Final

Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
18 November 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 18 November 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
Gene Clare	AFCEC/CZOW
Kurt Grunawalt	Travis AFB/Legal
Lou Briscese	Travis AFB/PA
Dave Leeson	AFCEC/CZRW
Brian Boccellato	USACE-Omaha
Paul Gedbaw	USACE-Omaha
Nadia Hollan Burke	EPA
Karla Brasaemle	TechLaw, Inc.
Adriana Constantinescu	RWQCB
Kimiye Touchi	DTSC
Randall Bleichner	DTSC
Jesse Negherbon	DTSC
Mike Wray	CH2M/Jacobs
Leslie Royer	CH2M/Jacobs
Jeff Gamlin	CH2M/Jacobs
Jeannette Cumberland	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 (October 2020)
Attachment 4	CGWTP Monthly Data Sheet (October 2020)
Attachment 5	LF007C Monthly Data Sheet (October 2020)
Attachment 6	ST018 Monthly Data Sheet (October 2020)
Attachment 7	PFOS/PFOA Updates (November 2020)
Attachment 8	Presentation: Program Update
Attachment 9	Presentation: Addendum to the Initial Passive Vent System Sampling Work Plan

1. ADMINISTRATIVE

A. Previous Meeting Minutes

There were no agency comments on the October 2020 RPM Meeting Minutes; they will be finalized as written.

B. Action Item Review

Action items from October 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. November 2020 update: SPOC was moved to Site DP039, where lithology is more permeable. Baseline samples have been collected; additional sampling will be conducted in January 2021. The system is successfully pumping groundwater at a low rate. This action item remains open.

Action Item 2 is ongoing: Mr. Duke will add a footnote to the November 2020 version of the Master Meeting and Document Schedule (MMDS) indicating that the CRP Update will be finalized as a high priority document under the ORC. November 2020 update: The suggested footnote has been added to the CRP Update on the current MMDS. This action item is now closed.

Action Item 3: Mr. Duke will add the Initial Passive Vent System Sampling Work Plan to the presentation list on the November 2020 RPM Meeting agenda.

November 2020 update: This presentation was added to the agenda for today's meeting. This action item is now closed.

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

The Travis AFB 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. The MMDS will continue to list in-person meetings and teleconferences, and teammates will be notified when in-person meetings are safe to resume.

The annual Restoration Advisory Board (RAB) meeting is scheduled for 15 April 2021 and is planned as an in-person meeting, unless COVID-19 restrictions dictate otherwise

Mr. Duke noted that no substantive comments were received on the RAB presentation posted to YouTube; a few people e-mailed that they watched it.

The next RPM meeting is scheduled for 0930 on Wednesday, 20 January 2021, via MS Teams. This will be the first RPM meeting of the new year.

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 (CRP) Update: There was no change to the schedule. A footnote was added to the MMDS indicating that the CRP Update will be finalized as a high priority document in the first year of the upcoming ORC. The ORC will be awarded in July 2021 and the contract will start in October 2021. All document due dates will be indicated with "TBD" until the new contract kicks off.

— Site SD031 Soil Remedial Investigation/Feasibility Study (RI/FS): The Final due date was changed to 13 November 2020 to reflect the actual submittal date.

— Site FT004 POCO Soil Corrective Action Completion Report (CACR): The PreDraft to Air Force/Service Center due date was changed to 16 November 2020; all other dates were changed accordingly. The document was changed to a primary

document per request from the Water Board. This allows at least 60 days for review, and accounts for the holidays.

— Quarterly Newsletter (April 2021): The schedule was created was for the April 2021 newsletter. The PreDraft to AF/Service Center was assigned a due date of 24 February 2021; the rest of the dates were assigned accordingly. The April 2021 newsletter will discuss the transition between the Performance Based Remediation (PBR) contract and the ORC. It will also announce the 15 April 2021 RAB meeting, which will be held in person if possible.

— 2019 Annual Groundwater Remediation Implementation Status Report (GRISR): The Response to Comments and Final due dates were changed to 22 October 2020 to reflect actual submittal date. This document will be moved to the History section next month.

— 2019 Annual Corrective Action Management Unit (CAMU) Monitoring Report: The Final due date was changed to 7 December 2020.

— Site SS016 Soil Remedial Action Completion Report (RACR): The Final due date was changed to 3 December 2020. The Water Board had no additional comments after reviewing the document and the comments provided by EPA and DTSC. The Air Force provided responses to EPA and DTSC comments on 27 October 2020. EPA accepted AF responses. DTSC and the Air Force held calls to discuss the Air Force's response and the Air Force submitted additional responses to the DTSC on 3 November 2020. Following acceptance of the latest Air Force responses by the DTSC, the Air Force will prioritize this document for finalization in mid-December.

— Site LF008 Remedial Infrastructure Decommissioning Technical Memorandum: The Draft to Agencies and RAB due date was changed to 1 December 2020; the rest of the dates except for the Response to Comments Meeting were changed accordingly. The review period is 30 days which includes the holidays, but Mr. Anderson requested the agencies let him know if more time is needed. If any additional discussion is needed, it will be timed with the January 2021 RPM meeting.

— Addendum to the Initial Passive Vent Systems Sampling Work Plan Technical Memorandum: The PreDraft to AF/Service Center due date was changed to 30 October 2020 to reflect the actual submittal date; the rest of the dates were changed accordingly. Agency comments are due on 28 December 2020. The Air Force recognizes that the holidays and related leave may result in the need for additional review time, but noted that the field work must be completed in January 2021. They asked the agencies to prioritize this document to stay on schedule.

— Technology Demonstration Technical Memorandum: The PreDraft to AF/Service Center was assigned a due date of 30 November 2020; the rest of the dates were assigned accordingly. This will be a document covering the technology

demonstrations at Travis AFB over the past several years. It will be an important resource for the ORC.

— Site SD031B POCO Additional Site Investigation Report: This is a new document. The Travis AFB document lead will be Mr. Anderson. The CH2M lead will be Levi Pratt. The Predraft to AF/Service Center was assigned a due date of 29 December 2020; the remaining dates were assigned accordingly.

— Potrero Hills Annex (FS, PP, and ROD): There were no updates to the Water Board accepted the request for No Further Action at the "main area" of the site on 30 October 2020. The annual groundwater monitoring report was submitted in November and the Water Board has provided their comments. Ms. Constantinescu will forward the closure letter to the EPA and DTSC.

— MOVED TO HISTORY:

None

2. CURRENT PROJECTS

A. Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 6.485 million gallons of groundwater were extracted and treated in October 2020. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 136.2 gallons per minute (gpm). Electrical power usage was 18,923 kilowatt hours (kWh), and approximately 15,603 pounds of CO_2 were created (based on DOE calculation). Approximately 1.15 pounds of volatile organic compounds (VOCs) were removed in October. The total mass of VOCs removed since startup of the system is 531.9 pounds.

Troubleshooting was performed on four extraction wells in October 2020; details can be found in Attachment 3. The SCADA system is scheduled for upgrade in November and December 2020.

No optimization activities were conducted in October 2020.

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

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1,180,650 gallons of groundwater extracted and treated in October 2020. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 24.8 gpm. Electrical power usage was 1,220 kWh for all equipment connected to the Central Plant, and approximately 1,791 pounds of CO_2 were generated. Approximately 2.48 pounds of VOCs were removed from groundwater by the treatment plant in October. The total mass of VOCs removed since the startup of the system is 11,557 pounds.

The Site SS016 subgrade biogeochemical reactor (SBGR) and the Site DP039 SBGR continued operating in October 2020. A high-water alarm was installed in a piezometer in the infiltration trench at Site DP039, which will alert Travis AFB personnel if the groundwater level inside the trench approaches the ground surface. Both wells that feed into the infiltration trench are now online. Flow rates will be adjusted to avoid surfacing of groundwater.

No optimization activities were conducted in October 2020.

LF007C Groundwater Treatment Plant, October 2020 (Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 100% uptime with approximately 128,514 gallons of groundwater extracted and treated in October 2020. All treated water was discharged to the Duck Pond for beneficial reuse. The average flow rate was 2.7 gpm. Approximately 1.04×10^{-3} of a pound of VOCs was removed from groundwater by the treatment plant in October 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 October 2020.

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

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 107,255 gallons of groundwater extracted in October 2020. All groundwater was discharged to the Fairfield – Suisun Sewer District. The average flow rate for the ST018 GWTP was 2.2 gpm. Electrical power usage for the month was 62 kWh for all equipment connected to the ST018 GWTP. The total CO_2 discharge equivalent equates to approximately 46 pounds. Approximately 0.07 of a pound of MTBE, BTEX, VOCs, and TPH was removed in October by the treatment plant, and 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 49.5 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 total reported flow from the system was lower than the sum of the extraction wells in October 2020. Troubleshooting of the flow meters will continue in November.

No optimization activities were conducted in October 2020.

B. Land Use Control Sites, November 2020

Site SS016 KC-46 Hangar

The directional driller is set to mobilize to the site on 1 December to begin installation of the replacement horizontal well for well EW03x16. The installation will take approximately one week. The hangar construction is progressing; the demolition of the existing structures is almost complete. Crews are currently trenching and getting other utilities lined up. Mr. Duke will keep the RPM team updated about the schedule in case anyone wants to visit the site to observe progress.

D. PFOS/PFOA Program Status, November 2020

Mr. Chet Storrs reported on the status of the PFOS/PFOA Program at Travis AFB. Please refer to Attachment 7 for the full briefing.

3. Presentations:

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

Ms. Royer reported on the status of fieldwork and documents that have been completed, are in progress, or are upcoming. Please refer to Attachment 8 for the full briefing.

B. Presentation: Addendum to the Initial Passive Vent System Sampling Work Plan (See Attachment 9)

Ms. Royer reported on the planned field work described in the Draft Addendum to the Initial Passive Vent System Sampling Work Plan. Please refer to Attachment 9 for the full briefing. Additional details discussed during the presentation are noted below.

- Soil gas sampling locations were chosen based on proximity to the plume and buildings as much as possible, to see what the soil gas concentrations are now that contaminant concentrations in groundwater have decreased.
- There is concern that the sewer lateral presents a preferential pathway at Building 549. A condition assessment was recently conducted in the sewer lateral by Transystems using a camera; the report indicates where moderate to significant defects were observed.
- Research from a prior unrelated project at Travis AFB indicates that radon levels will be high enough to detect and measure. It is expected to be higher in subslab samples than indoor and outdoor air, so will provide a good idea of attenuation.
- The agency representatives agreed with the general approach and sampling can occur during January 2021 as planned.
- Previously collected raw data from the August 2020 sampling event can be included as an appendix to the work plan.

4. New Action Item Review

1. Jacobs will add the raw vapor intrusion data collected in August 2020 to the Addendum to the Initial Passive Vent System Sampling Work Plan as an appendix.

5. PROGRAM ISSUES/UPDATE

Mr. Duke informed the RPM team that he is monitoring the base HPCON level because some counties in California are moving back into the most restrictive COVID tiers again, and acknowledged that some employers continue to restrict travel. Currently, Travis AFB is still issuing day passes, but Mr. Duke is unsure of the status of yearly base pass issuance or renewals.

Mr. Anderson announced that after over 28 years of civil service, he will be retiring effective 31 December 2020. This is the last RPM meeting of his career. He noted that he has enjoyed seeing the work accomplished at Travis AFB over the course of his career and that he will miss everyone as well as the work. Mr. Duke said that the first part of the year will be busy, and he and Mr. Storrs are figuring out a plan to divide Mr. Anderson’s responsibilities. An in-person

retirement celebration will be held once COVID restrictions lift; in the meantime, a virtual celebration will be planned after the holidays.

6. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
1.	Ms. Royer	Ms. Royer to include the progress of the optimized EVO delivery via solar-powered organic carbon (SPOC) injection system pilot test during future monthly program updates.	Ongoing	Open
2.	Ms. Royer	Ms. Royer will add the raw vapor intrusion data collected in August 2020 to the Addendum to the Initial Passive Vent System Sampling Work Plan as an appendix.	20 January 2021	Open

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

The RPM Teleconference is scheduled for 9:30 AM PST on 18 November 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

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

   B. ADDENDUM TO THE INITIAL PASSIVE VENT SYSTEMS SAMPLING WP

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

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.

