

**Travis Air Force Base  
Environmental Restoration Program  
Restoration Program Manager's  
Meeting Minutes  
19 August 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 19 August 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
Lou Briscese	Travis AFB/PA
Kurt Grunawalt	Travis AFB/Legal
Dave Leeson	AFCEC/CZRW
Sarah Miller	USACE-Omaha
Brian Boccellato	USACE-Omaha
Nadia Hollan Burke	EPA
Adriana Constantinescu	RWQCB
David Elias	RWQCB
Kimiye Touchi	DTSC
Randall Bleichner	DTSC/GSU
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 (July 2020)
Attachment 4	CGWTP Monthly Data Sheet (July 2020)
Attachment 5	LF007C Monthly Data Sheet (July 2020)
Attachment 6	ST018 Monthly Data Sheet (July 2020)
Attachment 7	Land Use Control Sites Update (August 2020)
Attachment 8	PFOS PFOA Update (August 2020)
Attachment 9	Presentation: Program Update

## **1. ADMINISTRATIVE**

### **A. Previous Meeting Minutes**

EPA, DTSC, and the Water Board all approved the July 2020 Draft RPM Meeting Minutes with no changes or comments.

### **B. Action Item Review**

Action items from July 2020 were reviewed.

Action Item 1 is ongoing: Ms. O’Sullivan to provide updates on perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). August 2020 update: Mr. Duke noted that this will now be covered as part of the main agenda under Current Projects. This action item is now closed.

Action Item 2 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. August 2020 update: The aquifer at Site SS015 is too tight to accept water via gravity feed; the team is proposing to move the system to Site DP039. Additional information will be provided in the Program Update. This action item remains open.

Action Item 3 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. August 2020 update: The lab had an issue with reporting the matrix spike/matrix spike duplicate samples collected and it was taking longer than anticipated to receive the report. Ms. Royer noted that a complete data package will be ready next week but suggested a meeting to discuss the contents concurrent with delivery of the data. This action item remains open.

Action Item 4: Mr. Duke will create a “Land Use Control Sites” subheading under “Current Projects” on the future RPM meeting agendas and move the KC-46 Hangar updates and discussions there. August 2020 update: This addition has been made; this action item is now closed.

Action Item 5: The Air Force will update the August RPM Meeting date to 19 August 2020 on the next MMDS. August 2020 update: This update has been made; this action item is now closed.

Action Item 6: The Air Force will extend the agency review period and comment due date for the 2019 GRISR to 7 August 2020 on the next MMDS. August 2020 update: This change has been made; this action item is now closed.

Action Item 7: 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. August 2020 update: The document is almost ready for DTSC ESPO review and will be submitted shortly. 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 Microsoft 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 0930 on Wednesday, 16 September 2020 via MSTeams.

The October RPM MStTeams teleconference is currently scheduled for 1400 on 22 October, ahead of the RAB meeting. The team agreed to meet at 1300 (an hour early) in order to allow more setup time ahead of the Restoration Advisory Board Meeting which will be held virtually due to COVID-19.

### **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): There was no change to the schedule. The Response to Comments Meeting date has been changed to 19 August 2020, the remainder of the schedule was changed accordingly and per contractual deadline requirements. Follow-on agency comments to Air Force responses to comments have been received; they are mostly legal in nature and are being reviewed by AFLOA in San Antonio. A follow-up call with AFLOA and agency legal teams may be necessary to resolve any remaining legal issues efficiently.
- Site FT004 POCO Corrective Action Plan: The document was finalized on 31 July 2020. The field work will be completed as soon as possible given current high temperatures and fire conditions.
- Quarterly Newsletter (October 2020): There was no change to the schedule. This issue will announce the October 2020 Virtual RAB meeting; Mr. Anderson and Ms. Dunphy continue to explore options to host the RAB meeting virtually.
- Site SD043 Well Decommissioning and Site Closeout Technical Memorandum: The Response to Comment and Final due dates were changed to 24 July 2020 to reflect the actual submittal date.
- 2019 Annual Groundwater Remediation Implementation Status Report (GRISR): The Agency Comments due date was changed to 7 August 2020; the rest of the schedule was updated accordingly.
- 2019 Annual Corrective Action Management Unit (CAMU) Monitoring Report: The Predraft to Air Force/Service Center due date was assigned 22 July 2020 to reflect actual submittal; the rest of the dates were assigned accordingly. The DTSC Special Projects Office will be reviewing the document.

- Site SS016 Soil Remedial Action Completion Report: The Draft to Agencies/RAB due date was changed to 14 August 2020, the rest of the dates were changed accordingly.
- Potrero Hills Annex (FS, PP, and ROD): There was a name change to the company that owns the business in the area; it is now Collins Aerospace. UTC remains the parent company.
- MOVED TO HISTORY:
  - Initial Passive Vent Systems Evaluation Work Plan Technical Memorandum
  - Optimization Activities Technical Memorandum for Sites SD034 and SD037

## **2. CURRENT PROJECTS**

### **A. Treatment Plant Operation and Maintenance Update**

#### **South Base Boundary Groundwater Treatment Plant, July 2020 (see Attachment 3)**

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 6.472 million gallons of groundwater were extracted and treated in July 2020. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 135.6 gallons per minute (gpm). Electrical power usage was 18,295 kilowatt hours (kWh), and approximately 15,138 pounds of CO<sub>2</sub> were created (based on DOE calculation). Approximately 0.87 of a pound of volatile organic compounds (VOCs) was removed in July. The total mass of VOCs removed since startup of the system is 528.6 pounds.

In July 2020, troubleshooting activities were performed on several extraction wells. Details can be found in Attachment 3.

No optimization activities were conducted in July 2020.

#### **Central Groundwater Treatment Plant, July 2020 (see Attachment 4)**

The Central Groundwater Treatment Plant (CGWTP) performed at 61.6% uptime with approximately 601,410 gallons of groundwater extracted and treated in July 2020. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 20.5 gpm. Electrical power usage was 750 kWh for all equipment connected to the Central Plant, and approximately 1,450 pounds of CO<sub>2</sub> were generated. Approximately 0.8 of a pound of VOCs was

removed from groundwater by the treatment plant in July. The total mass of VOCs removed since the startup of the system is 11,551 pounds.

In June, the TPH-d concentration in the effluent sample exceeded the limitation of 50 ug/L. A confirmation sample was collected in early July, which also exceeded the effluent limitation. The CGWTP was shut down as a result, but temporarily restarted for collection of additional effluent confirmation sampling and an influent sampling. VOC and TPH-d concentrations decreased after each carbon vessel. And detected concentrations in the effluent were less than effluent limitaitons. The CGWTP was restarted and Travis AFB will continue to monitor influent, midpoint, and effluent concentrations for breakthrough.

Optimization activities in July 2020: The DP039 infiltration trench was expanded by approximately 100 feet to the south to accommodate additional water in July 2020. This required the Site DP039 subgrade biogeochemical reactor to be shut down between 25 June and 15 July.

#### **LF007C Groundwater Treatment Plant, July 2020 (Attachment 5)**

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 100% uptime with approximately 167,311 gallons of groundwater extracted and treated in July 2020. All treated water was discharged to the Duck Pond for beneficial reuse. The average flow rate was 3.5 gpm. Approximately  $1.05 \times 10^{-3}$  of a pound of VOCs was removed from groundwater by the treatment plant in July 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.

Zinc was detected in the June effluent sample above the daily maximum effluent limitation. A confirmation sample was also collected and exceeded the limitation. Additional samples were collected at the Duck Pond upstream and downstream of the GWTP outfall; both results were non-detect. The Water Board was notified via email. The zinc concentrations detected are within historical background concentrations, and zinc is not a groundwater COC at the site.

No optimization activities are reported for the month of July 2020.

#### **ST018 Groundwater (MTBE) Treatment Plant, July 2020 (see Attachment 6)**

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 132,040 gallons of groundwater extracted in July 2020. All groundwater was discharged to the Fairfield – Suisun Sewer District. The average flow rate for the ST018 GWTP was 2.8 gpm. Electrical power usage for the month was 72 kWh for all equipment connected to the ST018 GWTP. The total CO<sub>2</sub> discharge equivalent equates

to approximately 53 pounds. Approximately 0.07 of a pound of MTBE, BTEX, VOCs, and TPH was removed in July by the treatment plant, and approximately 0.02 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.

No optimization activities are reported for the month of July 2020.

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

### **Site SS016 KC-46 Hangar**

Two extraction wells were recently taken offline for installation of the temporary construction fencing are now operating and powered by a portable generator. A permanent power connection is under design. Temporary groundwater piping is also planned, which will allow for minimal disruption to the system while underground work is conducted and the existing groundwater piping cannot be used.

### **Site SD037 Cargo Facility**

- This site is not an ERP site; however, it was discussed during the January 2019 RPM meeting, when EPA was furloughed as part of the federal government shutdown.
- This is the largest cargo facility in the Air Force; it is scheduled for demolition and replacement; the area is mostly open, there is no office space, it is used primarily for moving cargo pallets.
- A hydraulic ram that had prevented access to the soil has been removed and will allow for sample collection prior to building demolition and replacement.
- Goal of the discussion is to gain regulatory approval for plan to collect samples to determine current TPH levels after 25 years of natural attenuation; in preparation for excavation, confirmation sampling, and proper disposal
- The regulatory agency representatives understand the need for the work, but because this is RI type work being conducted on a CERCLA site, regulatory approval will require a review of historical information and a more formal document for review and comment
- Mr. Duke took the action to obtain and provide historical data to the agencies for review.
- Mr. Duke took the action to provide a higher-resolution copy of the figure from the presentation to the regulatory agency representatives.

### **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. Duke will provide information to the RPM team as it is made available to him.
- The Project Manager for the PFOS/PFOA program at Travis AFB is Mr. Chet Storrs.
- The Site Inspection (SI) results indicate that fourteen locations, including two ERP sites (FT005 and SD034) have PFOS/PFOA concentrations above the lifetime health advisory (LHA); The Expanded SI results from three of six off-base private residential wells identified PFOS/PFOA above the LHA. The Air Force ERP team does not know the concentrations detected at the private residential wells.
- Split confirmation samples were collected, and results are forthcoming
- All agencies noted that they have not yet received any data; EPA noted that half the LHA is a more conservative value for determining exceedances; the Water Board noted that the detection limit is also a concern. The Water Board has already provided the Air Force with the California notification levels for PFOS/PFOA.
- Bottled drinking water was provided to those three private residences on 20 July, with water service established on 29 July. EPA noted that because an action has already been undertaken, the results must be provided as soon as possible because there is a direct exposure concern.
- A Relative Risk Site Evaluation (RRSE) was conducted by the Air Force. Fourteen sites were evaluated, and all will be carried forth for additional evaluation of soil and groundwater based on scoring as “high risk” for groundwater
- An RRSE fact sheet is currently being developed, and a public comment period will be held from 1-30 October. The Air Force will solicit regulatory review and public input prior to finalizing.
- A Phase 1 Remedial Investigation will be conducted to determine the nature and extent of contamination, and a Human Health Risk Assessment and Feasibility Study will follow in a subsequent phase. The contract for the Phase 1 RI has been awarded to Sustainment and Restoration Services and will kick off within the week.
- Mr. Duke took the action to elevate the request for the residential well data, and will ask about the timing of the availability of the RRSE fact sheet.



