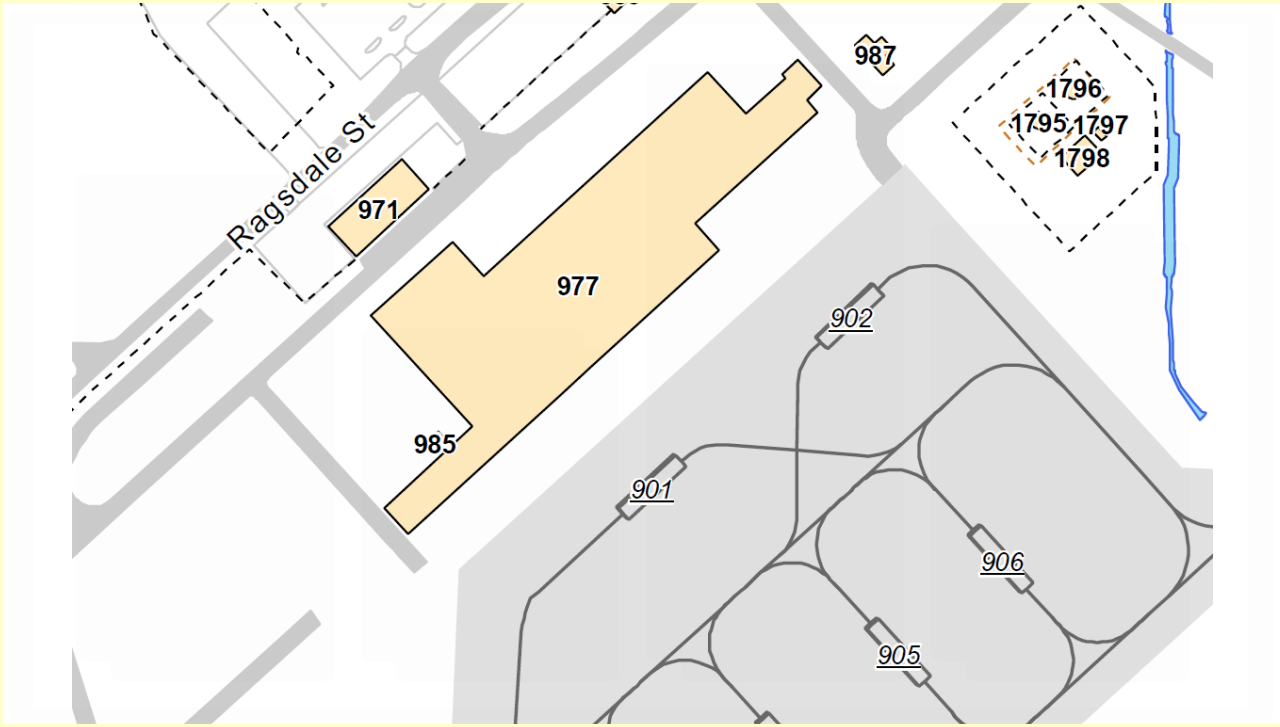
Site SS016 KC-46 Hangar

- EW605X16 and EW610X16 are permanently hardwired to the grid. The changeover went very well and was accomplished in one day.
- The temporary piping switchover occurred simultaneously with the power connection. A section of the temp piping is a larger diameter than the original piping and yield has increased slightly.
- EW03X16 replacement well contractor has visited the site and a restricted area free zone to allow work to begin has been established.

Site SD037, Cargo Facility at Bldg. 977

Originally presented to regulators in January 2019, EPA was on furlough




Ragsdale St
971
977
985
987
1796
1795
1797
1798
902
901
906
905


69°
Ragsdale St
Ragsdale St
Ragsdale St

Cargo Handling Equipment Replacement

- Purpose: Replace existing infrastructure for moving pallets with new system.
- Existing system used hydraulic equipment. Hydraulic fluid leaks beneath two rams resulted in subsurface soil contamination.
- New system uses state-of-the-art electronic servomotors that would eliminate the potential for future petroleum releases.
- All hydraulic rams and associated hydraulic lines must first be removed from the building. Then, the new infrastructure (motors, electrical transformers, etc.) can be installed.

Original Thought: LUC Reduction

- Since all hydraulic rams are to be removed, this is a great opportunity to gain access to the TPH contaminated soil.
- This soil could easily be excavated and sent to an appropriate landfill.
- End result: a reduction in the footprint of the controlled property associated with Building 977.
- Problem: As pointed out during the last RPM teleconference, soil excavation with the intent of removing LUCs would be considered a remedial action and would require a ROD Amendment and all supporting documentation. This effort would exceed the project's timeframe and budget.

Revised Thought: LUC Maintenance

- Proceed with the proposed construction project as described.
- Building 977 LUCs would be maintained throughout the project.
- Soil excavation would only be carried out to fit the new system into the Building 977 footprint.
- Hydraulic fluid spills would be cleaned up. Fluid-contaminated soil would be placed in containers, analyzed and shipped to an appropriate landfill.
- Standard procedures for preventing releases would be put into place.

Questions?

PFOS / PFOA Updates

Expanded Site Inspection / Off-base drinking water wells

- The Emergency Removal Action Memorandum regarding providing bottled water to off-installation residents (drinking water wells above LHA) is undergoing review with the PFOS/PFOA Team and when complete will route to the Wing Commander for coordination. Post coordination by the Wing Commander, the ERAM must be routed to AFCEC Director for signature before submittal to regulatory agencies.
- Travis received validated data from confirmation sampling of off-installation wells on 14 Sep 2020. Letters to residents are complete and pending signature by Wing Commander.
- Based on the three properties with PFOS/PFOA above the LHA, the TISS began efforts to sample private drinking water wells within 4 miles of the base. Six wells were identified and approved for sampling. Letters to residents requesting access to wells will be sent first class and certified with tracking. A two-week response window is planned for residents to contact TISS and confirm/deny permission to sample the wells; anticipate calls from residents in mid-October. Well sampling could occur as soon as late October (early November). Validated data takes 4-6 weeks, results provided to property owners by late December/early January.

PFOS / PFOA Updates

Relative Risk Site Evaluation

Fourteen locations where AFFF was used or expelled were analyzed under the RRSE.
All sites were categorized as “high” due to proximity to drinking water sources.
All the sites will further be characterized during the Remedial Investigation.

Remedial Investigation

Kick off meeting with AFCEC, USACE, and contractor occurred on 20 Aug.
Initial reconnaissance of AFFF sites occurred on 10 Sep.
Pre-draft RI work plan expected 7 Oct 2020.

Travis AFB
Restoration Program

Program Update

RPM Meeting September 16, 2020

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

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***

Documents In-Progress

CERCLA

- Community Relations Plan Update (revised draft)
- SD031 Soil RI/FS
- 2019 GRISR
- SS016 Soil RACR
- ***2019 CAMU Monitoring Report***

POCO

None

Field Work In-Progress

CERCLA

None

POCO

- SD031B Phase 3 MW Installation & GW Sampling

Documents Planned

CERCLA

- ***Site LF008 Remedial Infrastructure Decommissioning TM*** Nov

POCO

None

Field Work Planned

CERCLA

- PFAS Pilot Test — Sep
- 4Q GRIP — Oct
- CAMU Topographic Survey — Nov

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