2021

Annual Meeting and Teleconference Schedule

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

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

[2] Note: Tentative RAB tour(s) during construction season.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS		
Life Cycle	**Community Relations Plan Update[1] 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 (11-13-20)

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

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS	
Life Cycle	**Site FT004 POCO Soil Corrective Action Completion Report** **Travis AFB, Glenn Anderson** **CH2M, Doug Berwick** **CAPE, Meg Greenwald**
Scoping Meeting	**NA**
Predraft to AF/Service Center	11-16-20
AF/Service Center Comments Due	12-17-20
Draft to Agencies / RAB	12-31-20
Agency Comments Due	03-04-21
Response to Comments Meeting	03-17-21
Agency Concurrence with Remedy	NA
Public Comment Period	NA
Public Meeting	**NA**
Response to Comments Due	03-31-21
Draft Final Due	03-31-21
Final Due	04-30-21

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	**Quarterly Newsletter (April 2021) Travis, Glenn Anderson**	**2019 Annual GRISR Travis AFB, Glenn Anderson CH2M, Levi Pratt**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	02-24-21	05-04-20
AF/Service Center Comments Due	02-26-21	06-04-20
Draft to Agencies / RAB	03-01-21	06-25-20
Agency Comments Due	03-15-21	07-27-20 (08-07-20)
Response to Comments Meeting	**03-17-21**	**08-05-20 (08-21-20)**
Response to Comments Due	04-02-21	08-21-20 (10-22-20)
Draft Final Due	NA	NA
Final Due	04-05-21	08-21-20 (10-22-20)
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	12-01-20
Agency Comments Due	10-09-20	09-14-20	01-04-21
Response to Comments Meeting	**10-22-20**	**10-22-20**	**01-20-21**
Response to Comments Due	11-05-20	11-05-20 (12-03-20)	02-03-21
Draft Final Due	NA	NA	NA
Final Due	12-07-20	11-05-20 (12-03-20)	02-03-21
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	**Addendum to the Initial Passive Vent Systems Sampling Work Plan Technical Memorandum** **Travis AFB, Glenn Anderson** **CH2M, Stephanie Curtis**	**Technology Demonstration Technical Memorandum** **Travis AFB, Glenn Anderson** **CH2M, Tony Chakurian**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	10-30-20	11-30-20
AF/Service Center Comments Due	11-13-20	12-31-20
Draft to Agencies / RAB	11-25-20	01-14-21
Agency Comments Due	12-28-20	02-15-21
Response to Comments Meeting	**01-11-21**	**02-17-21**
Response to Comments Due	01-26-21	03-04-21
Draft Final Due	NA	NA
Final Due	01-26-21	03-04-21
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS	
Life Cycle	**SD031B POCO Additional Site Investigation Report** **Travis AFB, Glenn Anderson** **CH2M, Levi Pratt**
Scoping Meeting	**NA**
Predraft to AF/Service Center	12-29-20
AF/Service Center Comments Due	02-01-21
Draft to Agencies / RAB	02-16-21
Agency Comments Due	03-18-21
Response to Comments Meeting	**04-15-21**
Response to Comments Due	04-29-21
Draft Final Due	NA
Final Due	04-29-21
Public Comment Period	NA
Public Meeting	**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

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 240 **Reporting Period: 30 September 2020 – 2 October 2020** **Date Submitted: 10 November 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 October 2020 reporting period.

Table 1 – Operations Summary – October 2020

Initial Data Collection:	9/30/2020 11:00	**Final Data Collection:**	11/2/2020 11:45
Operating Time:		Percent Uptime:	
SBBGWTP:	794 hours	**SBBGWTP:**	100%
Electrical Power Usage:			
SBBGWTP:	18,923 kWh (15,603 lbs CO_2 generated[a])		
Gallons Treated: **6.485 million gallons**		Gallons Treated Since July 1998: **1.227 billion gallons**	
Volume Discharged to Union Creek: **6.485 million gallons**		Gallons Treated from Other Sources: **0 gallons**	
VOC Mass Removed: **1.15 lbs**[b]		VOC Mass Removed Since July 1998: **531.9 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: **$21,158**[c]			
Monthly Cost per Pound of Mass Removed: **$10,818**[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 October 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] – October 2020

FT005[b]				SS029		SS030	
EW01x05	Offline	EW743x05	Offline	EW01x29	Offline[c]	EW01x30	Offline[d]
EW02x05	Offline	EW744x05	1.0	EW02x29	Offline[c]	EW02x30	Offline[d]
EW03x05	Offline	EW745x05	7.8	EW03x29	8.0[e]	EW03x30	11.9
EW731x05	6.9	EW746x05	Offline	EW04x29	1.5	EW04x30	14.4
EW732x05	Offline	EW2291x05	3.7	EW05x29	5.6	EW05x30	6.6
EW733x05	Offline	EW2782x05	6.7	EW06x29	2.0	EW2174x30	1.0
EW734x05	5.7	EW2783x05	3.1	EW07x29	8.5	EW711x30	3.7
EW735x05	8.1	EW2784x05	Offline[d]			MW269x30	Offline[d]
EW736x05	Offline	EW2785x05	Offline[d]				
EW737x05	Offline	EW2786x05	13.6				
EW742x05	Offline						
FT005 Total: 56.6				**SS029 Total: 25.6**		**SS030 Total: 37.6**	

SBBGWTP Average Monthly Flow[f]: 136.2 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] Estimated based on historical performance of well.
[f] 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	None	--	--	--	

[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 2 October 2020. Sample results are presented in Table 4. The total VOC concentration (21.2 µg/L) in the influent sample decreased from the September 2020 sample results (23.0 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 20 µg/L. Cis-1,2-DCE was the only analyte detected in the midpoint sampling location, and no VOCs were detected in the effluent sample. No TPH was detected in the effluent sample.

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.

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

- EW734x05 – The pressure transducer was replaced. Well is currently on line.
- EW735x05 – The pump, motor, and totalizer were replaced. Well is currently on line.
- EW2782x05 – A cracked hose was observed inside the well vault. The hose was replaced with PVC pipe. Well is currently on line.
- EW06x29 – Installed a new variable frequency drive (VFD). Well is currently on line.

In addition, the SBBGWTP SCADA system is going to be upgraded in November and December 2020. Preparations for this upgrade are currently being implemented. Significant upgrade work is scheduled to begin on 30 November 2020.

Optimization Activities

No optimization activities occurred at the SBBGWTP in October 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 October 2020, the SBBGWTP produced approximately 15,603 pounds of GHG, which includes approximately 1,600 pounds of GHG generated from GAC change out services averaged to a per month basis.

TABLE 4
Summary of Groundwater Analytical Data for October 2020 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	2 October 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	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	1.2	1.4	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	20	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

[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

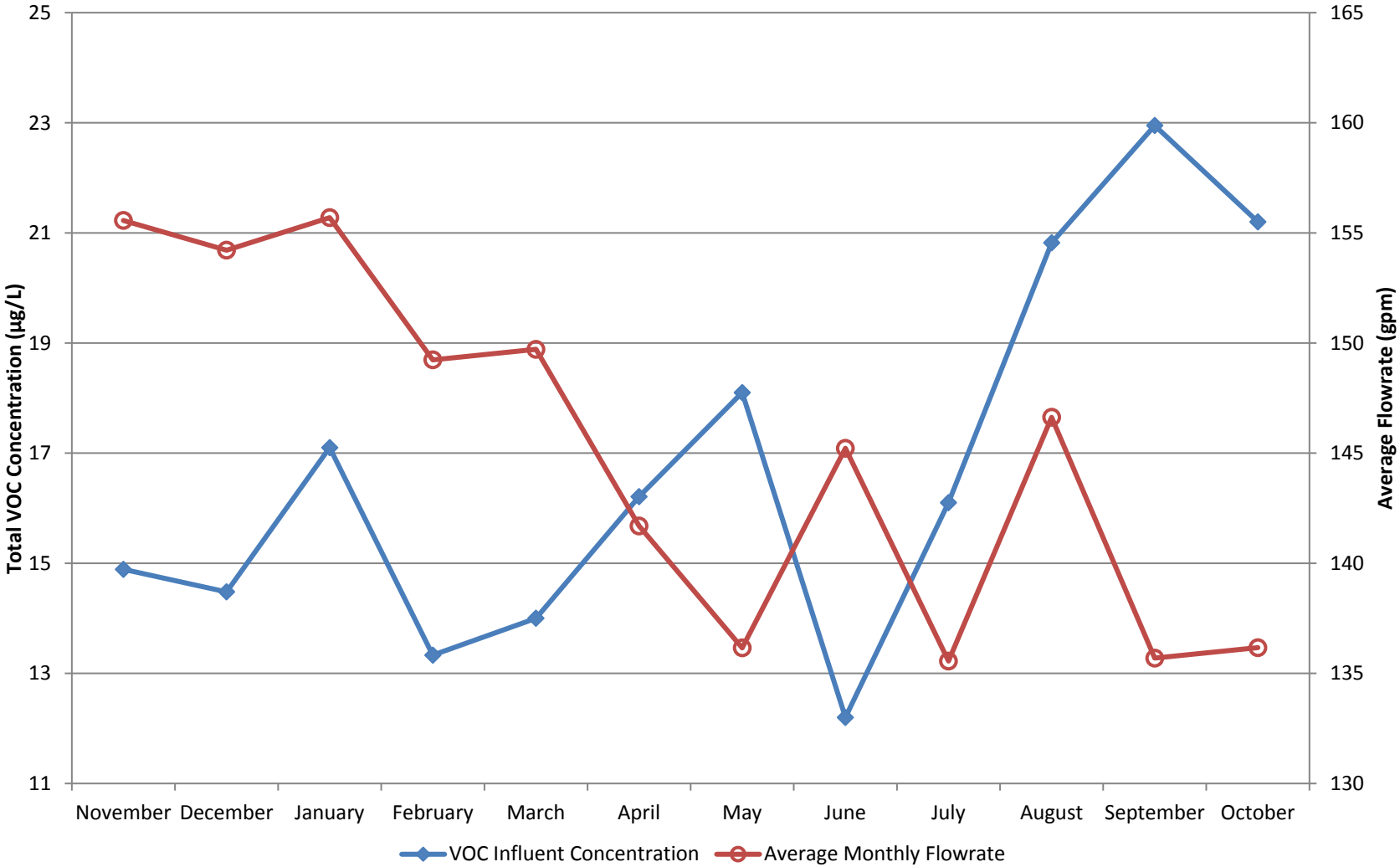
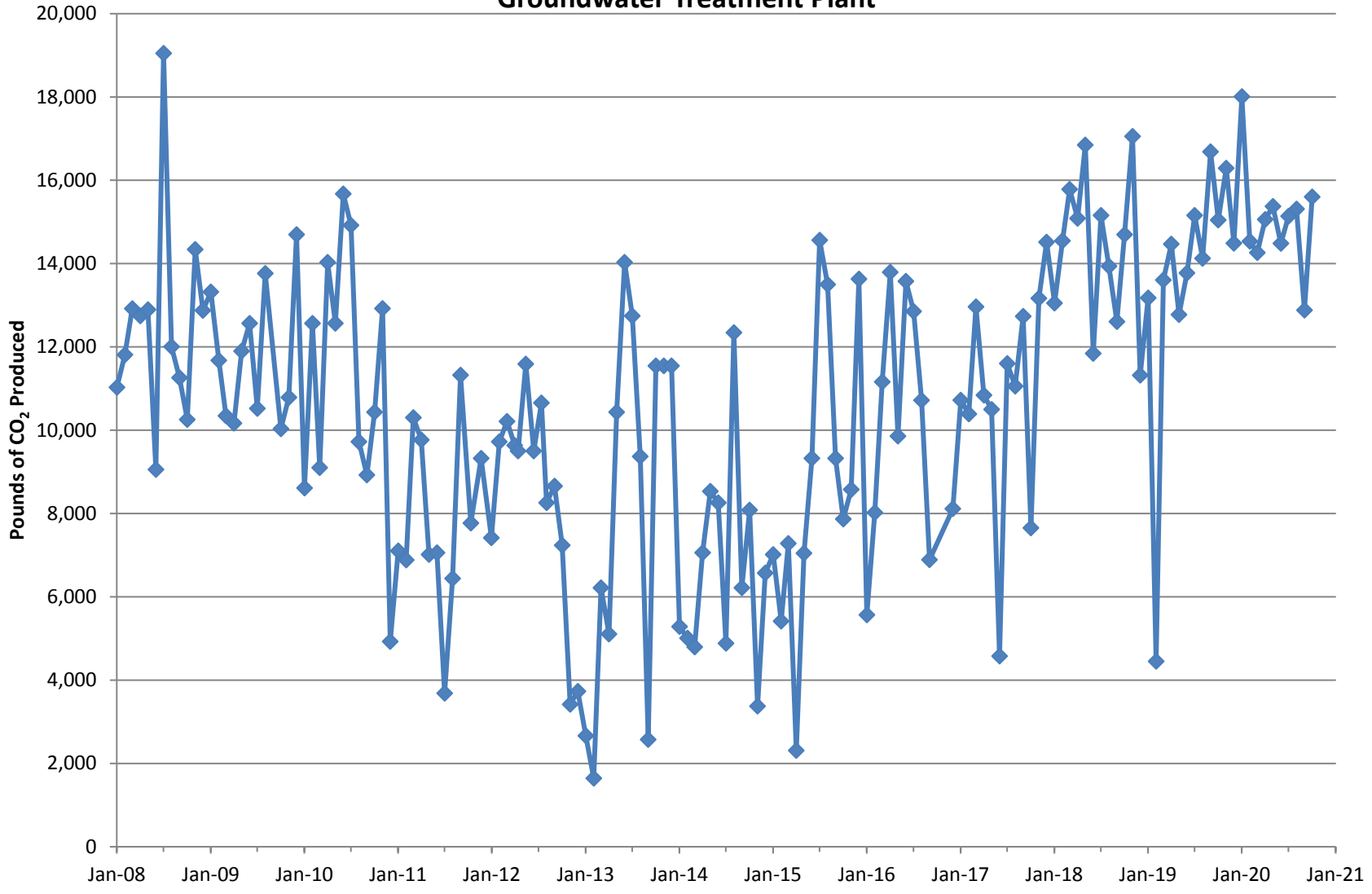