### **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:

##### **SPOC LOCATION CHANGE**

- The Air Force will change the location of the SPOC system: Due to the tight aquifer, the system is not running as hands-off and low maintenance as intended. They have identified a well pair at site DP039 that has been pumped with a low flow pump to ensure the desired delivery rate can be maintained with little to no impact to the water table. Use of the SPOC at Site DP039 is consistent with the ROD remedy (operation and maintenance after emulsified vegetable oil injections), and there will be benefit to the downgradient part of the plume past the treatment system. If the approach is feasible at this location, it will potentially be a tool for future optimization efforts. The regulatory agencies indicated their approval of the new location.

### **4. New Action Item Review**

1. Mr. Duke will obtain and provide historical data from Site SD037 to the regulatory agency representatives.
2. Mr. Duke will provide a clear copy of the figure from the Site SD037 presentation to the regulatory agency representatives.
3. Mr. Duke will elevate the agencies' request for PFOS/PFOA data from the 6 private residential well tests, and will inquire about the timing of the fact sheet.

## 5. PROGRAM ISSUES/UPDATE

1. Mr. David Leeson will be taking over as the Travis AFB AFCEC Project Manager for Ms. Haekyung Kim, who has accepted a new role at another location.
2. Local wildfires are very close to Travis AFB; there have been evacuation orders in Vacaville and surrounding areas.

## 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 test at Site SS015 during future monthly program updates.	Ongoing	Open
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	30 September 2020	Open

		Water Board when it is available.		
3.	Mr. Duke	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.	16 September 2020	Open
4.	Mr. Duke	Mr. Duke will obtain and provide historical data from Site SD037 to the regulatory agency representatives.	30 September 2020	Open
5.	Mr. Duke	Mr. Duke will provide a clear copy of the figure from the Site SD037 presentation to the regulatory agency representatives.	30 September 2020	Open
6.	Mr. Duke	Mr. Duke will elevate the agencies' request for PFOS/PFOA data from the 6 private residential well tests, and will inquire about the timing of the fact sheet.	30 September 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 19 August 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

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**

<b>Monthly RPM Meeting<sup>1</sup></b> <b>(Begins at time noted)</b>	<b>RPM Teleconference</b> <b>(Begins at time noted)</b>	<b>Restoration Advisory Board</b> <b>Meeting</b> <b>(Begins at 7:00 p.m.)</b> <b>(Poster Session at 6:30 p.m.)</b>
—	01-15-20	—
02-19-20	—	—
—	03-18-20	—
04-16-20 (Thursday 1:00 PM)	—	<del>04-16-20</del>
—	05-20-20	—
06-17-20	—	—
—	07-15-20	—
<del>08-26-20</del>	<b>08-19-20</b>	—
—	09-16-20	—
10-22-20 (Thursday 2:00 PM)	—	10-22-20
—	11-18-20	—
—	—	—

<sup>1</sup> 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
<b>Scoping Meeting</b>	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)
<b>Response to Comments Meeting</b>	<b>TBD</b>	<b>08-19-20</b>
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	NA
<b>Public Meeting</b>	<b>NA</b>	<b>NA</b>
Response to Comments Due	TBD	<b>08-31-20</b>
Draft Final Due	TBD	<b>08-31-20</b>
Final Due	TBD	<b>09-30-20</b>

## Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS	
Life Cycle	Site FT004 POCO Corrective Action Plan Travis AFB, Glenn Anderson CH2M, Doug Berwick CAPE, Meg Greenwald
<b>Scoping Meeting</b>	NA
Predraft to AF/Service Center	03-20-20
AF/Service Center Comments Due	04-20-20
Draft to Agencies / RAB	04-29-20
Agency Comments Due	05-29-20 (07-13-20)
<b>Response to Comments Meeting</b>	<b>06-17-20 (07-15-20)</b>
Response to Comments Due	07-01-20 (07-31-20)
Draft Final Due	NA
Final Due	07-01-20 (07-31-20)
Public Comment Period	NA
<b>Public Meeting</b>	NA

## Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Quarterly Newsletter (October 2020) Travis, Glenn Anderson	Site SD043 Well Decommissioning and Site Closeout Technical Memorandum Travis AFB, Glenn Anderson CH2M, Levi Pratt	2019 Annual GRISR Travis AFB, Glenn Anderson CH2M, Levi Pratt
<b>Scoping Meeting</b>	NA	NA	NA
Predraft to AF/Service Center	09-08-20	04-06-20	05-04-20
AF/Service Center Comments Due	NA	05-06-20	06-04-20
Draft to Agencies / RAB	09-15-20	05-27-20	06-25-20
Agency Comments Due	09-29-20	06-26-20	07-27-20 (08-07-20)
<b>Response to Comments Meeting</b>	<b>10-01-20</b>	<b>07-15-20</b>	<b>08-05-20 (08-21-20)</b>
Response to Comments Due	10-06-20	07-29-20 (07-24-20)	08-21-20 (09-04-20)
Draft Final Due	NA	NA	NA
Final Due	10-08-20	07-29-20 (07-24-20)	08-21-20 (09-04-20)
Public Comment Period	NA	NA	NA
<b>Public Meeting</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>



## 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
<b>Scoping Meeting</b>	NA	NA
Predraft to AF/Service Center	07-22-20	06-17-20
AF/Service Center Comments Due	08-21-20	07-20-20
Draft to Agencies / RAB	09-08-20	08-14-20
Agency Comments Due	10-08-20	09-14-20
<b>Response to Comments Meeting</b>	10-22-20	10-22-20
Response to Comments Due	11-05-20	11-05-20
Draft Final Due	NA	NA
Final Due	11-05-20	11-05-20
Public Comment Period	NA	NA
<b>Public Meeting</b>	NA	NA

## Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Potrero Hills Annex Travis, Glenn Anderson		
	FS	Proposed Plan	ROD
<b>Scoping Meeting</b>	<b>180 days after Water Board Order Rescinded</b>	<b>+470 days</b>	<b>+735 days</b>
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
<b>Response to Comments Meeting</b>	<b>+ 405 days</b>	<b>+665 days</b>	<b>+ 1110 days</b>
Agency Concurrence with Remedy	NA	NA	+ 1130 days
Public Comment Period	NA	+735 to 765 days	NA
<b>Public Meeting</b>	<b>NA</b>	<b>+745 days</b>	<b>NA</b>
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](https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL20299915)

## Travis AFB Master Meeting and Document Schedule

HISTORY		
Life Cycle	Initial Passive Vent Systems Sampling Work Plan Tech Memo Travis AFB, Glenn Anderson CH2M, Leslie Royer	Optimization Activities Technical Memorandum for Sites SD034 and SD037 Travis AFB, Glenn Anderson CH2M, Levi Pratt
<b>Scoping Meeting</b>	NA	NA
Predraft to AF/Service Center	12-16-19	01-20-20
AF/Service Center Comments Due	12-31-19	02-20-20
Draft to Agencies / RAB	01-09-20	04-03-20
Agency Comments Due	02-10-20	05-04-20
<b>Response to Comments Meeting</b>	<b>02-19-20</b>	<b>05-20-20</b>
Response to Comments Due	03-04-20 (07-02-20)	06-01-20 (07-08-20)
Draft Final Due	NA	NA
Final Due	03-04-20 (07-02-20)	06-01-20 (07-08-20)
Public Comment Period	NA	NA
<b>Public Meeting</b>	<b>NA</b>	<b>NA</b>

# South Base Boundary Groundwater Treatment Plant

## Monthly Data Sheet

Report Number: 237

Reporting Period: 1 July 2020 – 3 August 2020

Date Submitted: 14 August 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 July 2020 reporting period.

Table 1 – Operations Summary – July 2020				
Initial Data Collection:		7/1/2020 9:45	Final Data Collection:	8/3/2020 13:30
Operating Time:		Percent Uptime:		Electrical Power Usage:
SBBGWTP:	796 hours	SBBGWTP:	100%	SBBGWTP: 18,295 kWh (15,138 lbs CO <sub>2</sub> generated <sup>a</sup> )
Gallons Treated: <b>6.472 million gallons</b>		Gallons Treated Since July 1998: <b>1.209 billion gallons</b>		
Volume Discharged to Union Creek: <b>6.472 million gallons</b>		Gallons Treated from Other Sources: <b>0 gallons</b>		
VOC Mass Removed: <b>0.87 lbs<sup>b</sup></b>		VOC Mass Removed Since July 1998: <b>528.6 lbs</b>		
Rolling 12-Month Cost per Pound of Mass Removed: <b>\$24,376<sup>c</sup></b>				
Monthly Cost per Pound of Mass Removed: <b>\$13,445<sup>c</sup></b>				
lbs = pounds				
<sup>a</sup> 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.				
<sup>b</sup> Calculated using July 2020 EPA Method SW8260C analytical results.				
<sup>c</sup> 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) <sup>a</sup> – July 2020							
FT005 <sup>b</sup>				SS029		SS030	
EW01x05	Offline	EW743x05	Offline	EW01x29	Offline <sup>c</sup>	EW01x30	12.6
EW02x05	Offline	EW744x05	1.1	EW02x29	Offline <sup>c</sup>	EW02x30	7.8
EW03x05	Offline	EW745x05	9.1	EW03x29	2.9	EW03x30	12.4
EW731x05	6.6	EW746x05	Offline	EW04x29	6.4	EW04x30	15.8
EW732x05	Offline	EW2291x05	5.8	EW05x29	5.0	EW05x30	6.3
EW733x05	Offline	EW2782x05	5.0	EW06x29	8.6	EW2174x30	6.9
EW734x05	5.4	EW2783x05	4.4	EW07x29	12.9	EW711x30	3.4
EW735x05	8.0	EW2784x05	Recharge <sup>d</sup>			MW269x30	0.5
EW736x05	Offline	EW2785x05	7.4				
EW737x05	Offline	EW2786x05	12.4				
EW742x05	Offline						
FT005 Total: 65.2				SS029 Total: 35.8		SS030 Total: 65.7	
SBBGWTP Average Monthly Flow <sup>e</sup> : 135.6 gpm							
<sup>a</sup> Flow rates presented are instantaneous measurements taken at the end of the reporting period.							
<sup>b</sup> 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.							
<sup>c</sup> Extraction wells taken off line because of persistent fouling of the well pumps and associated discharge piping.							
<sup>d</sup> Extraction wells were operational; however, well was recharging.							
<sup>e</sup> 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 <sup>a</sup>		Restart <sup>a</sup>		Cause
	Date	Time	Date	Time	
SBBGWTP	None	--	--	--	
<sup>a</sup> 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 1 July 2020. Sample results are presented in Table 4. The total VOC concentration (16.1 µg/L) in the influent sample increased from the June 2020 sample results (12.2 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 15 µg/L. Cis-1,2-DCE was detected in the midpoint sampling location, and no VOCs were detected in the effluent sample. The treatment plant samples were also analyzed for TPH-g, TPH-d, and TPH-mo in the system effluent, and all were non-detect.

Figure 1 presents a plot of influent VOC concentrations and average flow at the SBBGWTP over the past twelve (12) months. An overall decreasing 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.

In July 2020 troubleshooting was performed on three extraction wells. The following list presents the maintenance activities and status of those extraction wells:

- EW735x05 – The totalizer was replaced. Well is currently on line.
- EW2782x05 - The pump was cleaned and serviced, and the totalizer was replaced. Well is currently on line.
- EW06x29 – The transducer wire was replaced. Well is currently on line.

## Optimization Activities

No optimization activities occurred at the SBBGWTP in July 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 July 2020, the SBBGWTP produced approximately 15,138 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 July 2020 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	1 July 2020 (µg/L)		
				Influent	Midpoint	Effluent <sup>b</sup>
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	ND	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	ND	ND	ND
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	0	1.1	0.19 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	15	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	ND
Total Petroleum Hydrocarbons – Diesel	50	26	0	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	NM	NM	ND

<sup>a</sup> In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.