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 255 **Reporting Period: 30 September 2020 – 2 November 2020** **Date Submitted: 10 November 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 October 2020 reporting period.

Table 1 – Operations Summary – October 2020

Initial Data Collection:	9/30/20 9:45		**Final Data Collection:**	11/2/20 11:10	
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	794 hours	**CGWTP:**	100%	**CGWTP:**	1,220 kWh (1,791 lbs CO_2 generated[a])

Gallons Treated (discharge to storm sewer): **1,180,650 gallons**

Gallons Treated Since January 1996: **587.7 million gallons**

VOC Mass Removed from groundwater: **2.48 lbs**[b]

VOC Mass Removed Since January 1996: **2,871 lbs from groundwater**; **8,686 lbs from vapor**

Rolling 12-Month Cost per Pound of Mass Removed: $2,619[c]

Monthly Cost per Pound of Mass Removed: $1,375[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 October 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] – October 2020

Location	Average Flow Rate Groundwater (gpm)
EW001x16	10.9
EW002x16	6.7
EW003x16[b]	0.1
EW605x16	4.6
EW610x16	1.8
CGWTP	24.8

[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.
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 2 October 2020. Sample results are presented in Table 4. The total VOC concentration (251.80 µg/L) in the October 2020 influent sample has increased from the September 2020 sample (199.89 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 200 µg/L. No VOCs were detected in the samples collected after the first and second carbon vessels nor in the effluent sample. The effluent sample was also analyzed for TPH-g, TPH-d, and TPH-mo, and TPH was not detected. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough.

Figure 1 presents a plot of influent concentrations (total VOCs) and the influent flow rate at the CGWTP versus time for the past twelve (12) months. The influent concentrations 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. Between May and September 2020, the Oil Spill Area (OSA) extraction wells (EW605x16 and EW610x16) were periodically shut down as a precautionary measure during construction activities for the KC-46 hangar project. During these shutdowns, the overall flow rates and influent concentrations decreased. In September and October 2020, flow rates increased as the OSA wells were mostly operational; however, the average flow rates were less than the flow rate measured prior to the construction activities, which is expected during the dry season.

The Site SS016 subgrade biogeochemical reactor (SBGR), also known as the bioreactor and the Site DP039 bioreactor, continued operating in October 2020. On 21 October, a high-water level alarm was installed inside a piezometer within the infiltration trench at Site DP039. The alarm will send a notification to Travis AFB personnel if the water level inside the infiltration trench is approaching the ground surface. In addition, EW2783x39, which feeds into the infiltration trench, was restarted on 29 October. Both wells that feed into the infiltration trench are now on line. Travis AFB will monitor the water level within the infiltration trench and adjust flow rates as necessary to avoid surfacing of groundwater.

Optimization Activities

No optimization activities occurred at the CGWTP in October 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 1,791 pounds of GHG during October 2020.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	2 October 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	0.26 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.13 – 0.26	0	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16 – 0.32	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	0.53 J	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15 – 0.30	0	48	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	2.6	ND	ND	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	0.41 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	200	ND	ND	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	ND	ND	ND	ND
Non-Halogenated Volatile Organics							
Benzene	0.50	0.16 – 0.32	0	ND	ND	ND	ND
Ethylbenzene	0.50	0.16 – 0.32	0	ND	ND	ND	ND
Toluene	0.50	0.17 – 0.34	0	ND	ND	ND	ND
Total Xylenes	0.50	0.15 – 0.38	0	ND	ND	ND	ND
Other							
Total Petroleum Hydrocarbons – Gasoline (C6 – C10)	50	10	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel (C10 – C28)	50	25	0	NM	NM	NM	ND
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

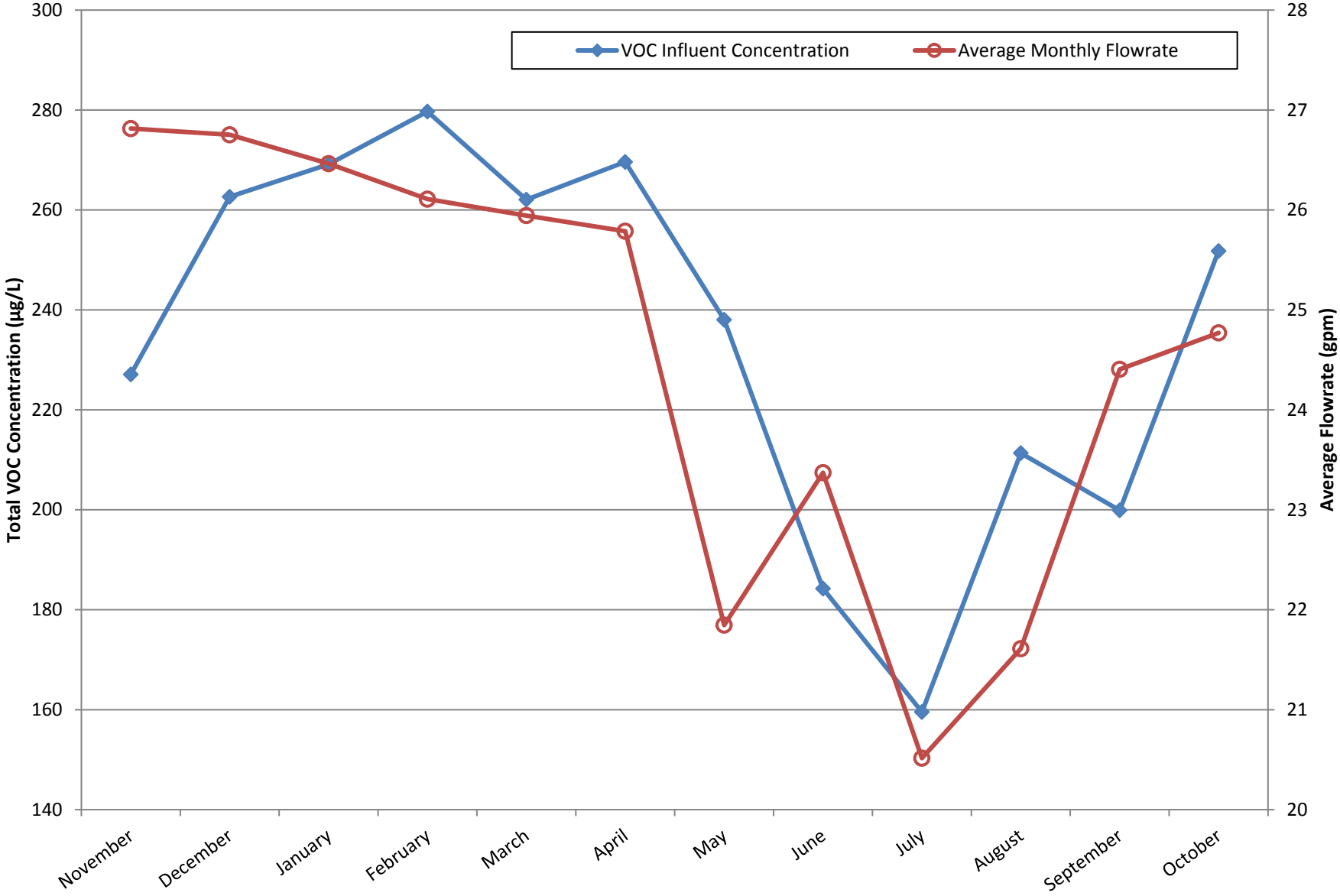
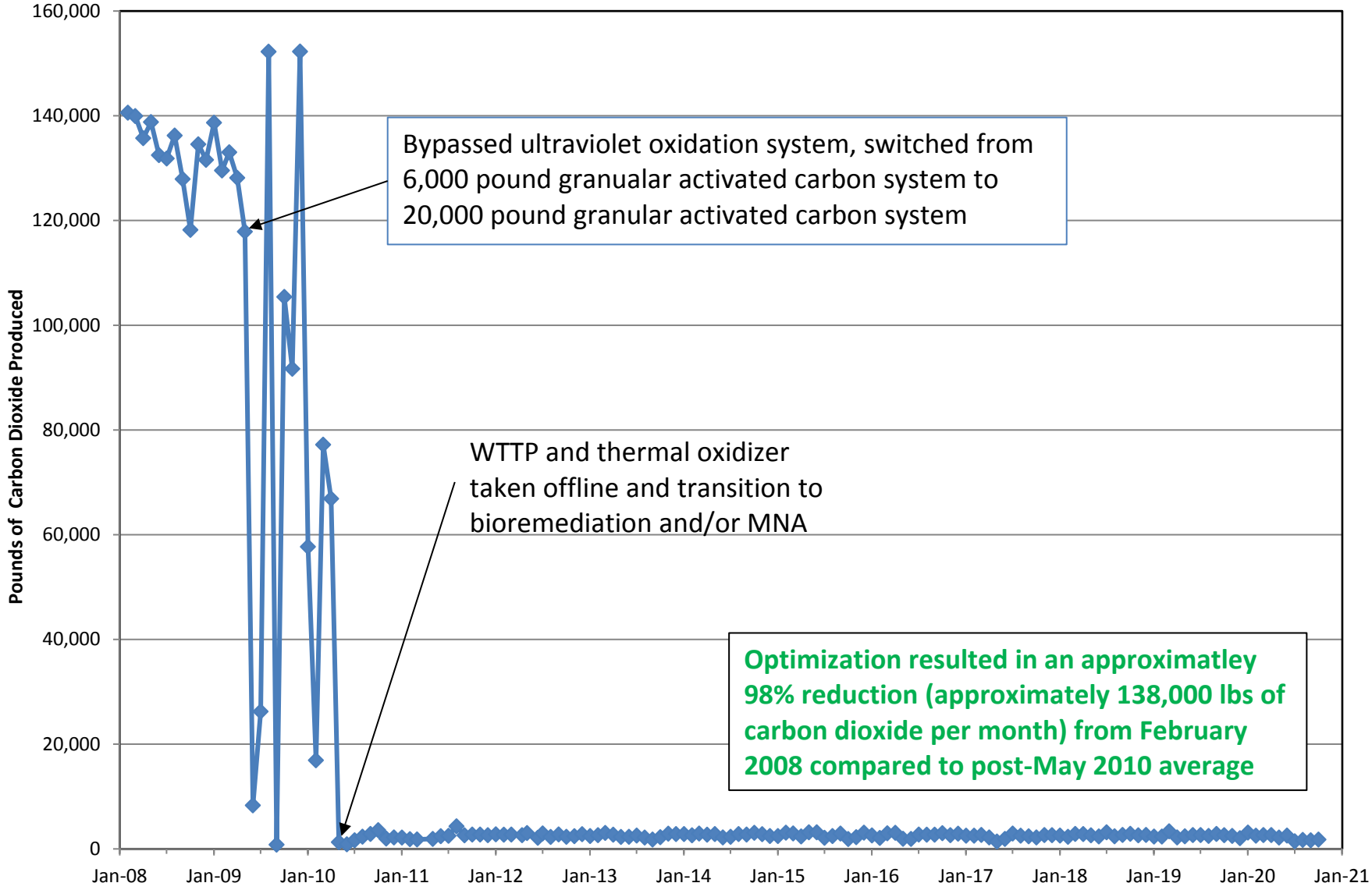


Figure 2

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



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 194 **Reporting Period: 30 September 2020 – 2 November 2020** **Date Submitted: 10 November 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 October 2020 reporting period:

Table 1 – Operations Summary – October 2020

Initial Data Collection:	9/30/2020 9:00			**Final Data Collection:**	11/2/20 10:30
Operating Time:		Percent Uptime:		Electrical Power Usage[a]:	
LF007C GWTP:	793.5 hours	**LF007C GWTP**	100%	**LF007C GWTP:**	0 kWh
Gallons Treated: **128,514 gallons**				Gallons Treated Since March 2000: **91.1 million gallons**	
Volume Discharged to Duck Pond: **128,514 gallons**					
VOC Mass Removed: **1.04 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 October 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 – October 2020

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	2.4	115,281[b]
EW615x07	0.4	20,883
LF007C GWTP	**2.7**	**128,514**

[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 2 October 2020. Sample results are presented in Table 4. The total VOC concentration in the October 2020 influent sample was 0.97 µg/L. TCE was the only VOC detected at the influent sample location. No VOCs were detected in the midpoint and effluent sample locations. In addition, there were no detections of TPH in the effluent samples.

Starting in November 2020, none of the monthly samples will be analyzed for TPH (gas, diesel, motor oil). The decision to stop analyzing for TPH was agreed to by the Water Board and Travis AFB on 21 October 2020 following discussions regarding the likelihood of false positives.

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

Optimization Activities

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	2 October 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	ND	ND
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	0.97 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	ND
Total Petroleum Hydrocarbons – Diesel	50	5.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	NM	NM	ND

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

Notes:
J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant.
NA = not applicable
N/C = number of samples out of compliance with discharge limits.
ND = not detected
NM = not measured
µg/L = micrograms per liter

Figure 1

LF007CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

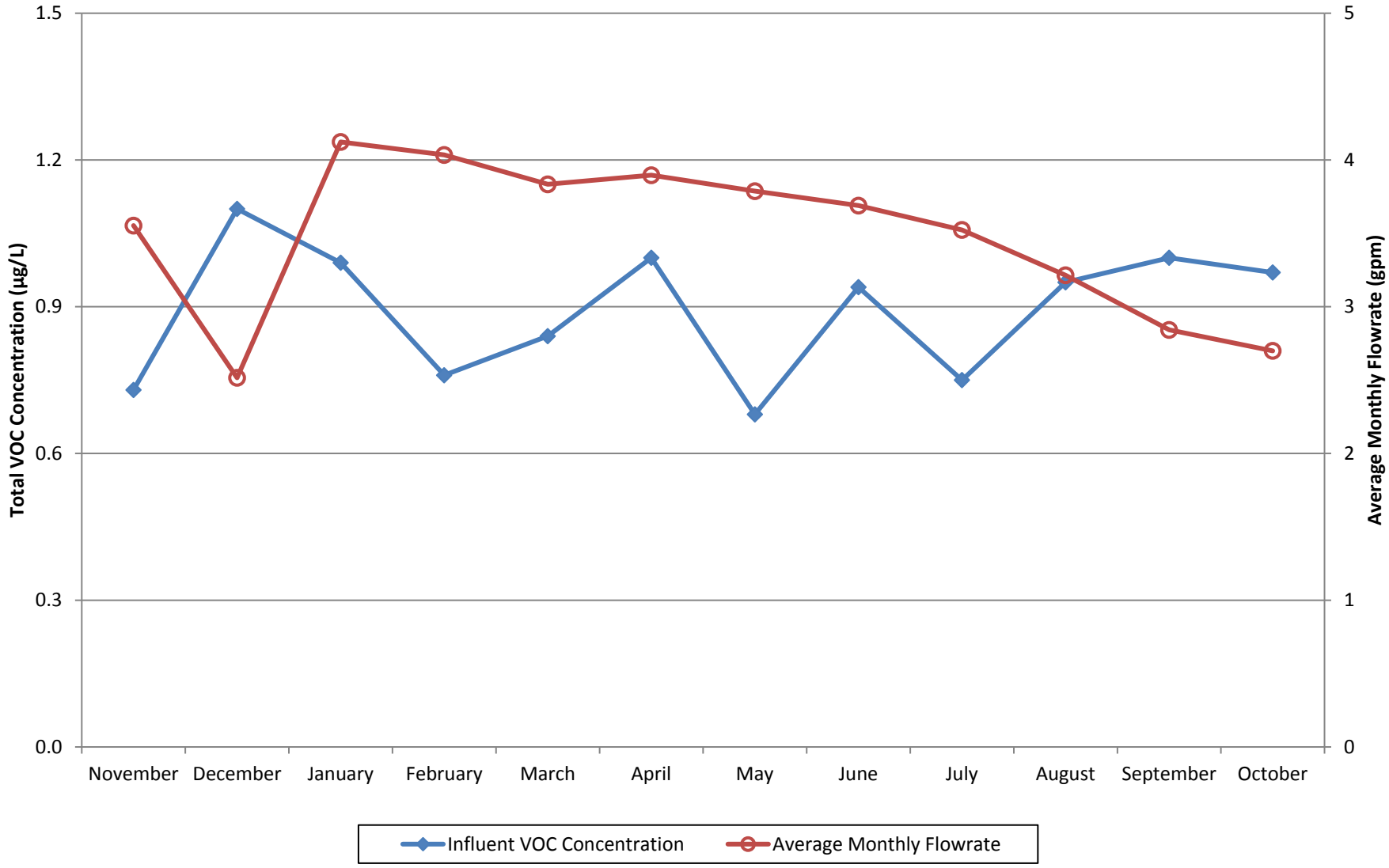
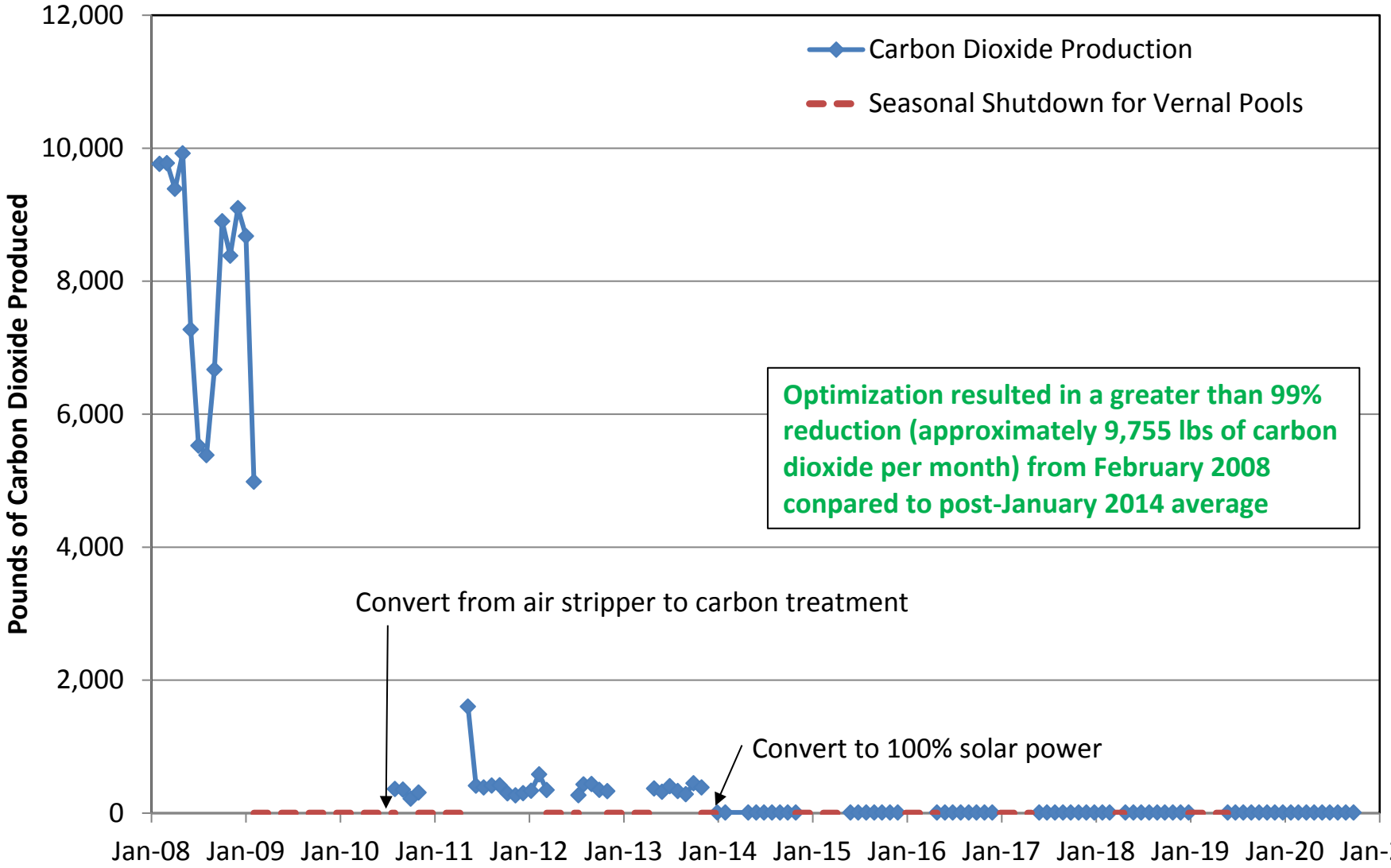


Figure 2

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: 116 **Reporting Period: 30 September 2020 – 2 November 2020** **Date Submitted: 10 November 2020**

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

System Metrics

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

Table 1 – Operations Summary – October 2020

Initial Data Collection:	9/30/2020 9:30	**Final Data Collection:**	11/2/2020 13:05
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 797 hours		**ST018GWTP: 100**%	**ST018GWTP:** 62 kWh (46 lbs CO_2 generated[a])
Gallons Extracted: **107,255 gallons**		Gallons Extracted Since March 2011: **19.7 million gallons**	
Volume Discharged to Sanitary Sewer: **107,255 gallons**		Final Totalizer Reading: **19,672,349 gallons**	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **13.2 million gallons**			
MTBE, BTEX, VOC, TPH Mass Removed: **0.07 lbs**[b]		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **49.5 lbs**	
MTBE (Only) Removed: **0.02 lbs**[b]		MTBE (Only) Mass Removed Since March 2011: **12.1 lbs**	
Rolling 12-Month Cost per Total Pounds of Mass Removed: $71,802[bc]			
Monthly Cost per Pound of Mass Removed: $46,198[bc]			

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

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.1	797
EW2016x18	0.9	797
EW2019x18	0.0	Offline[b]
EW2333x18	2.0	797
ST018GWTP	2.2	797

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

gpm = gallons per minute
ST018GWTP = Site ST018 Groundwater Treatment Plant

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart[a]		Cause
	Date	Time	Date	Time	
ST018	None	--	--	--	

-- = Time not recorded
[a] Shutdown and restart times estimated based on field notes
ST018GWTP = Site ST018 Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater discharge samples were collected at the ST018GWTP on 2 October 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 October 2020 laboratory data report is available upon request. The MTBE discharge concentration during the October 2020 sampling event was 17 µg/L, which is an increase from the September 2020 sample result of 1.8 J 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 as expected. The extracted MTBE concentrations and extracted total concentrations have exhibited overall decreasing trends over the past 12 months.