<sup>b</sup> 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

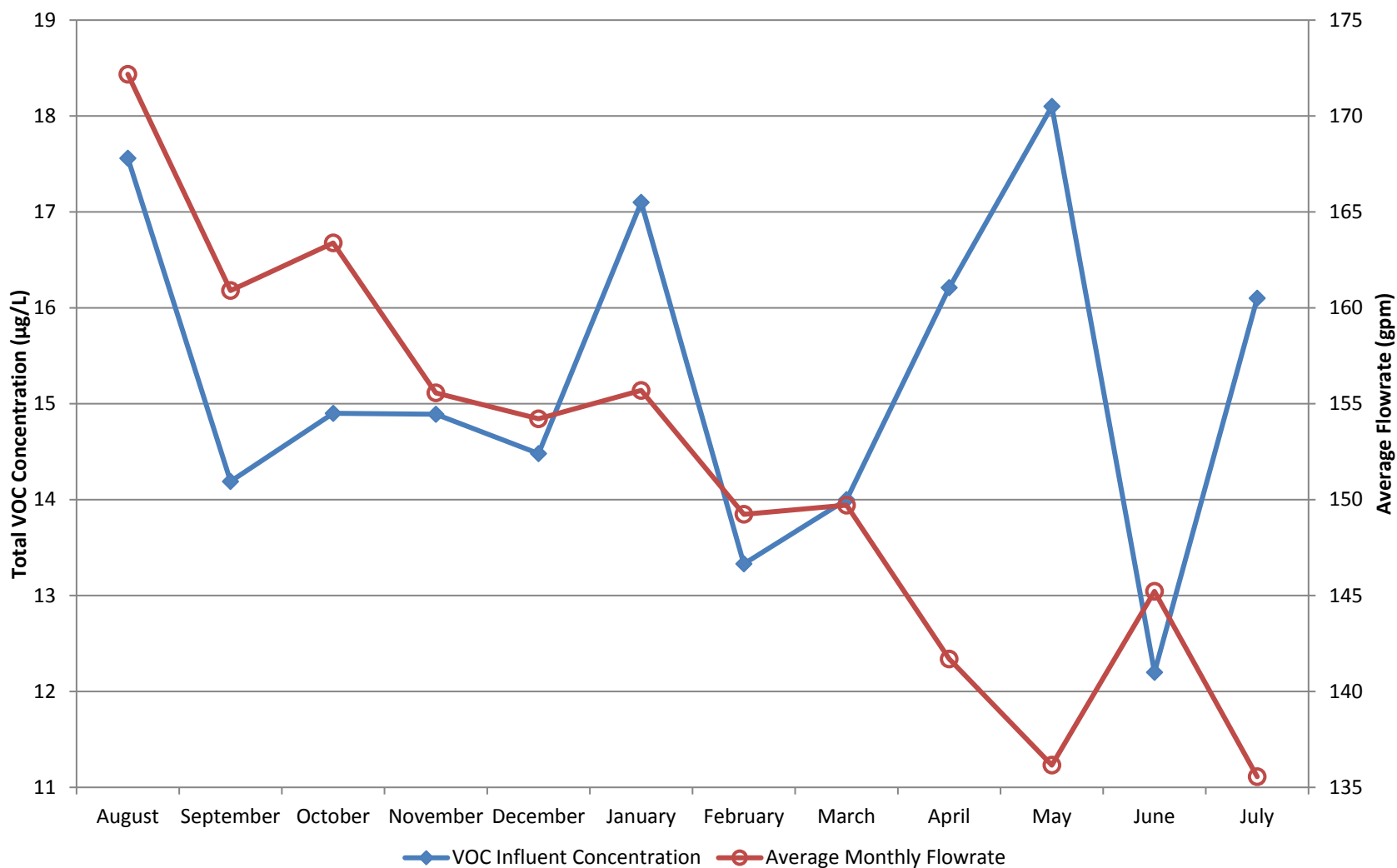
N/C = number of samples out of compliance with discharge limits.

ND = not detected

NM = not measured

µg/L = micrograms per liter

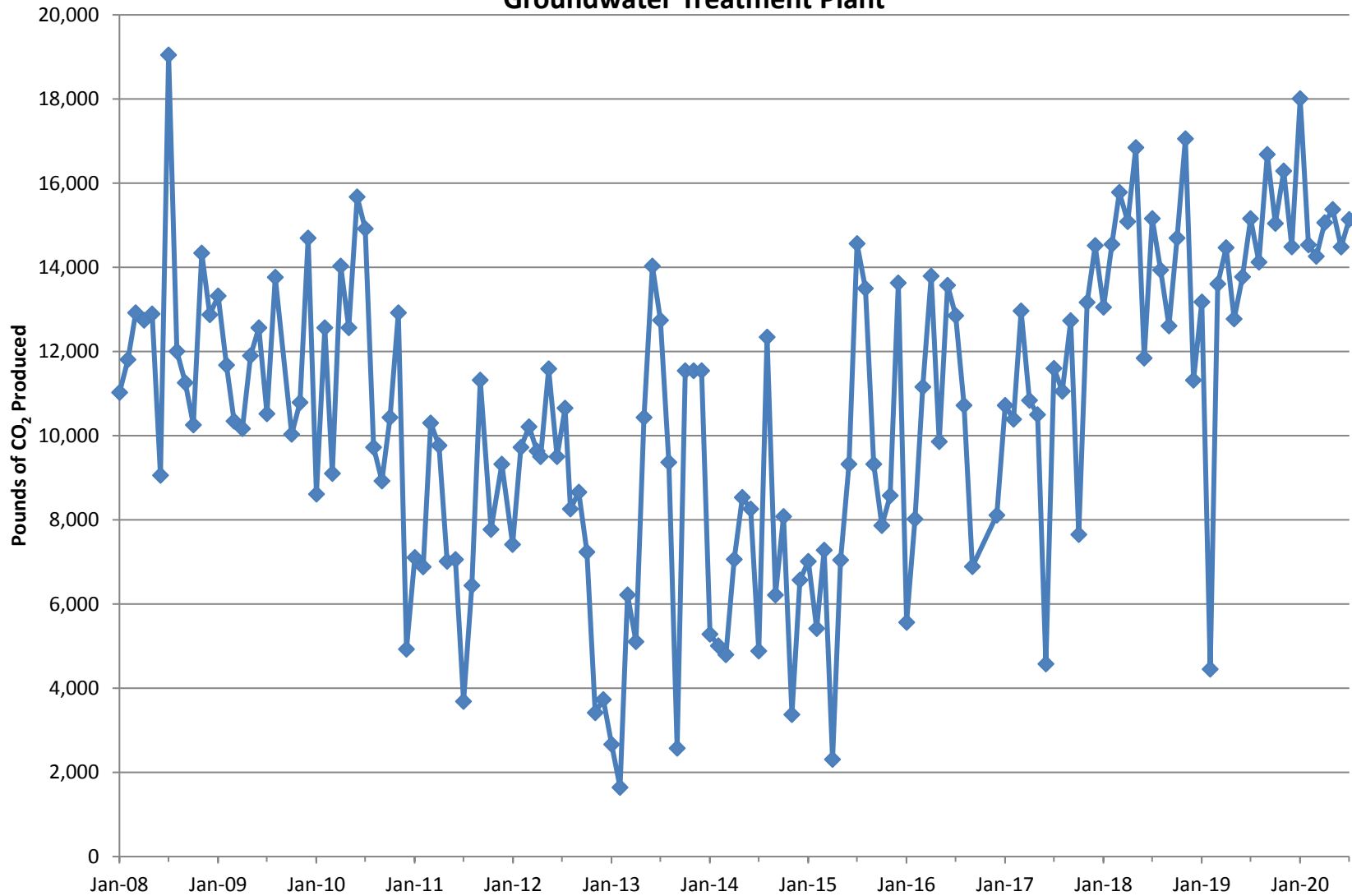
**Figure 1**  
**SBBGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History**





**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: 252

Reporting Period: 1 July 2020 – 3 August 2020

Date Submitted: 14 August 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 July 2020 reporting period.

Table 1 – Operations Summary – July 2020			
Initial Data Collection:		7/1/2020 9:10	
Final Data Collection:		8/3/2020 10:45	
Operating Time:		Percent Uptime:	
CGWTP: 489 hours		CGWTP: 61.6%	
		Electrical Power Usage:	
		CGWTP: 750 kWh (1,450 lbs CO <sub>2</sub> generated <sup>a</sup> )	
Gallons Treated (discharge to storm sewer):		Gallons Treated Since January 1996: <b>584.6 million gallons</b>	
<b>601,410 gallons</b>			
VOC Mass Removed from groundwater:		VOC Mass Removed Since January 1996:	
<b>0.80 lbs<sup>b</sup></b>		<b>2,865 lbs from groundwater</b>	
		<b>8,686 lbs from vapor</b>	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,571 <sup>c</sup>			
Monthly Cost per Pound of Mass Removed: \$3,967 <sup>c</sup>			
<sup>a</sup> 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.			
<sup>b</sup> Calculated using July 2020 EPA Method SW8260C analytical results.			
<sup>c</sup> 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 <sup>a</sup> – July 2020	
Location	Average Flow Rate Groundwater (gpm)
EW001x16	11.5
EW002x16	7.0
EW003x16 <sup>b</sup>	0.0
EW605x16	1.4 <sup>c</sup>
EW610x16	1.1 <sup>c</sup>
CGWTP	20.5
<sup>a</sup> Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.	
<sup>b</sup> Extracted groundwater from EW003x16 is treated in Site SS016 bioreactor.	
<sup>c</sup> EW605x16 and EW610x16 were offline for the majority of July 2020 because of nearby construction and the CGWTP shut down.	
gpm = gallons per minute	

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

<b>Table 3 – Summary of System Shutdowns</b>					
<b>Location</b>	<b>Shutdown<sup>a</sup></b>		<b>Restart</b>		<b>Cause</b>
	<b>Date</b>	<b>Time</b>	<b>Date</b>	<b>Time</b>	
CGWTP	15 July 2020	15:30	20 July 2020	8:45	TPH-d exceedance in effluent sample. Temporary restart to collect confirmation samples.
CGWTP	20 July 2020	13:45	28 July 2020	13:30	Shut down system while awaiting results from confirmation samples.
-- = Date/Time not recorded <sup>a</sup> 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 1 July 2020. Sample results are presented in Table 4. The total VOC concentration (159.54 µg/L) in the July 2020 influent sample has decreased from the June 2020 sample (184.24 µg/L). During the June sampling event, EW605x16 and EW610x16 were off line as discussed below. TCE was the primary VOC detected in the influent sample at a concentration of 110 µg/L. Vinyl chloride was detected in the sample collected after the first carbon vessel. No VOCs were detected in the samples collected after the second carbon vessel nor in the effluent sample. The effluent samples were also analyzed for TPH-g, TPH-d, and TPH-mo and all were non-detect.

In June 2020, the TPH-d concentration in the effluent sample (59 J µg/L) exceeded the effluent limitation of 50 µg/L. On 7 July, a confirmation sample was collected, and TPH-d was reported at a concentration of 84 J µg/L. Therefore, on 15 July 2020, the CGWTP was shut down because of the TPH-d exceedance in the effluent sample. Confirmation sample results are presented in Table 5.