The total reported flow for the system was lower than the sum of the extraction wells in October 2020. Troubleshooting will continue in November 2020 to help determine the cause of the discrepancy.

Optimization Activities

No optimization activities occurred at the ST018GWTP in October 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 46 pounds of GHG during October 2020 and removed 107,255 gallons of water. The amount of GHG produced is directly attributed to the amount of water removed through the system because the only line-power electrical use is for a transfer pump to push the water from the system to the sanitary sewer.

TABLE 4
Summary of Groundwater Analytical Data for October 2020 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	2 October 2020 (µg/L)
				System Discharge[b]
Fuel Related Constituents				
Methyl tert-Butyl Ether	6,400	0.25	0	17
Benzene	25,000[c]	0.16	0	0.53 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	15 J
Total Petroleum Hydrocarbons – Diesel	50,000[d]	15	0	48
Total Petroleum Hydrocarbons – Motor Oil	100,000	160	0	ND
Other				
Acetone	NA	1.9	0	ND
2-Butanone (MEK)	NA	2.0	0	ND
1,2-Dichloroethane	20	0.13	0	ND
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

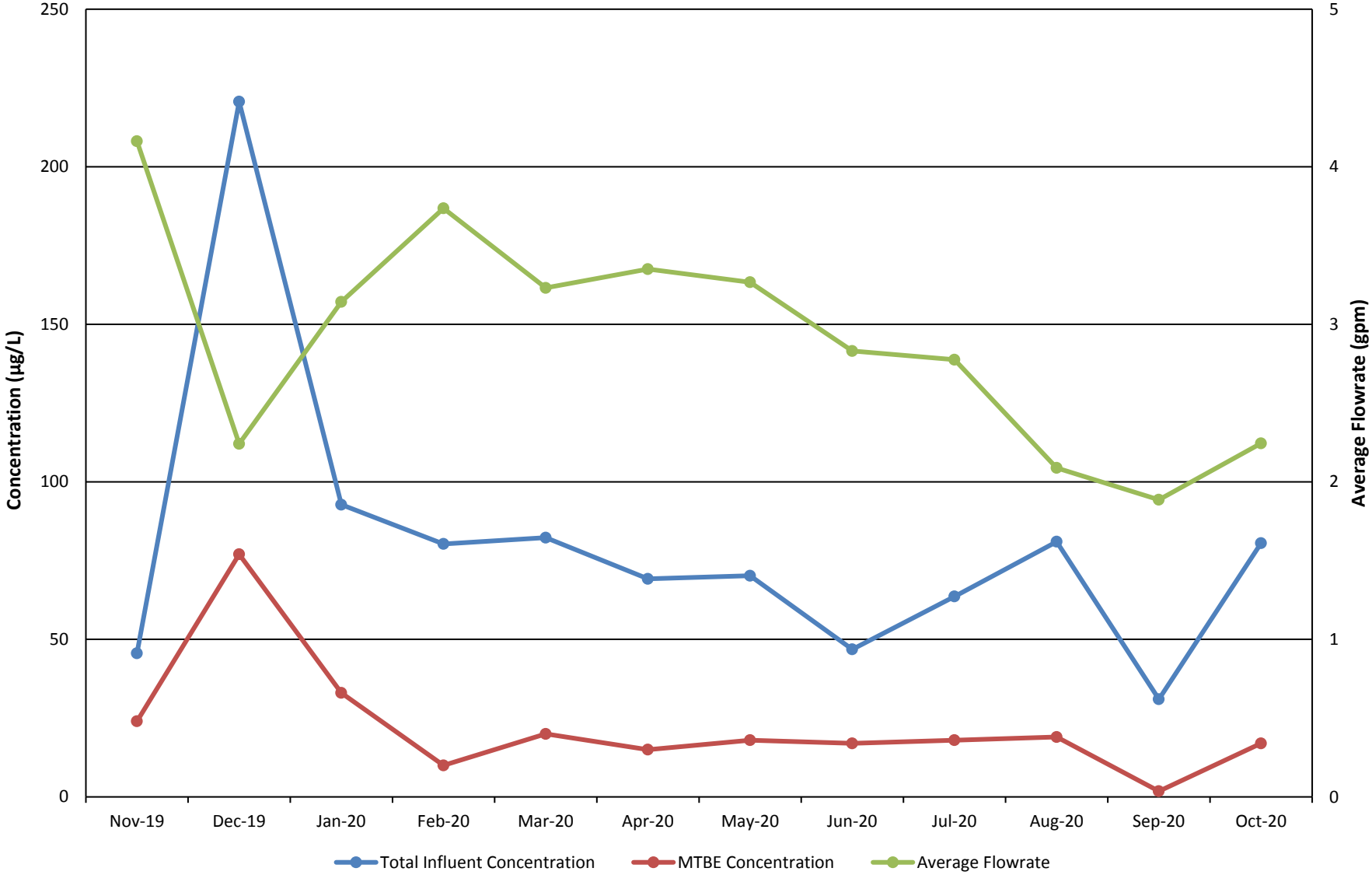
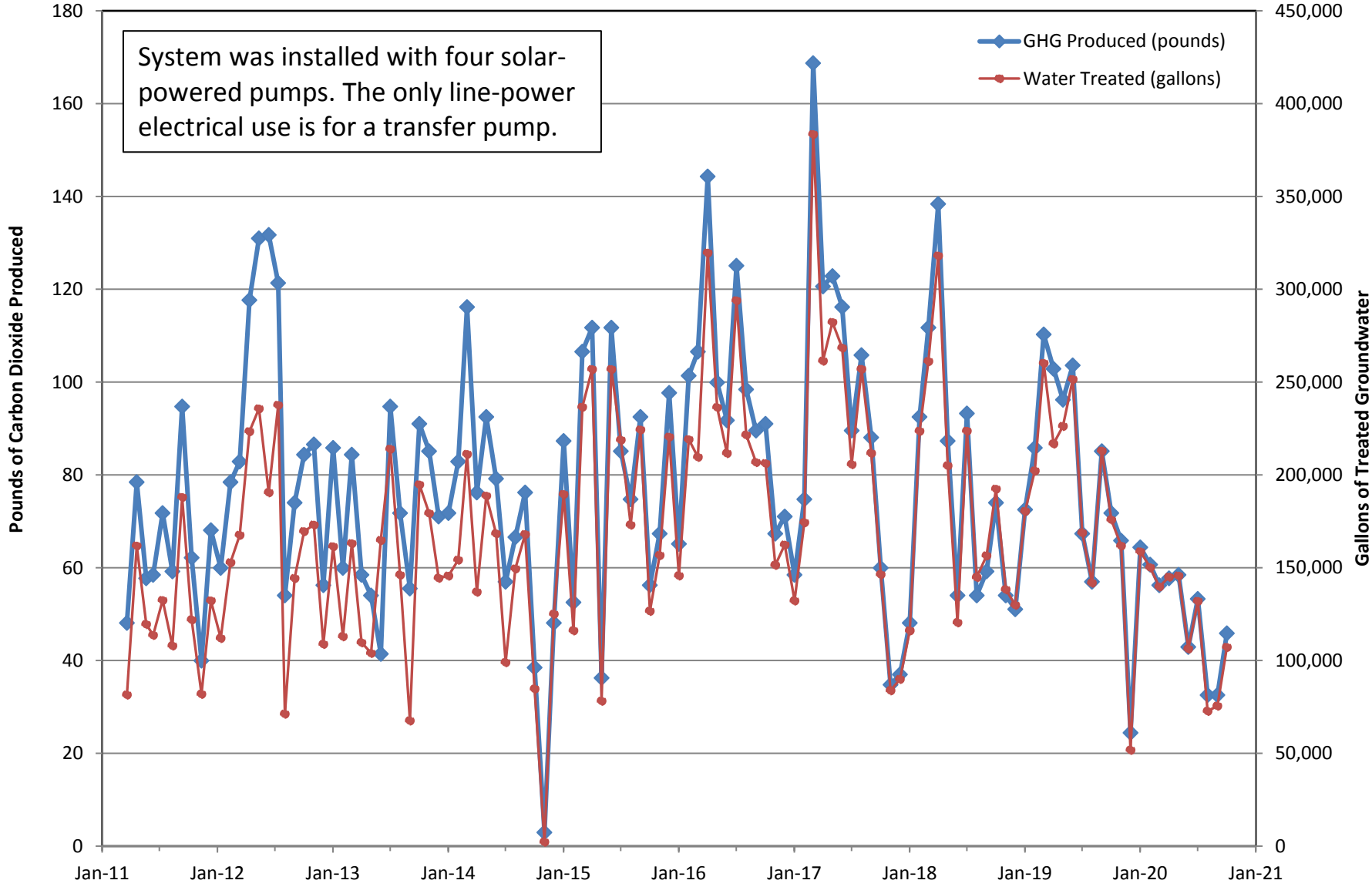


Figure 2

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



PFOS/PFOA Updates
18 Nov 2020 RPM Meeting

Extended Site Inspection

-Two mile radius

All six letters regarding off-base sampling results of private drinking water wells within two miles of the base were successfully delivered to the respective property owners. Three wells were above the EPA LHA for PFOS/A.

Two of three right of entry (ROE) agreements were signed by the property owners facilitating the installation of GW treatment system of private wells used for drinking water which tested above EPA LHA for PFOS/A.

Initial design information for point of entry treatment system (POETS) installation was reviewed. The POETS will be installed on the three properties above EPA LHA. Anticipate treatment system designs completed by the end of Nov.

-Four mile radius

Step-out sampling letters were sent 26 Oct via USPS certified mail to five off-base property owners requesting to sample their private drinking water wells. These wells are within four miles of the base. Confirmed most property owners have received letters but Travis has only received permission to sample at one of the properties.

Relative Risk Site Evaluation

Comments to the RRSE received from EPA and RWQCB. Response to EPA comments occurred on 23 Oct via email. RWQCB RTCs are complete and under internal review prior to submittal to regulatory stakeholders.

Remedial Investigation

The second RI Work Plan meeting occurred on 12 November. The objective of the meeting was to inform as well as to reach consensus on the best locations for the analysis of five (5) cross sections across Travis AFB.

The cross sections join existing data points and will be used to support the selection of new monitoring well locations in concert with data from the initial sampling of existing GW monitoring wells, and the off-base sampling data. 685 boring logs and 1,557 lithology data points were initially analyzed with 125 unique data points selected for the development of the five cross section locations.
The RI contract calls for the installation of 50 pairs of GW monitoring wells for a total of 100 wells.

The pre-draft Work Plan, QAPP, and Safety Plan are under internal review by Travis, USACE, and AFCEC PFOA/S Team. Scheduled due date for pre-draft comments is 27 Nov.