On 20 July, the CGWTP was temporarily restarted to recollect confirmation samples for VOCs and TPH, and then shut down again while awaiting laboratory results. Confirmation sample results are presented in Table 5. The total VOC concentration in the influent sample from 20 July 2020 was 242.09 µg/L with TCE as the primary VOC at a concentration of 190 µg/L. Vinyl chloride and chloromethane were detected in the sample collected after the first carbon vessel. No VOCs were detected in the sample collected after the second carbon vessel. Chloromethane was detected in the effluent sample, but not above a discharge limit. TPH-d was detected in the influent and effluent samples collected on 20 July 2020 at concentrations of 53 J µg/L and 28 J µg/L, respectively. The detected concentration in the effluent confirmation sample collected on 20 July 2020 was less than the effluent limitation. The CGWTP was therefore restarted on 28 July. 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.

EW605x16 and EW610x16 were both off line in the beginning of July 2020 as a precautionary measure during installation of construction fencing around the KC-46 hangar project in the Oil Spill Area (OSA). Both wells were restarted on 13 July 2020.

The Site SS016 subgrade biogeochemical reactor (SBGR), also known as the Site DP039 bioreactor , was shut down on 25 June in preparation for the Site DP039 infiltration trench expansion. The trench was expanded by approximately 100 feet to the south. The majority of the construction work was completed between 6 and 10 July with some hydroseeding that occurred on 16 July. The DP039 bioreactor was restarted on 15 July. After a week of operation, there was approximately 1 foot of water inside the new trench which is well within the operational parameters of the trench.

## Optimization Activities

The DP039 infiltration trench was expanded by approximately 100 feet to the south to accommodate additional water in July 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 1,450 pounds of GHG during July 2020.

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

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	1 July 2020 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent <sup>b</sup>
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	0.33 J	ND	ND	ND
1,3-Dichlorobenzene	NA	0.13 – 0.26	0	0.45 J	ND	ND	ND
1,4-Dichlorobenzene	NA	0.16 – 0.32	0	0.23 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	ND	ND	ND	ND
1,1-Dichloroethene	0.50	0.23 – 0.46	0	0.52 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	3.0	ND	ND	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	0.53 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	110	ND	ND	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	0.48 J	0.32 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	ND
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40)	100	32	0	NM	NM	NM	ND

<sup>a</sup> In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.

<sup>b</sup> 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

TABLE 5

Summary of Confirmation Groundwater Analytical Data for July 2020 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	20 July 2020 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent <sup>b</sup>
Halogenated Volatile Organics							
Acetone	NA	1.9 – 3.8	0	ND	ND	NM	ND
Bromomethane	NA	0.21 – 0.42	0	ND	ND	NM	ND
Carbon disulfide	NA	0.17	0	ND	ND	NM	ND
Chloroform	1.9	0.16 – 0.32	0	ND	ND	NM	ND
Chloromethane	NA	0.30 – 0.60	0	1.7	3.1	NM	3.4
1,2-Dichlorobenzene	NA	0.15 – 0.30	0	0.33 J	ND	NM	ND
1,3-Dichlorobenzene	NA	0.13 – 0.26	0	0.68 J	ND	NM	ND
1,4-Dichlorobenzene	NA	0.16 – 0.32	0	0.29 J	ND	NM	ND
Bromodichloromethane	NA	0.17 – 0.34	0	ND	ND	NM	ND
1,1-Dichloroethane	0.50	0.22 – 0.44	0	ND	ND	NM	ND
1,2-Dichloroethane	0.50	0.13 – 0.26	0	ND	ND	NM	ND
1,1-Dichloroethene	0.50	0.23 – 0.46	0	0.51 J	ND	NM	ND
cis-1,2-Dichloroethene	0.50	0.15 – 0.30	0	44	ND	NM	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	3.0	ND	NM	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	0.62 J	ND	NM	ND
1,1,1-Trichloroethane	0.50	0.16 – 0.32	0	ND	ND	NM	ND
1,1,2-Trichloroethane	0.50	0.27 – 0.54	0	ND	ND	NM	ND
Trichloroethene	0.65	0.16 – 0.32	0	190	ND	NM	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	0.96 J	0.28 J	NM	ND
Non-Halogenated Volatile Organics							
Benzene	0.50	0.16 – 0.32	0	ND	ND	NM	ND
Ethylbenzene	0.50	0.16 – 0.32	0	ND	ND	NM	ND
Toluene	0.50	0.17 – 0.34	0	ND	ND	NM	ND
Total Xylenes	0.50	0.15 – 0.38	0	ND	ND	NM	ND
Other							
Total Petroleum Hydrocarbons – Diesel (C10 – C28) <sup>c</sup>	50	25	1	NM	NM	NM	84 J
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40) <sup>c</sup>	100	32	0	ND	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel (C10 – C28)	50	25	0	53 J	ND	NM	28 J
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40)	100	32	0	ND	ND	NM	ND

<sup>a</sup> In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.

<sup>b</sup> Concentrations in **bold** exceeded discharge limits

<sup>c</sup> Confirmation sample collected on 7 July 2020

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

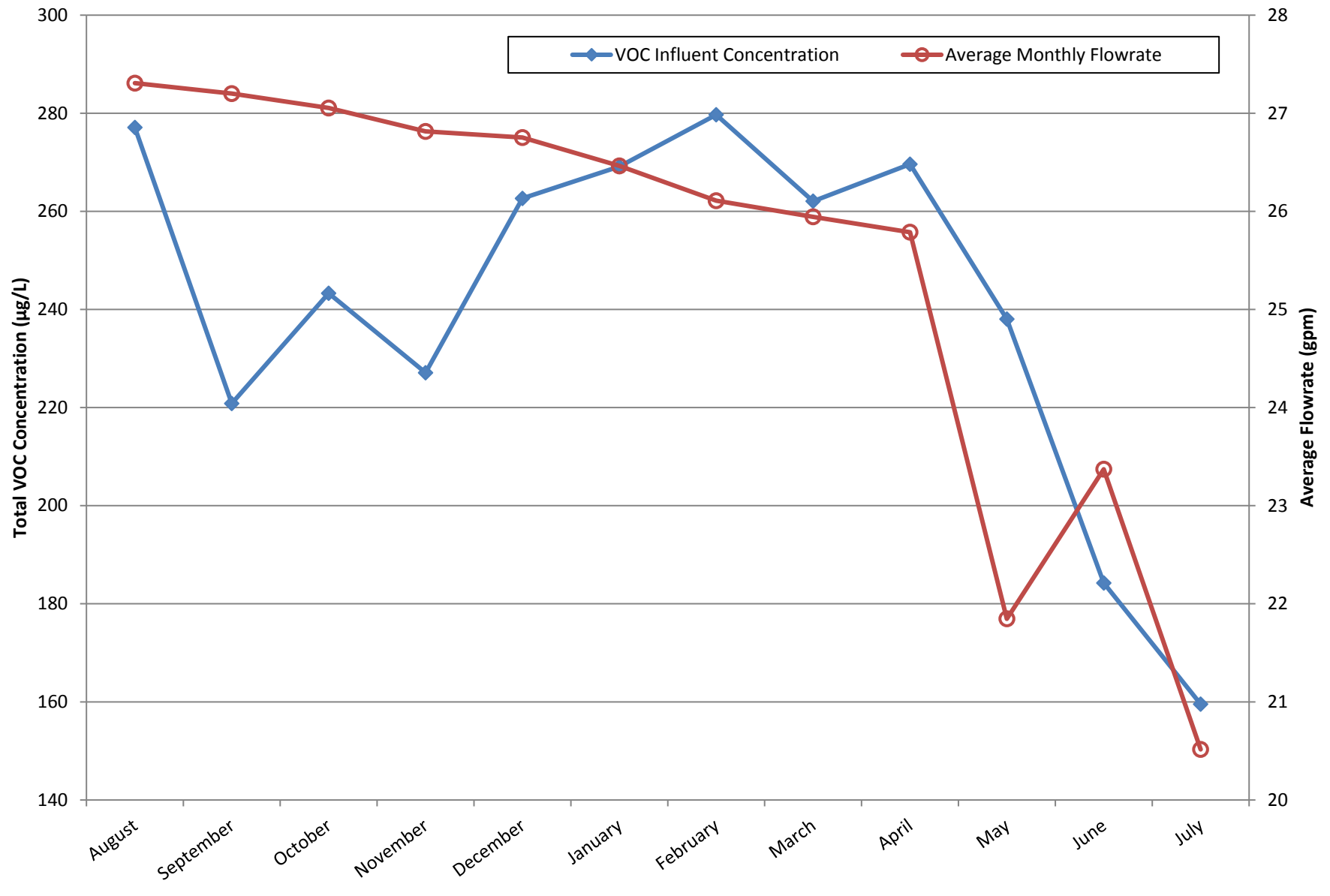
N/C = number of samples out of compliance with discharge limits.

µg/L = micrograms per liter

ND = not detected

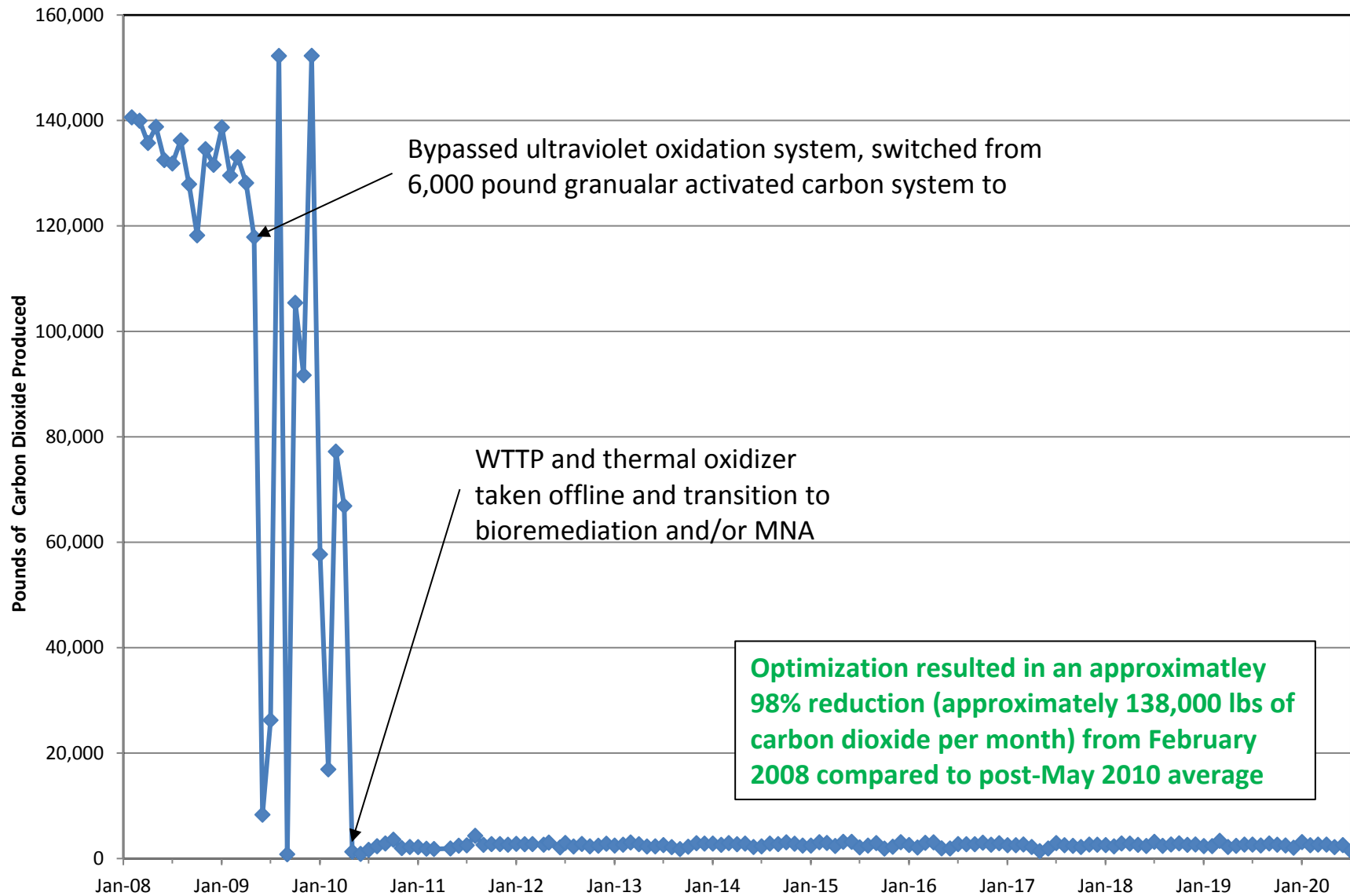
**Figure 1**

**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: 191

Reporting Period: 1 July 2020 – 3 August 2020

Date Submitted: 14 August 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 July 2020 reporting period:

Table 1 – Operations Summary – July 2020			
Initial Data Collection:		7/1/2020 11:40	Final Data Collection: 8/3/2020 11:15
Operating Time:		Percent Uptime:	Electrical Power Usage <sup>a</sup> :
LF007C GWTP:	791.5 hours	LF007C GWTP	100% LF007C GWTP: 0 kWh
Gallons Treated: 167,311 gallons		Gallons Treated Since March 2000: 90.7 million gallons	
Volume Discharged to Duck Pond: 167,311 gallons		VOC Mass Removed Since March 2000: 174.4 pounds (Groundwater)	
VOC Mass Removed: 1.05 x 10 <sup>-3</sup> pounds <sup>b</sup>			
Rolling 12-Month Cost per Pound of Mass Removed: Not Measured <sup>c</sup>			
Monthly Cost per Pound of Mass Removed: Not Measured <sup>c</sup>			
<sup>a</sup> The LF007C GWTP operates on solar power only.			
<sup>b</sup> VOCs from July 2020 influent sample detected by EPA Method SW8260C.			
<sup>c</sup> Value not calculated since measurement does not accurately represent the cost effectiveness of the system.			

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

Table 2 – LF007C GWTP Average and Total Flow Rates – July 2020		
Location	Average Flow Rate (gpm) <sup>a</sup>	Total Gallons Processed (gallons)
EW614x07	3.1	149,348 <sup>b</sup>
EW615x07	0.6	29,872
LF007C GWTP	3.5	167,311
<sup>a</sup> Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.		
<sup>b</sup> 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.

<b>Table 3 – Summary of System Shutdowns</b>					
<b>Location</b>	<b>Shutdown<sup>a</sup></b>		<b>Restart<sup>a</sup></b>		<b>Cause</b>
	<b>Date</b>	<b>Time</b>	<b>Date</b>	<b>Time</b>	
LF007C GWTP	None	--	--	--	
-- = Time not recorded <sup>a</sup> 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 1 July 2020. Sample results are presented in Table 4. The total VOC concentration in the July 2020 influent sample was 0.75 µg/L. TCE was the only VOC detected at the influent sample location. No VOCs were detected in the midpoint and effluent sample locations. The influent and effluent samples were also analyzed for TPH, and TPH-d and TPH-mo were detected in both samples. The effluent results were less than the effluent limitations.

From the June metals analysis, the zinc concentration (98 J µg/L) slightly exceeded the daily maximum effluent limitation of 95 µg/L. On 10 July 2020, a confirmation sample from the system effluent was collected, and zinc was reported at a concentration of 140 J µg/L, which also exceeded the effluent limitation. Additional confirmation samples were collected at the Duck Pond upstream and downstream of the LF007C GWTP outfall, and no zinc was detected in either sample. The confirmation sample results are presented in Table 5. Following the detection of 140 J µg/L of zinc in the effluent confirmation sample collected on 10 July 2020, Travis AFB contacted the Water Board on 23 July 2020 via email to report the analytical results. The detected concentrations of zinc are within historical background concentrations as reported in the East Industrial Operable Unit Record of Decision.

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 decreased over the last 12 months.

## Optimization Activities

No optimization activities occurred at the LF007C GWTP in July 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 July 2020 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	1 July 2020 (µg/L)		
				Influent	After Carbon 1	Effluent <sup>b</sup>
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	5.0	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	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.22	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.14	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.10	0	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.11	0	ND	ND	ND
Methylene Chloride	5.0	0.35	0	ND	ND	ND
Tetrachloroethene	5.0	0.15	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.19	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.31	0	ND	ND	ND
Trichloroethene	5.0	0.13	0	0.75 J	ND	ND
Vinyl Chloride	0.5	0.22	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.13	0	ND	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND	ND
Toluene	5.0	0.25	0	ND	ND	ND
Xylenes	5.0	0.10 – 0.18	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	10	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	5.5	0	73 J	NM	46 J
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	110	NM	85 J
Zinc <sup>c</sup>	95	4.5	1	NM	NM	140 J

<sup>a</sup> In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.<sup>b</sup> Concentrations in **bold** exceeded discharge limits<sup>c</sup> Sample collected on 10 July 2020.

## 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

TABLE 5

Summary of Confirmation Groundwater Analytical Data for July 2020 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	10 July 2020 (µg/L)		Effluent <sup>b</sup>
				Upstream of Outfall at Duck Pond	Downstream of Outfall at Duck Pond	
<b>Other</b>						
Zinc	95	4.5	1	ND	ND	<b>140 J</b>

<sup>a</sup> In accordance with current National Pollutant Discharge Elimination System permit number CAG912002, Order number R2-2017-0048.<sup>b</sup> 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.