Travis AFB
Restoration Program

Program Update

RPM Meeting November 18, 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
- ***2019 GRISR***
- ***2019 CAMU Monitoring Report***
- ***SD031 Soil RI/FS***

Completed Field Work (1)

- Replace battery banks at ST018 Groundwater Treatment Plant
- Annual Groundwater Remediation Implementation Program (GRIP) Sampling event
- Well Decommissioning (9 Wells)
- Electrical repairs to FT005 extraction system (well EW01x05)
- Electrical repairs to Site SS029 extraction system
- Site ST018 carbon vessels upgrade
- 2014 GRIP Semiannual Sampling Event
- Pump repairs to Site SS016 well (EW610x16)
- Subsite LF007C optimization upgrades
- 2014 Annual GRIP Sampling Event
- Biological Resource Assessment
- Site CG508 Site Investigation
- Old Skeet Range Characterization Sampling
- 4Q Semiannual GRIP Sampling Event
- SD031 Technology Demonstration Well Installation
- SD037 Well Installation
- SD031 Trench/Conveyance/Power Installation
- SD031 EVO Injection
- ST018 Well Installation
- SS015 Well Installation
- SS016 Well Installation
- Well Development (SD036, SD037)
- ST018 Trench/Conveyance/Power Installation
- SD036 EVO Injection
- Well Development (SS015, SS016)
- Baseline Sampling (SS015, SS016)
- SS014 Data Gap Investigation
- SS016 EVO Injection
- TA500 Data Gaps Investigation

Completed Field Work (2)

- 2015 Annual GRIP Sampling
- SD037 EVO Injection
- SD034 Data Gaps Investigation
- SS015 EVO Injection
- FT005 Injection Well Installation
- OWS 47, 48, 49 Site Investigations
- SS030 Trench/Conveyance/Power Installation
- FT005 Trench Installation
- FT005 Well Development
- FT004 Well Installation, Well Development, Baseline Sampling
- FT005 Baseline Sampling
- DP039 Well Installation, Well Development, Baseline Sampling
- FT004 EVO Injection
- FT004 Trench/Conveyance/Power Installation
- DP039 Infiltration Trench Installation
- TA500 Groundwater Sampling
- FT005 EVO Injection
- 2016 Q2 GRIP Sampling
- Data Gap Inv. for Soil Sites (SD043, SS046)
- SD031 Remedial Investigation Step-out Sampling (2nd round)
- DP039 EVO Injection
- CG508 Well Decommissioning
- SD033 Soil Sampling
- Multi-site Bioaugmentation Well Installation
- SD034 Technology Demonstration Well Installation
- SS014 Bioreactor Installation
- ST028 & ST032 Well Decommissioning

Completed Field Work (3)

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

Completed Field Work (4)

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

Completed Field Work (5)

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

Completed Field Work (6)

- ***4Q20 GRIP***
- ***CAMU Topographic Survey***

Documents In-Progress

CERCLA

- SS016 Soil RACR

POCO

None

Field Work In-Progress

CERCLA

None

POCO

None

Documents Planned

CERCLA

- Addendum to the Initial Passive Vent System Sampling Work Plan — Nov
- Site LF008 Remedial Infrastructure Decommissioning TM — Dec
- Technology Demonstration TM — Jan

POCO

- Site FT004 POCO Soil Corrective Action Completion Report — Dec
- ***Site SD031B POCO Additional Site Investigation Report*** — ***Feb***

Field Work Planned

CERCLA

- ***SBBGWTP SCADA Upgrade*** ***Nov-Dec***
- ***Winter 2021 Vapor Intrusion Sampling Event*** ***Jan***

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

Addendum to the Initial Passive Vent Systems Sampling Work Plan

RPM Meeting – Travis AFB

November 18, 2020

Overview

- Initial Passive Vent Systems Sampling Work Plan (WP)
  - Finalized in July 2020
  - Included indoor/outdoor/passive vent system sampling at Bldgs 38, 554, and 837
  - First of two planned sampling events completed in August 2020
  - Winter 2021 sampling event (second planned sampling event) will overlap with additional sampling included in the Addendum to the WP
- Addendum to the WP
  - Draft expected in December 2020 and includes:
    - Exterior soil gas samples and subslab vapor samples
    - Radon tracer test
    - Sampling at Bldg 549
    - Increase in number of indoor air samples collected
    - An additional sampling event (spring 2021)

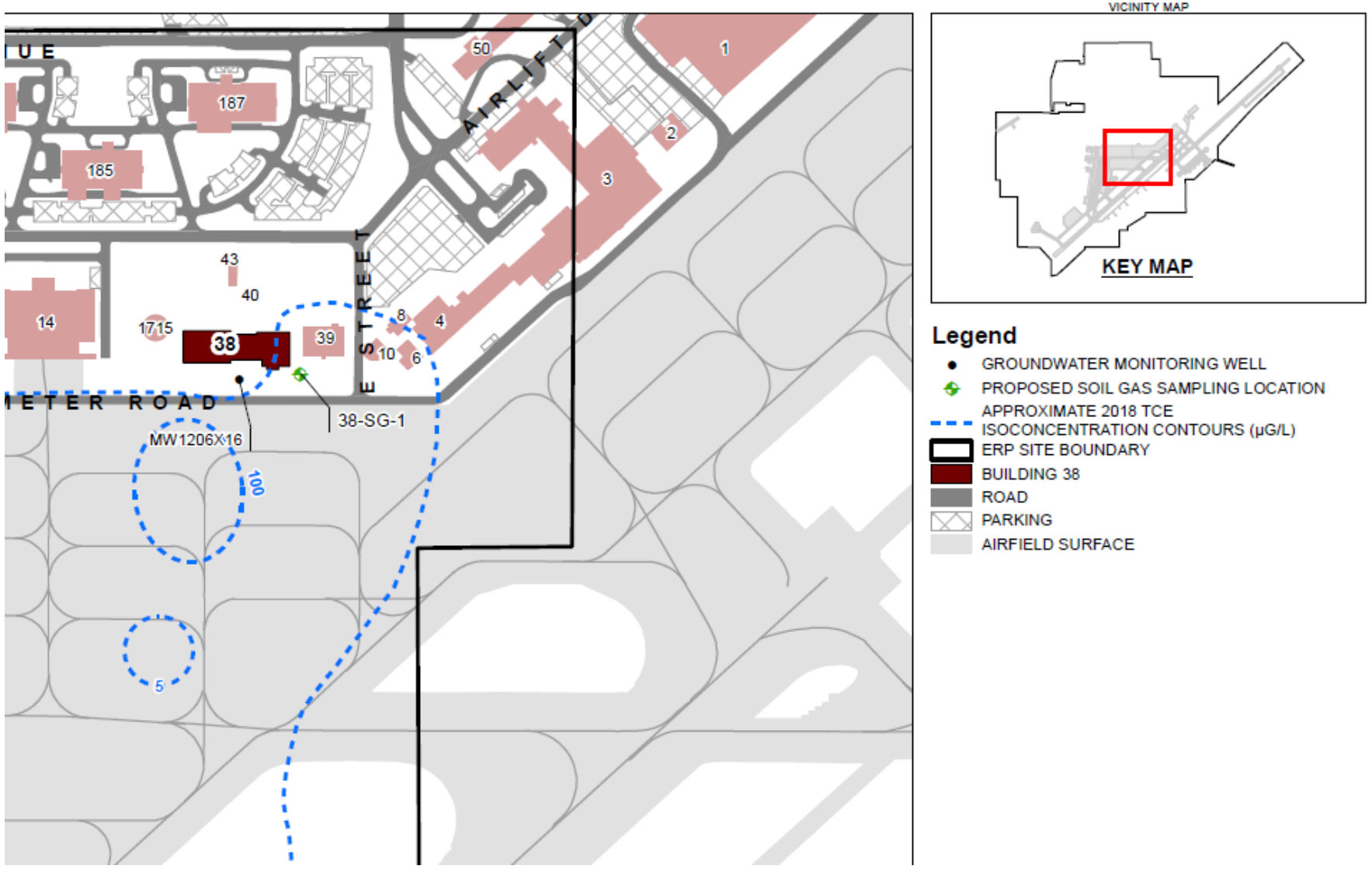
Purpose

- Provide additional data to evaluate VOC source strength beneath Bldgs 38, 554, and 837
- Evaluate whether indoor air concentrations at Bldgs 38, 549, 554, and 837 (the 4 buildings identified in the 5-Yr Review) exceed risk-based concentrations (RBCs) because of Vapor Intrusion (VI)

Exterior Soil Gas Samples

- One exterior soil gas sample near each building (38, 549, 554, and 837)
- Placement overlying groundwater VOC plume
- Target sample depth 5-6 feet bgs (avoid capillary fringe)
- Soil gas analyzed for VOCs (TO-15 SIMS) and helium (EPA 3C modified)
- Data will be used to assess source strength and attenuation
- Will be collected in winter 2021

Building 38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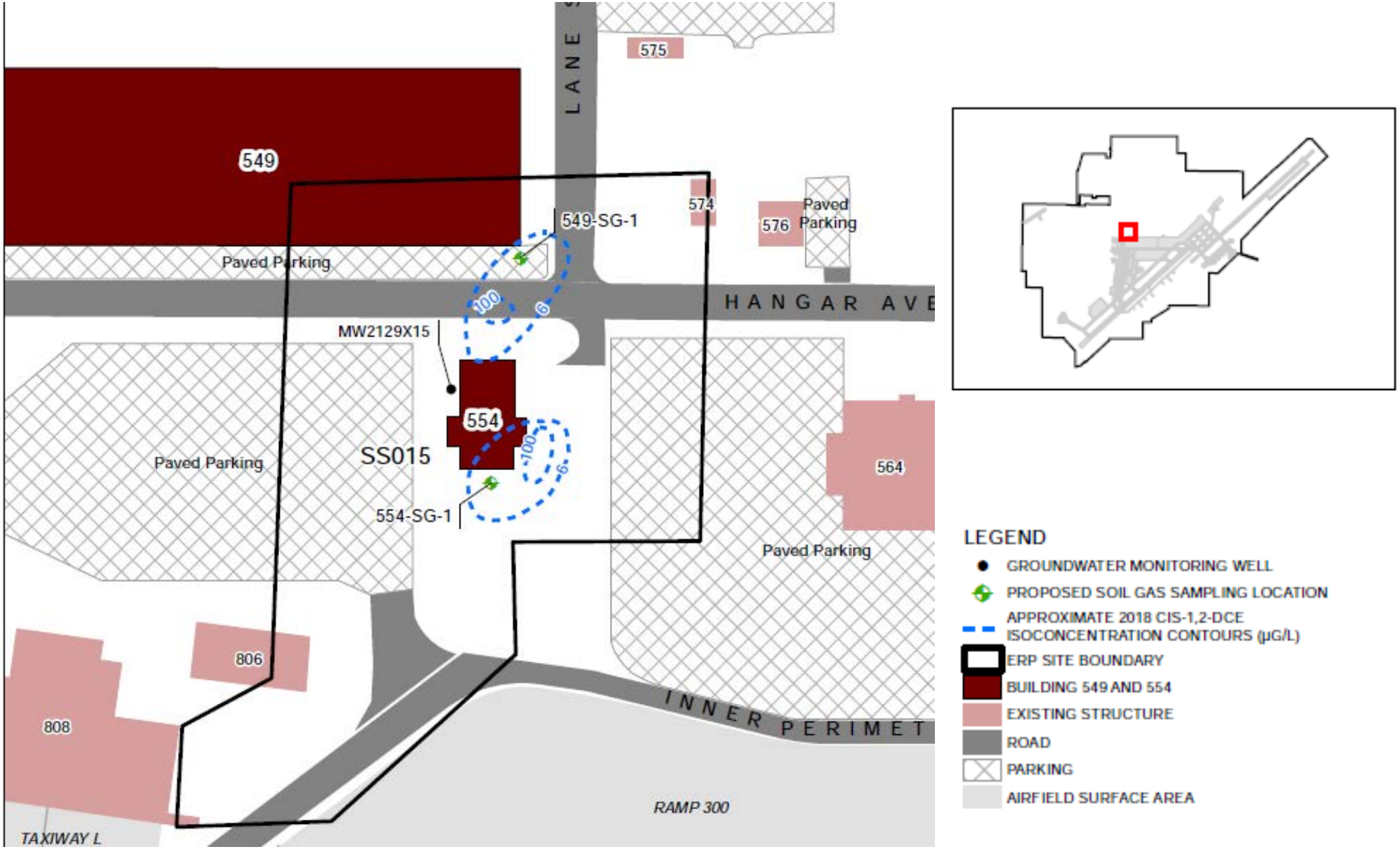
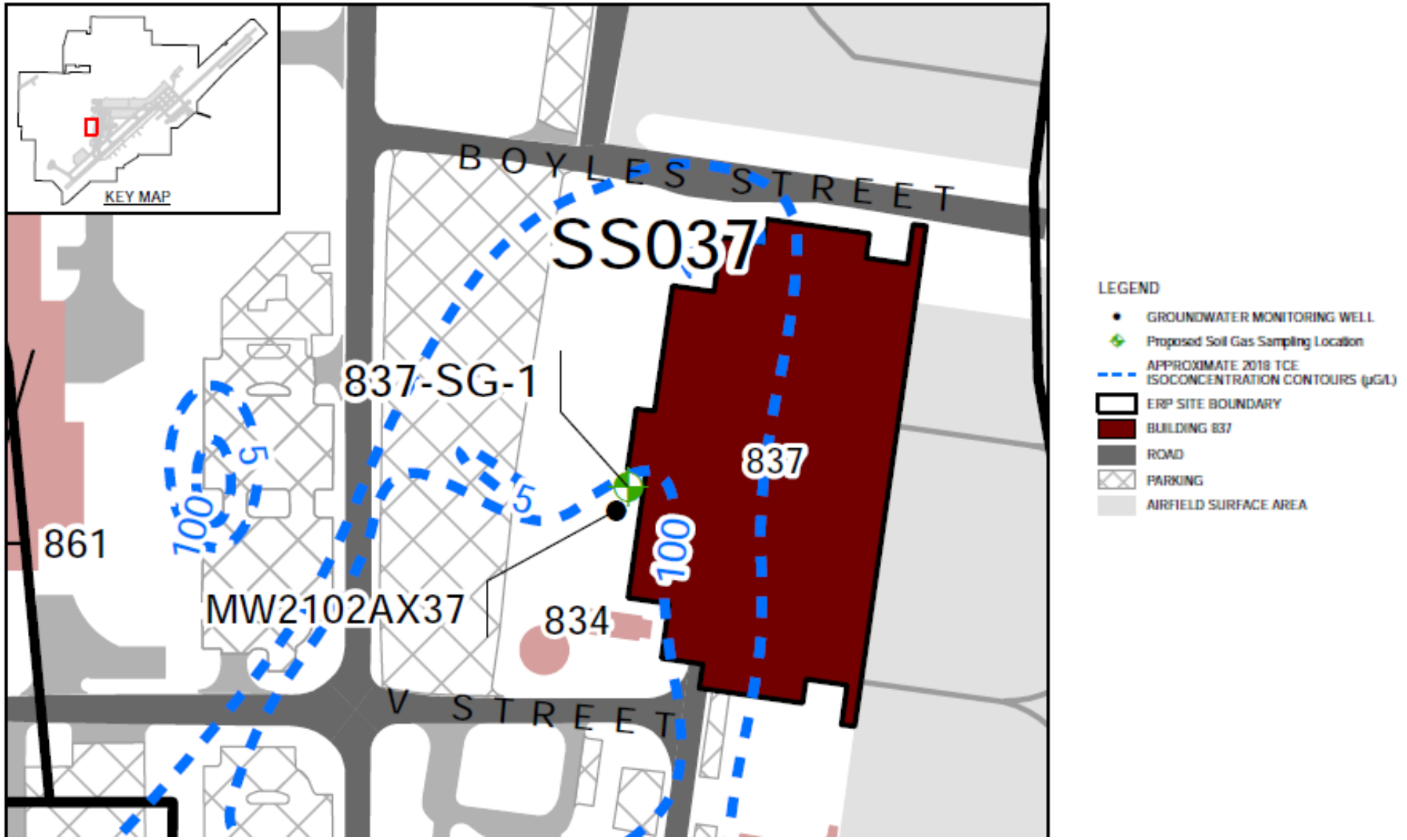
S T R E E T
E T E R R O A D
38-SG-1
MW1206X16
100
5
VICINITY MAP
KEY MAP
Legend
GROUNDWATER MONITORING WELL
PROPOSED SOIL GAS SAMPLING LOCATION
APPROXIMATE 2018 TCE ISOCONCENTRATION CONTOURS (µG/L)
ERP SITE BOUNDARY
BUILDING 38
ROAD
PARKING
AIRFIELD SURFACE

Buildings
549 and 554



Building 837



Subslab Vapor Probes

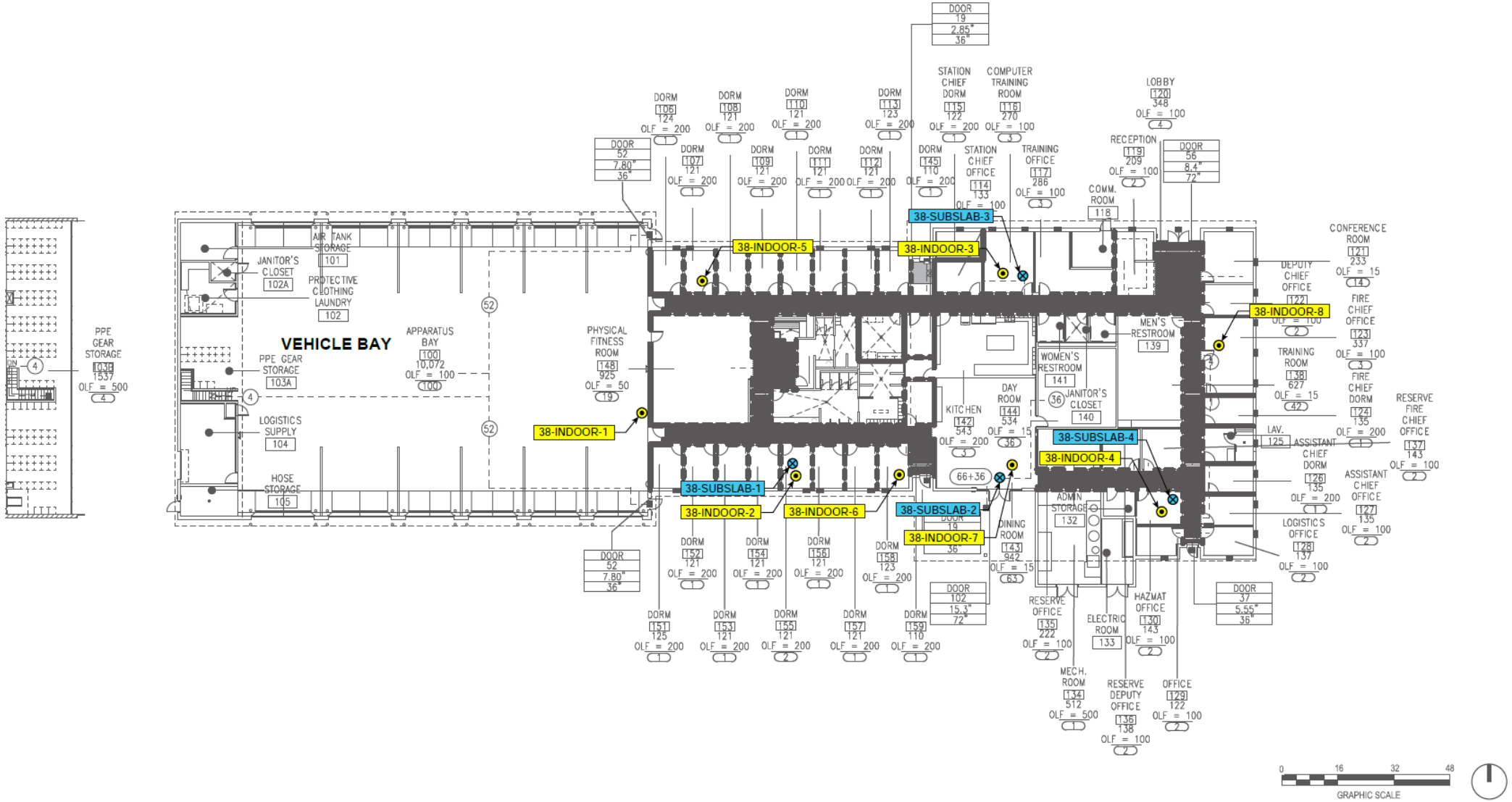
- Subslab vapor probes will be installed at Bldgs 38, 554, and 837 (all have passive vent systems)
- 4 probes at each building
- Paired with indoor air sampling locations
- Samples will be collected in winter 2021 and spring 2021
- Samples will be analyzed for VOCs and helium
  - Radon will be analyzed in winter 2021 only

Subslab Vapor Probes

- Results will be used to assess:
  - source strength
  - attenuation (by comparing to indoor air/outdoor air)
  - passive vent system performance

Subslab Vapor Probes

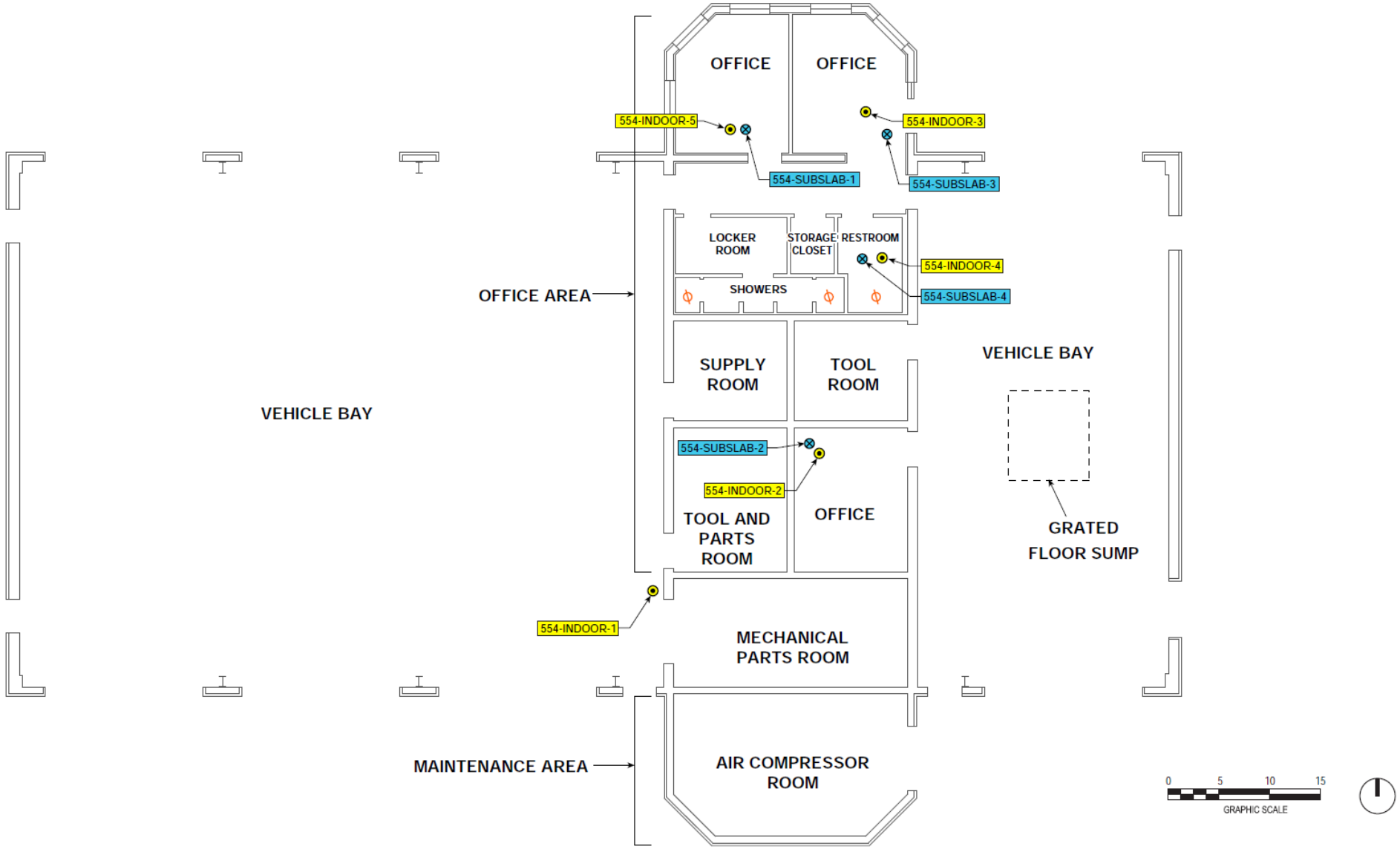
- Installation approach will depend on passive vent system design
- Bldgs 38 and 554, a 6-inch gravel passive venting layer overlies the vapor barrier. A stop will be used on the drill bit to prevent the drill from puncturing the vapor barrier once the building foundation is penetrated.
- Bldg 837, the vapor barrier immediately underlies the building foundation. However, the passive vent system only underlies the office space and is not present in the hangar portion.
- The subslab probes at Bldg 837 will be installed in the hangar, around the exterior of the office space. If the hangar foundation exceeds 24 inches, no subslab probes will be installed. Subslab data would be restricted to passive vent layer samples.