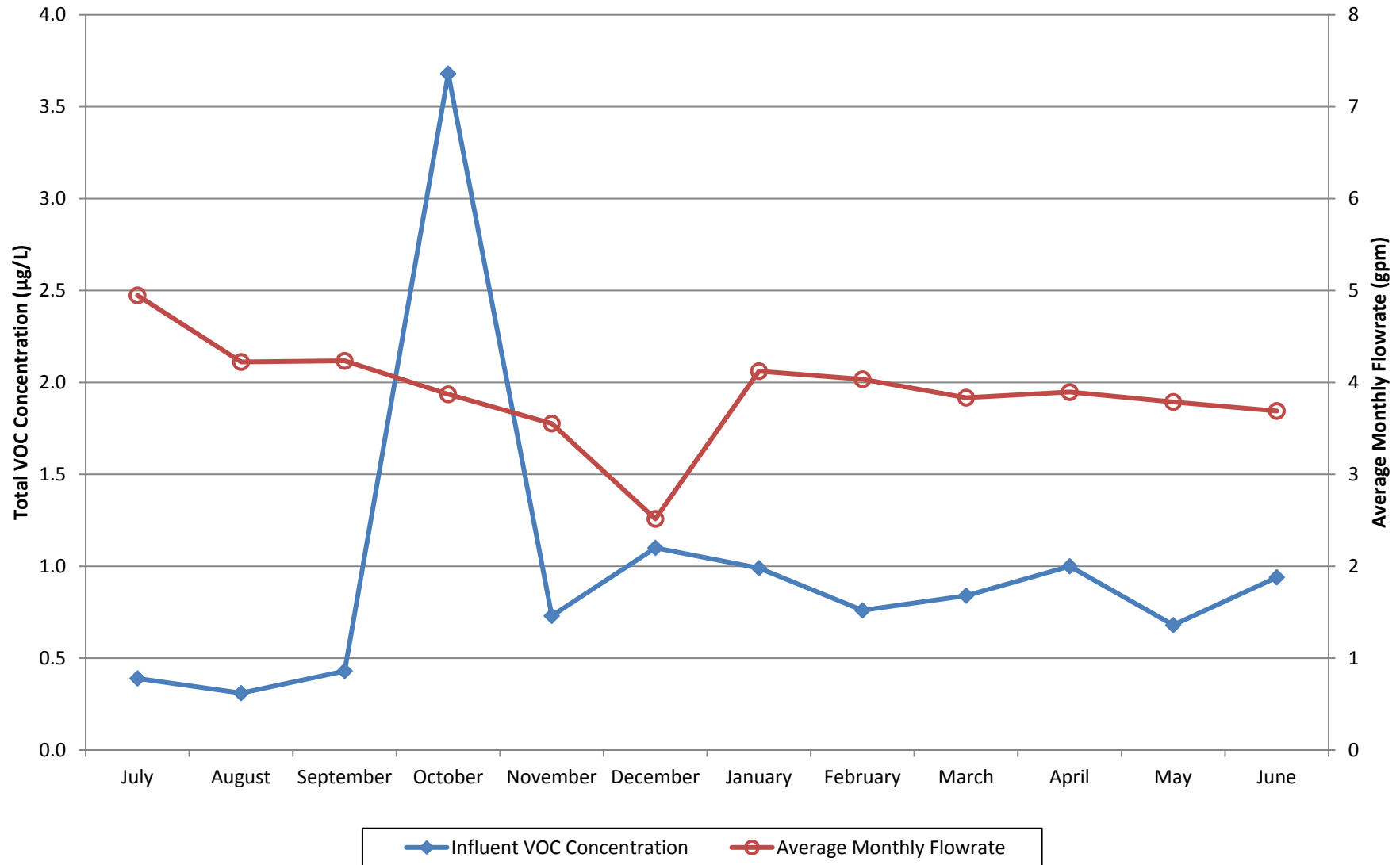
ND = not detected

NM = not measured

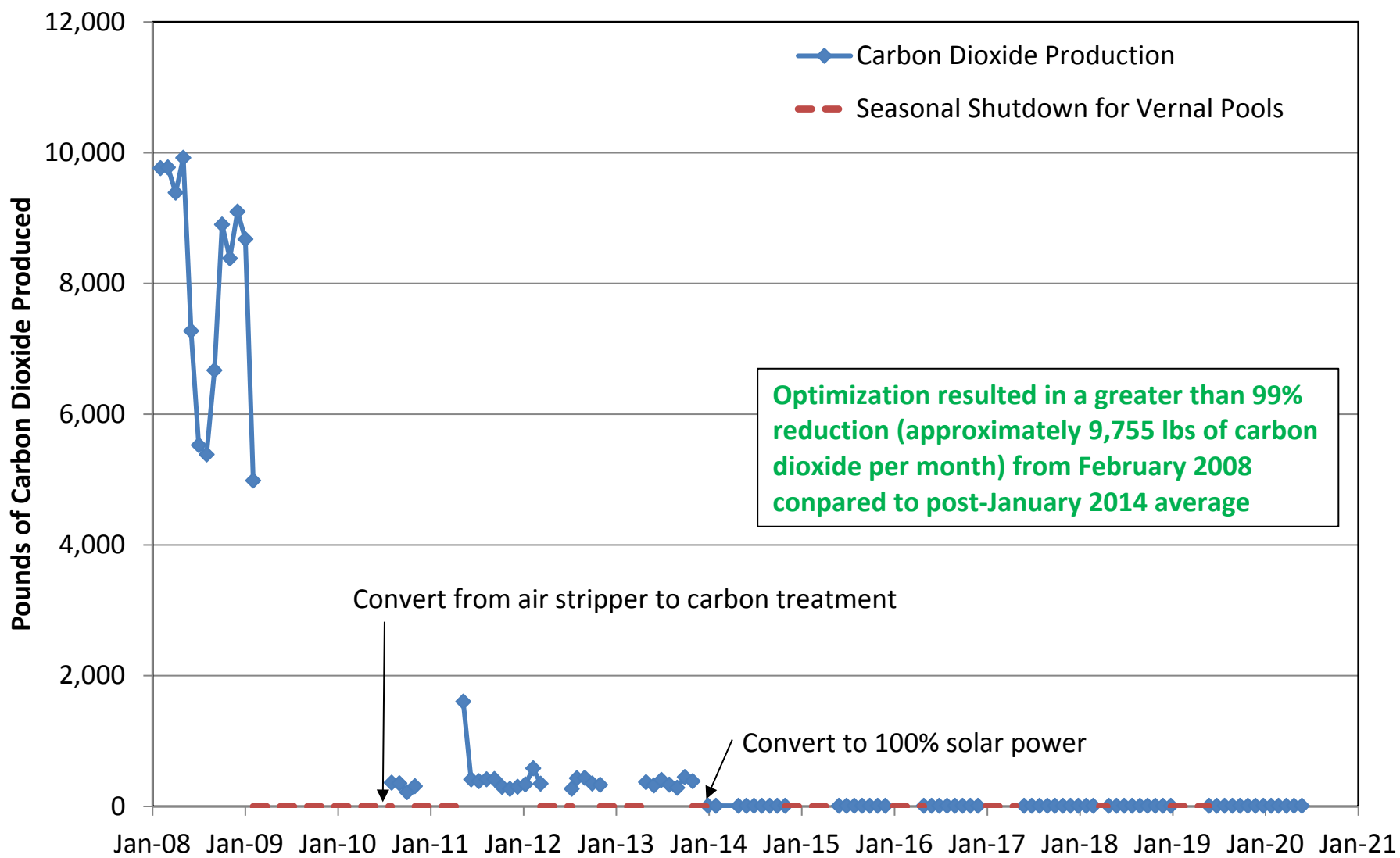
µg/L = micrograms per liter

**Figure 1**

**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

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Report Number: 113

Reporting Period: 1 July 2020 – 3 August 2020

Date Submitted: 14 August 2020

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

### System Metrics

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

Table 1 – Operations Summary – July 2020			
Initial Data Collection: 7/1/2020 10:30		Final Data Collection: 8/3/2020 11:35	
Operating Time:		Percent Uptime:	
ST018GWTP: 793 hours		ST018GWTP: 100%	
		ST018GWTP: 72 kWh (53 lbs CO <sub>2</sub> generated <sup>a</sup> )	
Gallons Extracted: 132,040 gallons		Gallons Extracted Since March 2011: 19.4 million gallons	
Volume Discharged to Sanitary Sewer: 132,040 gallons		Final Totalizer Reading: 19,416,829 gallons	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: 12.9 million gallons			
MTBE, BTEX, VOC, TPH Mass Removed: 0.07 lbs <sup>b</sup>		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: 49.4 lbs	
MTBE (Only) Removed: 0.02 lbs <sup>b</sup>		MTBE (Only) Mass Removed Since March 2011: 12.1 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$60,459 <sup>bc</sup>			
Monthly Cost per Pound of Mass Removed: \$44,618 <sup>bc</sup>			
<sup>a</sup> SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.			
<sup>b</sup> Calculated using July 2020 EPA Method SW8260C and SW8015B analytical results.			
<sup>c</sup> 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.

<b>Table 2 – ST018GWTP Average Flow Rates – July 2020</b>		
<b>Location</b>	<b>Average Flow Rate Groundwater (gpm)<sup>a</sup></b>	<b>Hours of Operation</b>
EW2014x18	2.2	793
EW2016x18	1.1	793
EW2019x18	0.0	Offline <sup>b</sup>
EW2333x18	2.1	793
ST018GWTP	2.8	793
<sup>a</sup> Flow rates calculated by dividing total gallons processed by amount of operating time of the pump/system. <sup>b</sup> 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.

<b>Table 3 – Summary of System Shutdowns</b>					
<b>Location</b>	<b>Shutdown<sup>a</sup></b>		<b>Restart<sup>a</sup></b>		<b>Cause</b>
	<b>Date</b>	<b>Time</b>	<b>Date</b>	<b>Time</b>	
ST018	None	--	--	--	
-- = Time not recorded <sup>a</sup> 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 1 July 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 July 2020 laboratory data report is available upon request. The MTBE discharge concentration during the July 2020 sampling event was 18 µg/L, which is an increase from the June 2020 sample result of 17 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.

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 July 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 53 pounds of GHG during July 2020 and removed 132,040 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 July 2020 – Site ST018 Groundwater Treatment Plant

Summary of Groundwater Analytical Data for July 2020 - Site ST010 Groundwater Treatment Plant				
Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	1 July 2020 (µg/L)
				System Discharge <sup>b</sup>
Fuel Related Constituents				
Methyl tert-Butyl Ether	6,400	0.25	0	18
Benzene	25,000 <sup>c</sup>	0.16	0	0.30 J
Ethylbenzene	25,000 <sup>c</sup>	0.16	0	ND
Toluene	25,000 <sup>c</sup>	0.17	0	ND
Total Xylenes	25,000 <sup>c</sup>	0.19 – 0.34	0	ND
Total Petroleum Hydrocarbons – Gasoline	50,000 <sup>d</sup>	10	0	ND
Total Petroleum Hydrocarbons – Diesel	50,000 <sup>d</sup>	15	0	45 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	0.32 J
Isopropylbenzene	NA	0.19	0	ND
Naphthalene	NA	0.22	0	ND
N-Propylbenzene	NA	0.16	0	ND

<sup>a</sup> In accordance with the Fairfield-Suisun Sewer District Discharge Limitations<sup>b</sup> Concentrations in **bold** exceeded discharge limits<sup>c</sup> The limit of 25,000 µg/L is a combined limit for BTEX.<sup>d</sup> The limit of 50,000 µg/L is a combined limit for TPH-g and TPH-d.

µg/L = micrograms per liter

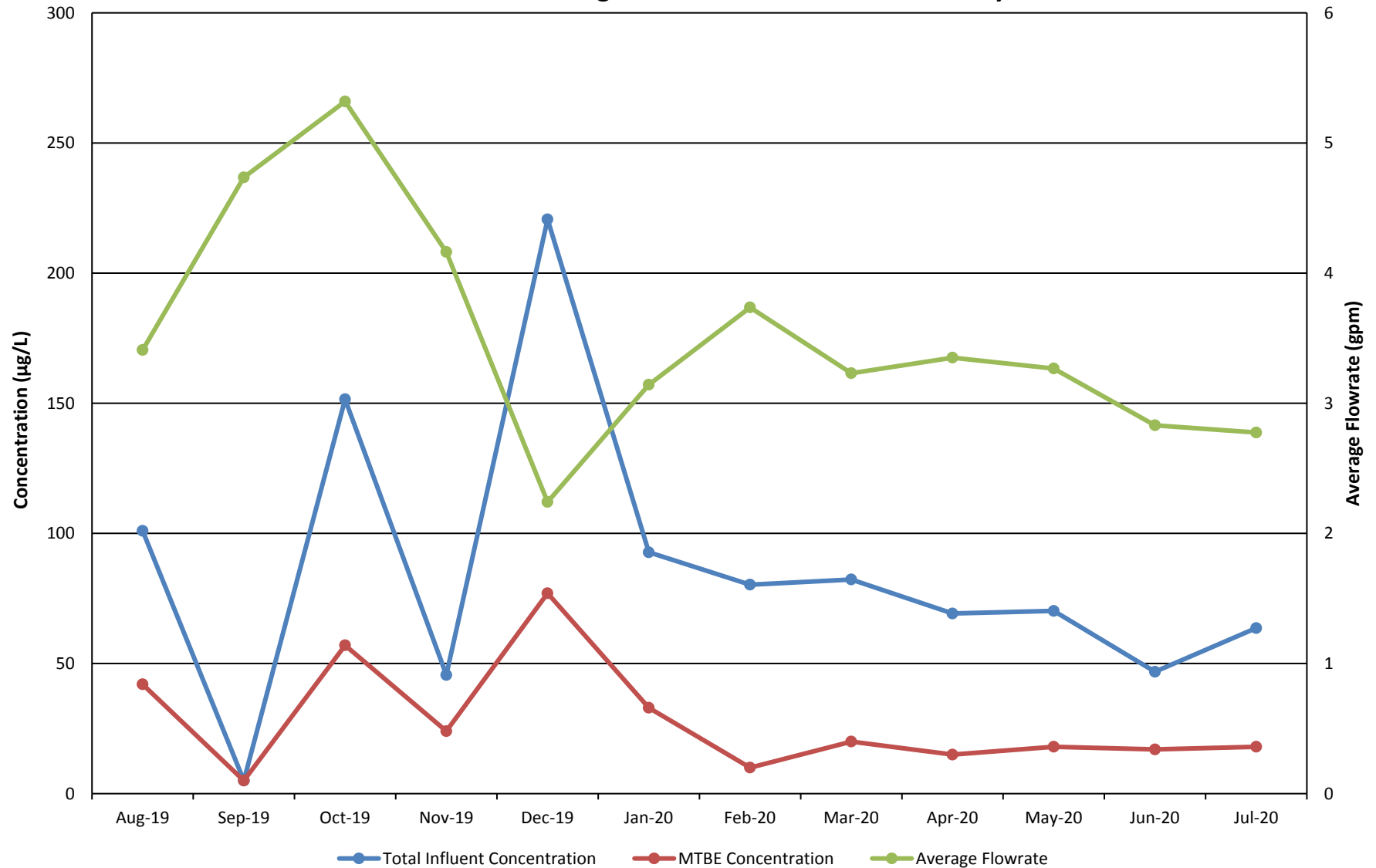
J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant.