LEGEND

- SAMPLE LOCATION NAME
- PROPOSED INDOOR AIR SAMPLE LOCATION
- PROPOSED SUBSLAB VAPOR SAMPLE LOCATION

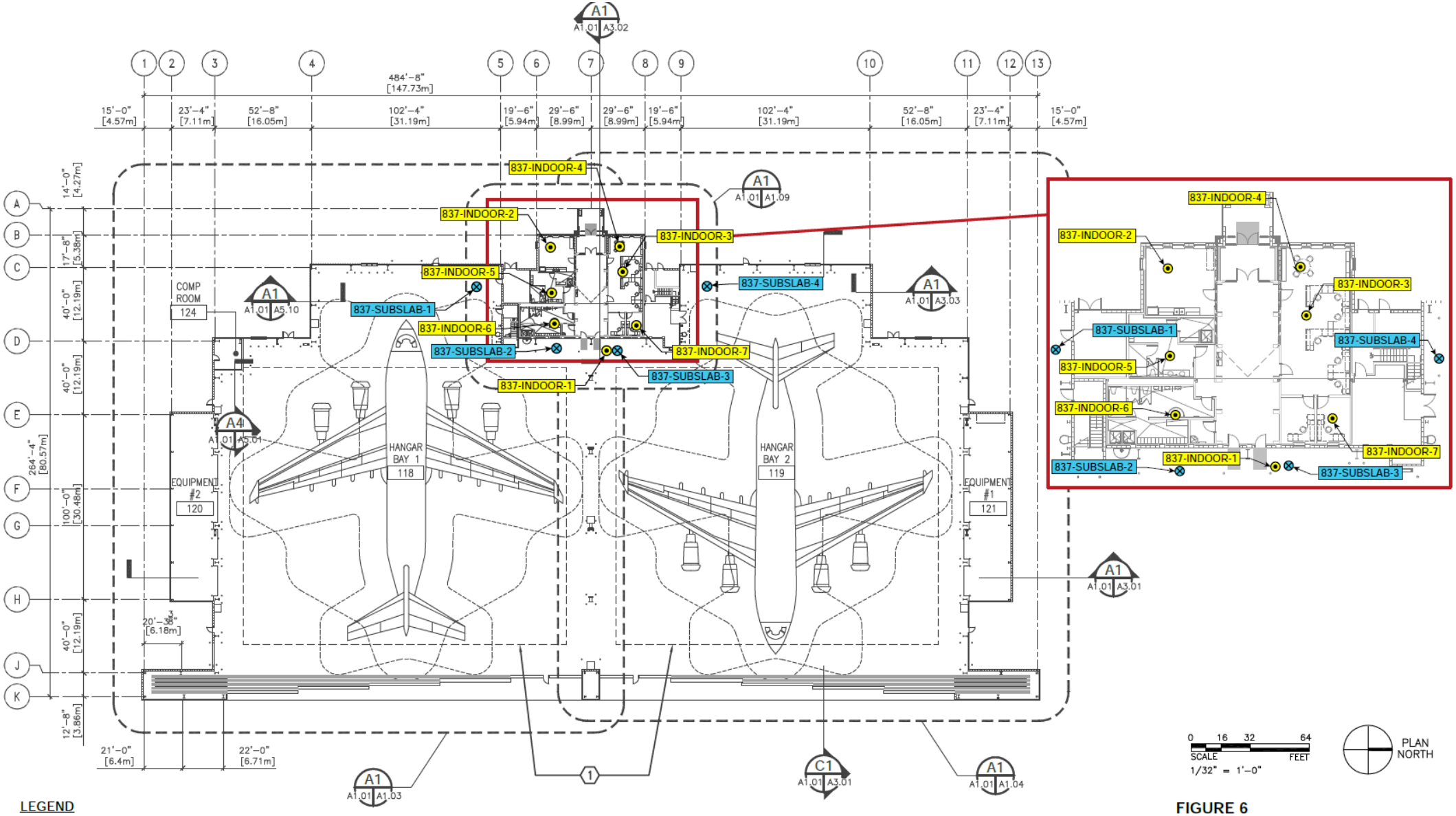
FIGURE 4
PROPOSED INDOOR AIR AND SUBSLAB VAPOR SAMPLING LOCATIONS AT BUILDING 38
ADDENDUM TO THE INITIAL PASSIVE VENT SYSTEMS SAMPLING WORK PLAN TECHNICAL MEMORANDUM



LEGEND

- SAMPLE LOCATION NAME
- PROPOSED INDOOR AIR SAMPLE LOCATION
- PROPOSED SUBSLAB VAPOR SAMPLE LOCATION
- FLOOR DRAIN

FIGURE 5
PROPOSED INDOOR AIR AND SUBSLAB VAPOR SAMPLING LOCATIONS AT BUILDING 554
ADDENDUM TO THE INITIAL PASSIVE VENT SYSTEMS SAMPLING WORK PLAN TECHNICAL MEMORANDUM
TRAVIS AIR FORCE BASE, CALIFORNIA



LEGEND

- SAMPLE LOCATION NAME
- PROPOSED INDOOR AIR SAMPLE LOCATION
- PROPOSED SUBSLAB VAPOR SAMPLE LOCATION (LOCATED IN HANGAR, OUTSIDE OF VAPOR BARRIER FOOTPRINT)

FIGURE 6
PROPOSED INDOOR AIR AND SUBSLAB VAPOR SAMPLING LOCATIONS AT BUILDING 837
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Radon Tracer Test

- Data for the radon tracer test will be collected in winter 2021
- Radon is a naturally occurring radioactive gas
- Useful for tracer tests because
  - It is ubiquitous in the soil and present in measurable quantities throughout the US
  - Indoor air sources of radon are rare (unlike VOCs)
  - Provides a useful check on the potential influence of indoor air VOC sources when assessing attenuation and passive vent system performance

Radon Tracer Test

- Will be performed at the 3 buildings with passive vent systems (38, 554, and 837)
- Data to be collected from each of the 3 buildings:
  - 4 subslab radon measurements (RAD7 meter)
  - 4 indoor air radon test kits (one near each subslab location)
  - 2 outdoor air radon test kits (one near each VOC outdoor air sample location)

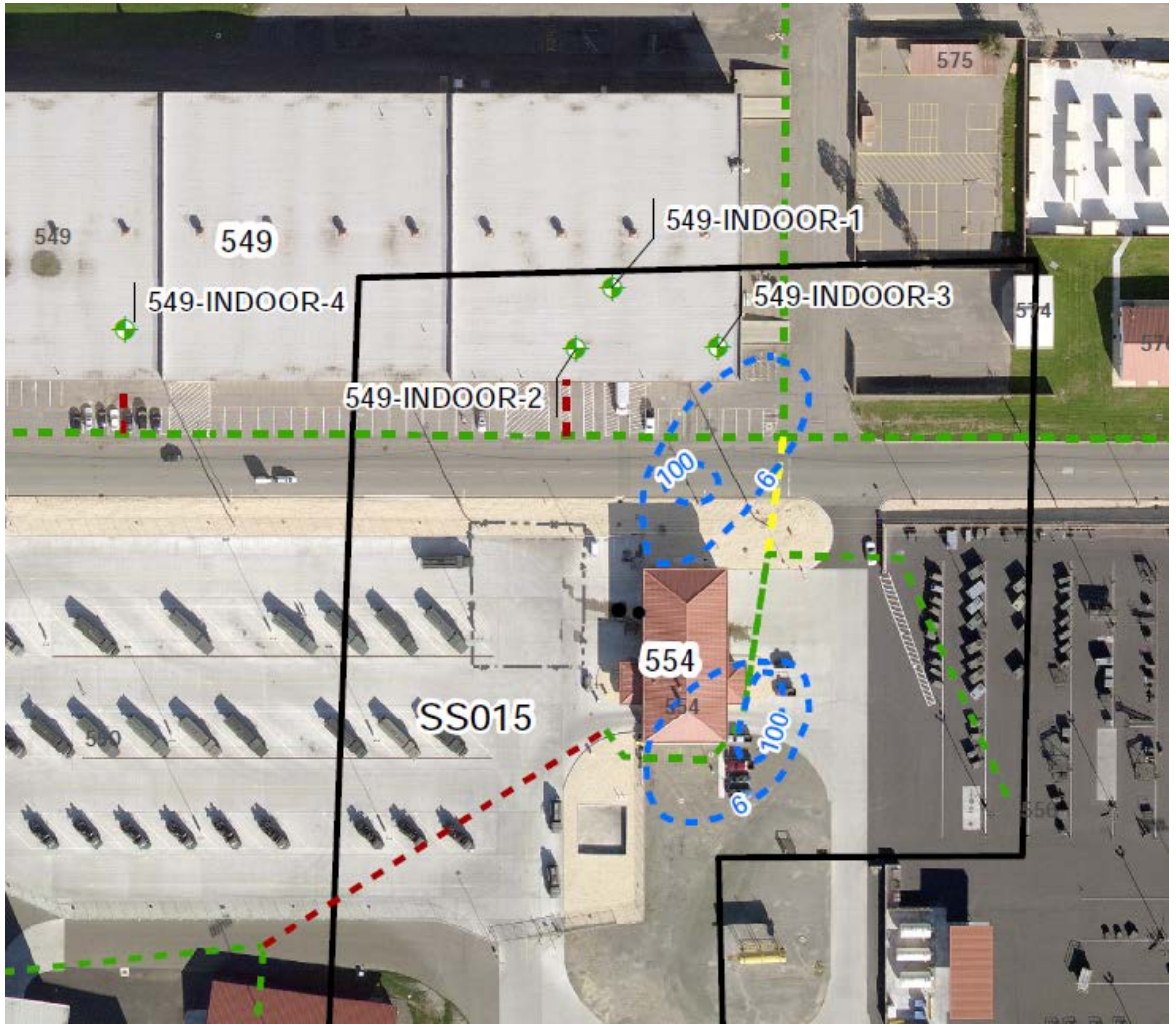
Sampling at Building 549

- To address agency comments provided on the WP, indoor and outdoor air samples will be collected at Bldg 549
- Building 549 is on the periphery of the Site SS015 groundwater plume
- Warehouse with a 7 ft thick foundation
- Sanitary sewer line that passes through the Site SS015 plume and has laterals that enter the building has been identified as a potential preferential pathway
- Indoor air samples will target areas closest to the plume and where the sanitary sewer laterals enter the building

Sampling at Building 549

- Sampling will be performed in winter 2021 and spring 2021
- Four (4) indoor air samples collected over an 8-hr period
- 2 outdoor air samples will be collected concurrent with indoor air
  - One upwind and one downwind of building

Building 549 Indoor Air Sample Locations



LEGEND

- GROUNDWATER MONITORING WELL
- PROPOSED INDOOR AIR SAMPLING LOCATION
- APPROXIMATE 2018 CIS-1,2-DCE ISOCONCENTRATION CONTOURS (µG/L)
- ERP SITE BOUNDARY

Sanitary Serwe Line Condition

- Good
- Moderate Defects Present
- Significant Defects Present

Expanded Indoor/Outdoor Air Sampling

- Expanded sample collection at buildings 38, 554, and 837
- Will allow for indoor air samples to be paired with subslab sampling locations
- Adds 1 more sampling event for these 3 buildings (spring 2021)
- Adds 1 more outdoor air sample per building (one upwind and one downwind outdoor air sample)

Summary of the Winter 2021 Sample Collection

Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Exterior Soil Gas Sampling locations	Subslab Vapor Probe Sampling Locations	Passive Vent Layer Sampling Locations	Radon Tracer Test?
38	8	2	1	4	2	Yes
549	4	2	1	0	NA	No
554	5	2	1	4	4	Yes
837	7	2	1	4	5	Yes

Summary of the Spring 2021 Sample Collection

Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Subslab Vapor Probe Sampling Locations
38	4	2	4
549	4	2	0
554	4	2	4
837	4	2	4

Data Evaluation

- Use multiple lines of evidence (indoor air, outdoor air, subslab vapor, passive vent layer vapor, exterior soil gas data) to evaluate:
  - whether VI pathway is complete
  - whether indoor air concentrations exceed RBCs
  - performance of passive vent systems
  - attenuation factors
- Cumulative cancer risk and noncancer hazard estimates will be calculated

Schedule

- Field Schedule
  - Winter 2021 event- January 2021
  - Spring 2021 event- May 2021
- Report Schedule
  - Summer 2020 and Winter 2021 Data Summary TM: draft May 2021
  - Vapor Intrusion Assessment Report (includes data from all 3 events): draft August 2021

Questions?