NA = not applicable

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

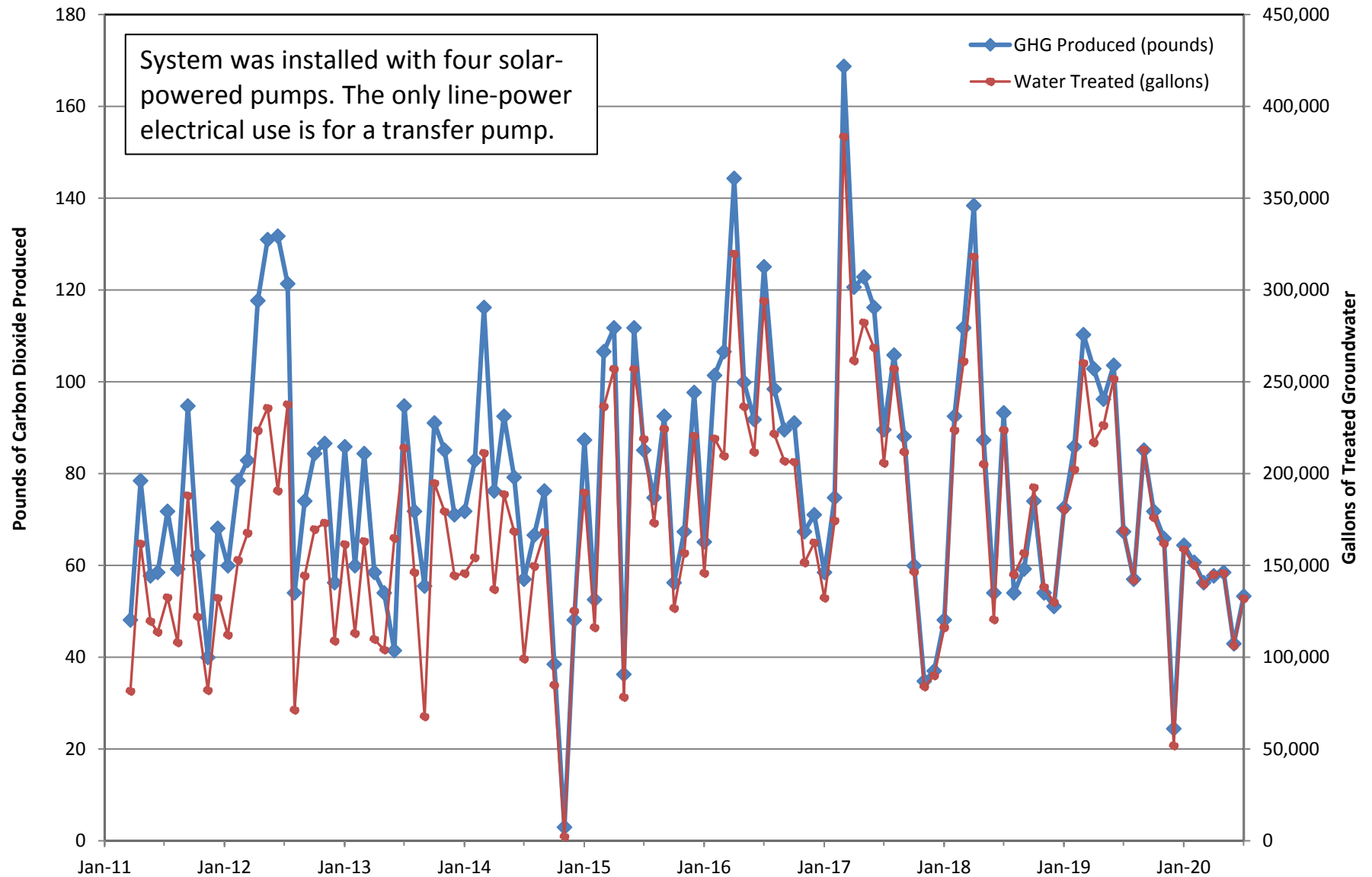
ND = not detected above method detection limit.

**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 19 August 2020**

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



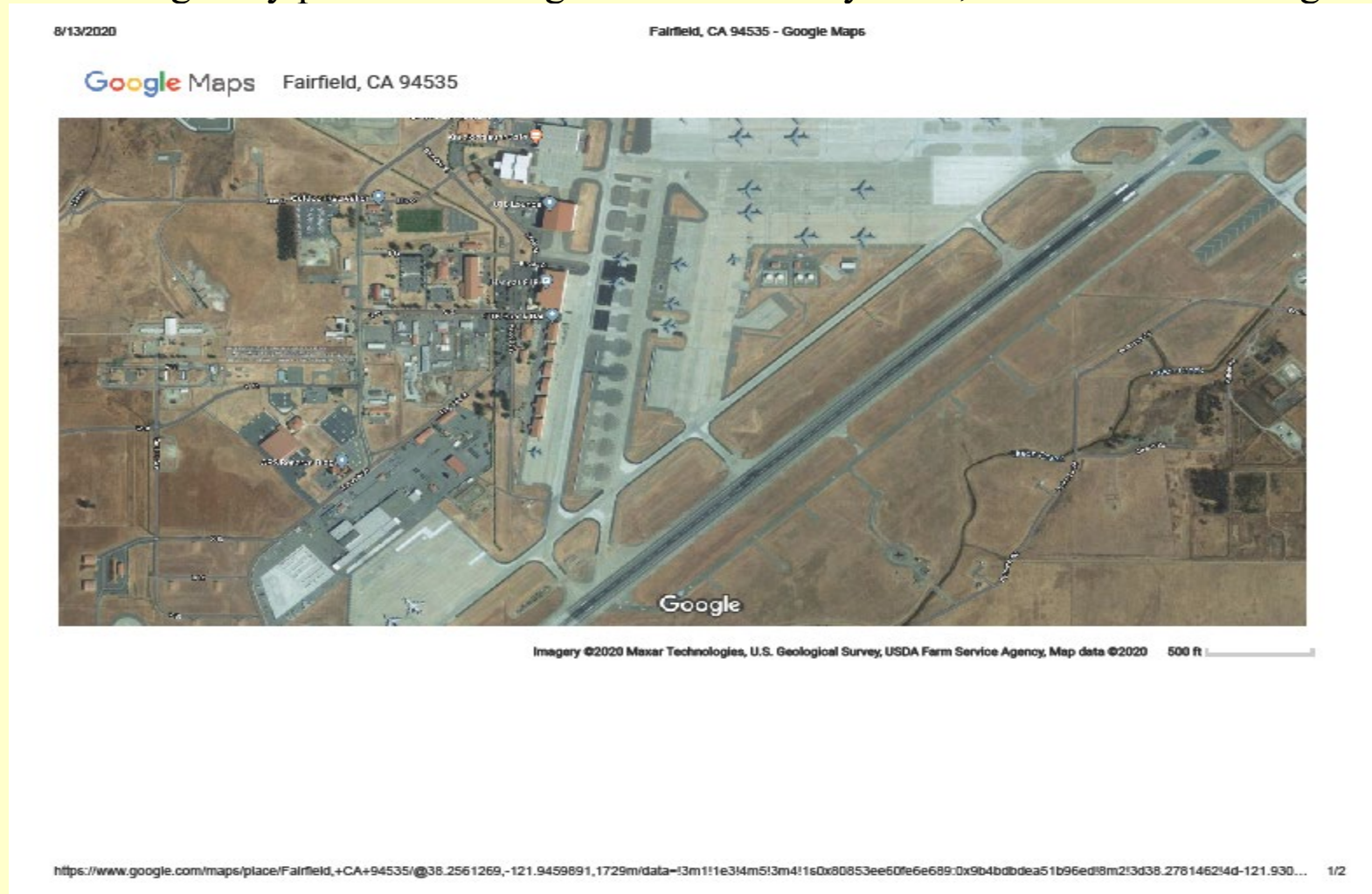
# Site SS016 KC-46 Hangar

- EW605X16 and EW610X16 are operating and temporarily powered by a portable generator.
- A permanent power connection is under design utilizing an existing transformer.
- Temporary piping solution is being approved by contracting agency. This will allow for minimal disruption to system operation while underground utility work is being conducted.
- EW03X16 replacement well contractor scheduled for first site visit this week.



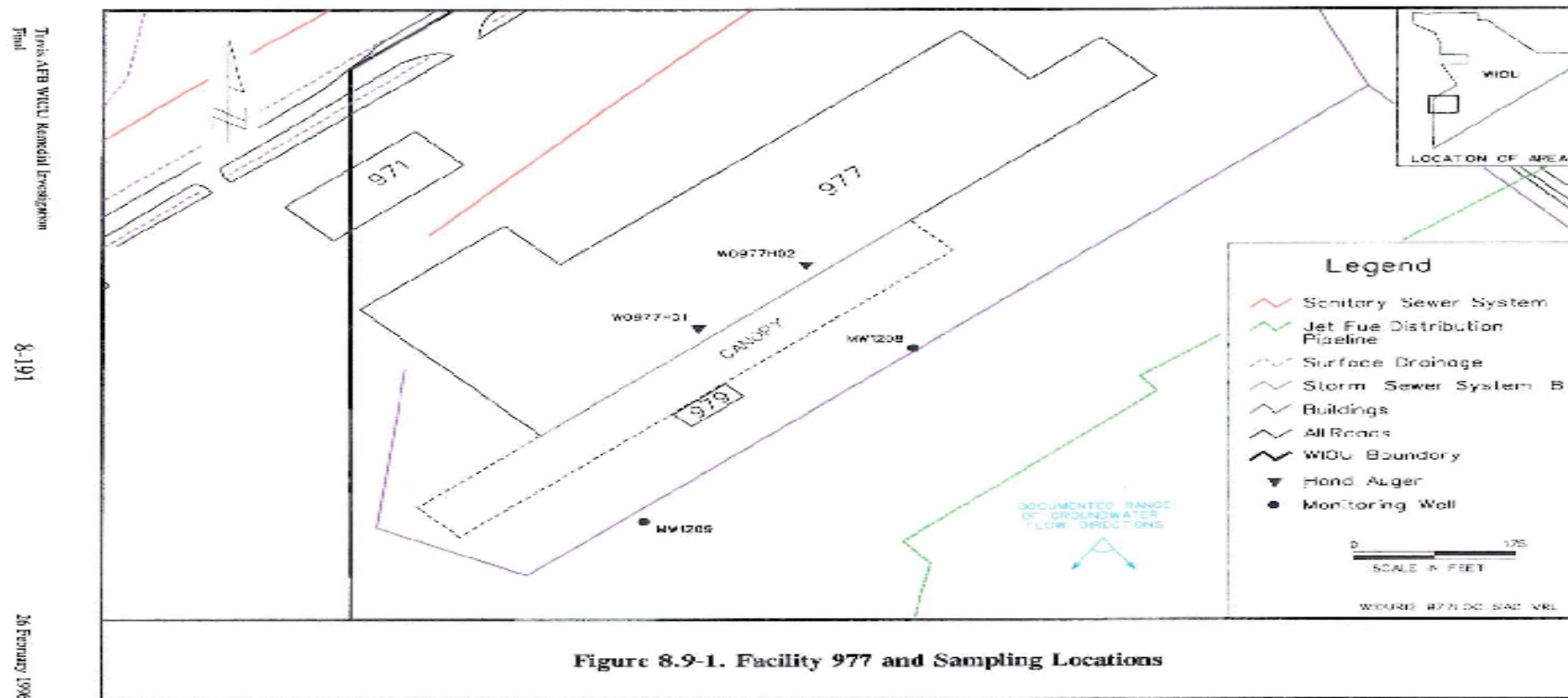
# Site SD037, Cargo Facility at Bldg. 977

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



# Site SD037, Cargo Facility at Bldg. 977

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





# Site SD037, Cargo Facility at Bldg. 977

- Existing cargo handling facility to be demolished and replaced
- Soil samples will be collected to determine current TPH levels after nearly 25 years of natural attenuation
- Soil to be characterized and properly managed and disposed of.
- Project plans to excavate all contaminated soil or three feet in each direction whichever comes first.
- Confirmation samples will then be collected.



# Site SD037, Cargo Facility at Bldg. 977

- I am requesting regulatory approval for this approach.
- In an email from Nadia on Feb 5, 2019 she stated that “The proposal to demolish and replace the Building 977 as shown in the LUC Presentation appears to be consistent with the SD037 remedy. “
- My intent is to document regulatory approval in meeting minutes.



# **Travis AFB PFOS/PFOA Program Status 19 August 2020**



# AFCEC PFOS/PFOA Team

- Centralized Approach Across the Air Force
- Ensures Consistent Decisions are Made
- Managed from AFCEC HQ, San Antonio, TX
- Currently Managing Award of Centralized Contracts
- Some Projects May be Delegated to Base RPM



# Expanded Site Inspection

- SI results indicated PFOS/PFOA above LHA at Fourteen Locations
- FT005 and SBBGWTP results exceeded LHA
- Water Board Requested Private Wells Off-Base Be Sampled
- Six Private Wells Sampled on 30 June 2020
- Preliminary Data Indicate Three Wells Above LHA
- Bottled Drinking Water Provided 20 July
- Split Confirmation Samples Collected 24 July, Awaiting Results
- Water Service W/Local Vendor Established 29 July



# Relative Risk Site Evaluation

- The Air Force completed the Relative Risk Site Evaluation (RRSE) for Travis AFB to support sequencing of environmental restoration work.
- The RRSE process is used to evaluate the relative risk posed by an environmental restoration site in relation to other sites.
- 14 sites were evaluated in the process. All 14 sites scored High risk for groundwater, 2 of these sites were also scored as High risk for Soil, 2 scored medium risk for soil and the remaining 9 scored low risk for soil.
- A Fact Sheet is being developed and will be posted along with the RRSE to the Travis public webpage.
- Requesting Regulatory involvement; review, comment, input.
- A public comment period will be held 1-30 October 2020.
- RRSE results will be presented to RAB on 22 October.
- AF will respond to all comments and adjust RRSE if warranted.



# PFOS/PFOA Remedial Investigation Phase 1

- A Remedial Investigation, RI, to determine the nature and extent of PFOS/PFOA contamination is the next step in the CERCLA process.
- A Phase 1 RI was awarded to Sustainment and Restoration Services to begin collecting data.
  - AF & SRS Kick-Off Meeting scheduled for tomorrow.
- A Human Health Risk Assessment and Feasibility Study will be conducted in a subsequent phase.



# Travis AFB Restoration Program

## Program Update

*RPM Meeting August 19, 2020*



# Completed Documents (1)

- Vapor Intrusion Assessment Update Technical Memorandum
- 2012 CAMU Annual Report
- Old Skeet Range Action Memorandum
- 3<sup>rd</sup> 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 Optimization 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
- 4<sup>th</sup> 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 (2<sup>nd</sup> 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 (3<sup>rd</sup> 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 (1<sup>st</sup> 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 (2<sup>nd</sup> 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)

- 3<sup>rd</sup> Quarter 2019 GRIP Sampling
- SD034 O<sub>2</sub> Enhancement
- SS016 SBGR Repairs
- SD037 EVO Re-injection
- 4<sup>th</sup> 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***

# Documents In-Progress

## CERCLA

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

## POCO

None

# Field Work In-Progress

CERCLA

None

POCO

- ***FT004 Soil Excavation***
- ***SD031B Phase 3 MW Installation & GW Sampling***

# Documents Planned

CERCLA

- 2019 CAMU Monitoring Report

Sept

POCO

None

# Field Work Planned

## CERCLA

- PFAS Pilot Test
- 4Q GRIP
- ***CAMU Topographic Survey***

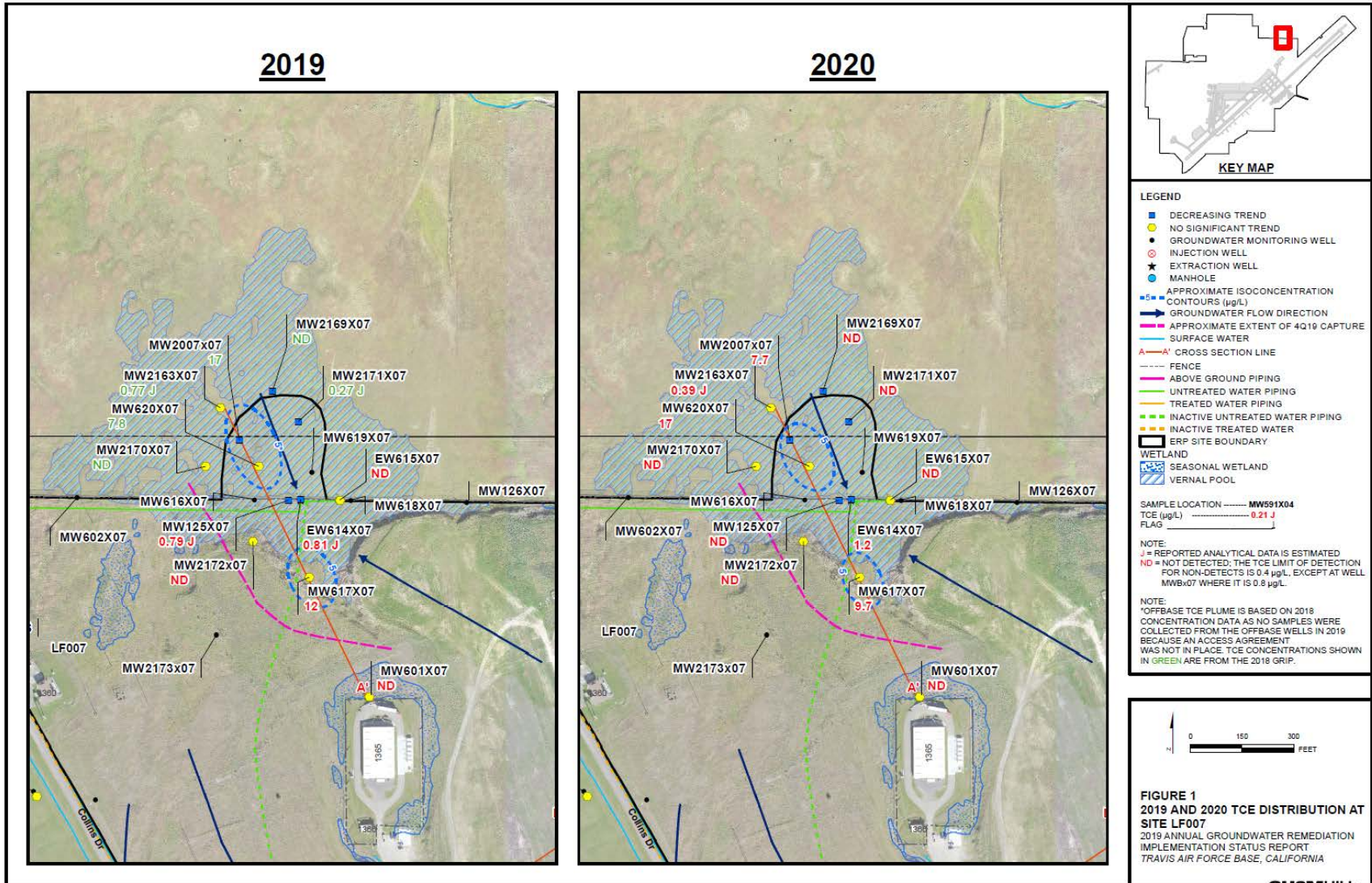
Sept  
Oct  
**Nov**

## POCO

None

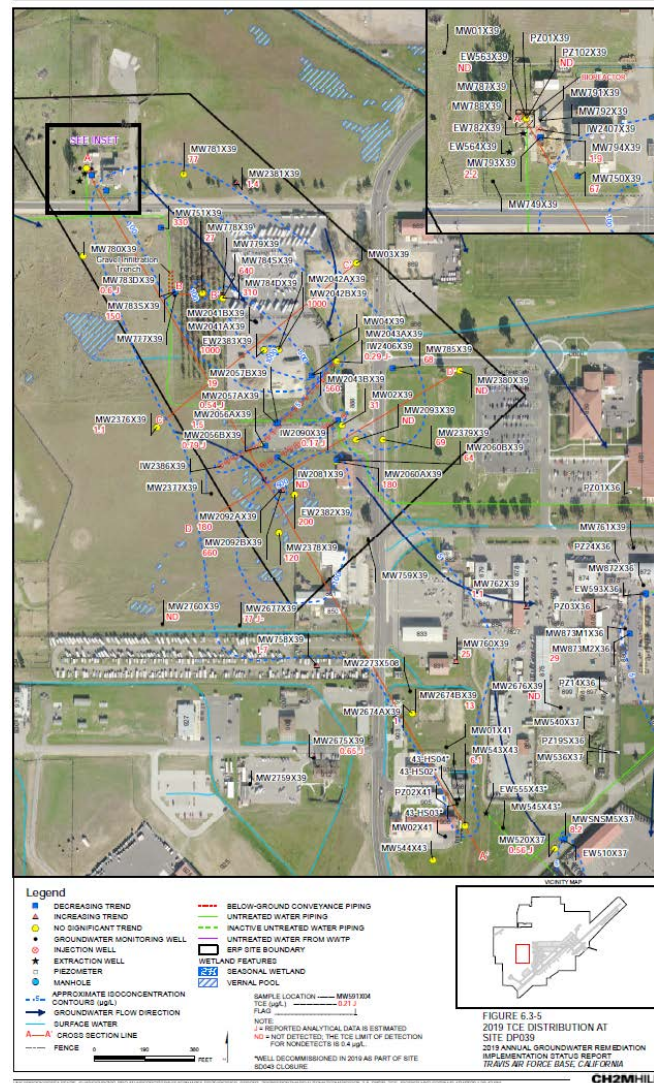
Note: Contact Lonnie Duke if you  
would like to observe planned field  
work events

# LF007 Offbase Sample Results

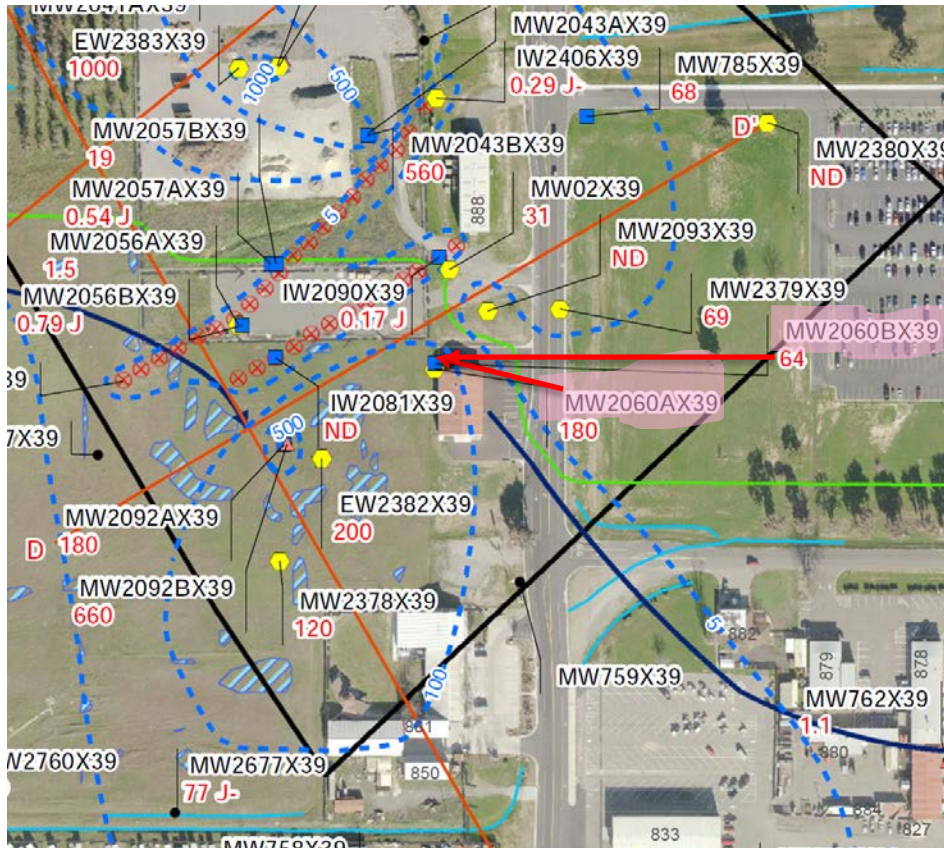




# SPOC Location Change



# SPOC Location Change



- DP039 well pair  
MW2060A/Bx39
- Consistent with selected gw  
remedy (EA)
- Elevated TCE concentrations
- May be beneficial to area  
beyond treatment train
- Higher permeability than  
SS015
- Accessibility
- Add solar component

# 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<sup>21</sup>

# 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 (2<sup>nd</sup> 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 (4<sup>th</sup> 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